Section 6 Repor	t Review
Attachment to letter dated 1 October 2	2002
Project:Status Update on Tobusch Fishhook C	actus
Final or interim report? Final (revised) Job #: WER 22 (67) Reviewer's Station: Austin Lead station was contacted and concurs with th Yes Yes No Not applicable (reviewer in the state) Yes	
Interim Report	Final Report
is acceptable as is	X is acceptable as is
is acceptable as is, but the comments below need to be addressed in the next report	is acceptable, but needs minor revision (see comments below)
needs revision (see comments below)	needs major revision (see comments below)

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Comments:

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FINAL REPORT

As Required By

THE ENDANGERED SPECIES PROGRAM

TEXAS

Grant No. E-1-11

Endangered and Threatened Species Conservation

Project WER22(67): Status Update of Tobusch Fishhook Cactus (Ancistrocactus tobuschii)

Prepared by: Jackie M. Poole and Gena K. Janssen



John Herron Chief, Wildlife Diversity Branch Robert L. Cook Executive Director

April 30, 2002

FINAL REPORT

State: Texas	Grant Number: E-1-11
Program Title:	Endangered and Threatened Species Conservation
Period Covered: _	September, 1997 through August, 1999
Project Number :	WER 22 (67)
Project Title:	Status Update of Tobusch Fishhook Cactus
	(Ancistrocactus tobuschii)

Project Objectives:

- 1. To determine the distribution, demography, preferred habitat, and health of Tobusch fishhook cactus.
- 2. To establish a positive relationship with landowners.
- 3. To facilitate public education concerning this species.

Prepared by: Jackie M. Poole and Gena K. Janssen

Date: April 19, 2002

Approved by:

Neil E. Carter Federal Aid Coordinator Date: May 31, 2002

STATUS UPDATE ON TOBUSCH FISHHOOK CACTUS

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INTRODUCTION: Tobusch fishhook cactus occurs in Bandera, Edwards, Kerr, Kimble, Kinney, Real, Uvalde, and Val Verde Counties, and is endemic to the southwestern part of the Edwards Plateau (Figure 1). The species occurs either as single individuals or in small scattered populations. However a few large concentrations exist. The cactus grows on thin, rocky soils underlain by fractured limestone, sometimes in association with spikemoss, usually in openings within live oak-juniper woodlands. Occasionally it is found within pinyon pine-oak woodlands, cenizo shrublands, or little bluestem grasslands. It usually occurs on level to gently sloping hills, ridgetops, or floodplain terraces of no particular aspect. Climate, in particular droughts and floods, along with fire have shaped the habitat of Tobusch fishhook cactus.

The species is a small, low-growing cylindrical cactus with one hooked central spine. In the early spring clusters of yellow flowers are produced at the top of the stem. Potential pollinators include butterflies, beetles, and bees (both native and introduced). Fruits ripen by late spring, and are swarmed by small ants that disperse the seeds. Germination is low in cultivation (1-65%), and apparently low in nature as few seedlings are observed. Growth rate averages several millimeters per year although abnormally wet years or drought can dramatically alter the rate. Plants reach reproductive age at about 2 cm. Average number of flowers per plant is between two and three, with larger plants producing more flowers. The largest plants known are over 10 cm in cross-section. Although age cannot easily be deduced from growth due to climatic fluctuations, plants are thought to live to 10 years or more.

Several populations of Tobusch fishhook cactus have been monitored for almost a decade. All populations within state parks and wildlife management areas are being monitored annually. Such intensive monitoring has revealed various life history components such as pollination syndrome, phenology, dispersal mechanisms, individual and population growth rate, life expectancy, causes of mortality (including massive destruction from insect predation), herbivory, and population structure. A current research project using monitoring in conjunction with experimental treatments is hoped to determine the effects of various common land management practices on the cactus.

In the past Tobusch fishhook cactus has been confused with a closely related species, *Ancistrocactus brevihamatus*. The ranges of the two species overlap in Val Verde and Kinney counties. The most reliable way to distinguish the species is flower color (yellow in Tobusch fishhook cactus; various shades of pink in *A*.

brevihamatus). However spine number and diameter are somewhat helpful as is habitat. Several taxonomists such as A. D. Zimmerman, B. Parfitt, and A. M. Powell consider Tobusch fishhook cactus to be a variety of *A. brevihamatus*, while others including E. F. Anderson, N. P. Taylor, and D. R. Hunt think that both species should be placed in the genus *Sclerocactus*.

Although threats from collection were significant in the past, collection is not currently perceived to be a grave threat. Herbivory is an occasional, usually highly localized, problem, but not of much overall importance. Trampling, whether by domestic livestock or other animals as well as humans, is inconsequential. Insect predation has become a major concern in at least one population, reducing it from the largest known to one of the smallest in a matter of a few years. Habitat alteration and destruction are still considered a prime threat, although the imminence and the overall effects are not totally clear.

When the original status report for Tobusch fishhook cactus (Ancistrocactus tobuschii) was written, the species was thought to occur primarily on gravel bars or limestone ledges along floodplains or stream terraces in two counties on the Edwards Plateau of central Texas (Weniger 1979). Thus it was subject to threat from the inevitable flooding that shapes the Edwards Plateau. In fact it was such a flood in August 1978 that destroyed two of four known populations of Tobusch fishhook cactus, and led to the listing (USFWS 1979). Although a few more populations had been found by the time of the recovery plan (USFWS 1987), the species was still considered to be quite rare. However by the early 1990s many new locations had been discovered, and the species was known from eight counties. Most sites were no longer in the floodplain, but found from lower slopes. to ridge tops. Also several of the new sites were on state parks and wildlife management areas. In addition, the perceived impediment to various land use practices due to endangered species' presence led to a clamor to delist Tobusch fishhook cactus. Before such action was taken, it was determined that an updated status report should be conducted.

METHODS: Because Tobusch fishhook cactus inhabits several different soil types and geologic formations as well as a number of distinct plant communities, it was not efficient to identify survey sites from aerial photography, soil surveys, or geologic maps. An unfortunate but practical way to select sites in a private land state such as Texas is to deal only with landowners that will permit access to their lands. Working from historical and known locations with the help of local Texas Parks and Wildlife (TPW) wildlife biologists and park staff, Natural Resources Conservation Services (NRCS) personnel, The Nature Conservancy (TNC), and others, numerous landowners were identified that could potentially have Tobusch fishhook cactus on their property. Also public lands such as highway rights-of-way, parks, and wildlife management areas were surveyed if the habitat seemed suitable. Because the area of potential habitat was so large (eight counties with known sites plus several counties to the north that appeared to have suitable habitat), a workshop was held to train personnel from various agencies, consulting firms, and conservation groups in the identification of Tobusch fishhook cactus and its habitat.

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Once a site was identified and the landowner contacted, a site visit was made with landowner permission. Usually this consisted of driving at a very slow rate of speed (less than 5 mph) along all ranch roads, looking for Tobusch fishhook cactus and potential habitat. Random meander surveys were made in sites of potential habitat and/or those with Tobusch fishhook cactus. Occasionally landowners had already found sites. Once at an occupied site, information on habitat (soils, geology, plant community, slope, aspect, associated species, etc.) and demography (reproductive status, number of individuals, mortalities, etc.) were recorded. Due to time constraints thorough surveys of a population's extent were not conducted. The focus of the study was presence/absence to determine the frequency of Tobusch fishhook cactus throughout its range.

In order to more precisely determine the population trends in Tobusch fishhook cactus throughout its range, monitoring plots were established in each county of the distribution. The sites were primarily placed on publicly owned land; however due to the lack of occupied public land in some counties, two plots were placed on private lands. Three of the plots had been previously monitored (Emmett 1995; Poole and Janssen 1994). Most of the other plots were established in 1996, and were run continuously through 1999. However new plots were also added for new plants or populations found within the same land ownership. Monitoring protocols consisted of marking the plot with a rebar stake, mapping or GPSing its location, and then measuring a distance and bearing from the stake to each tagged individual. Monitoring plots are conceptually circular, but vary in size primarily due to vegetation. None have a radius of more than 100 m. Data was recorded during both flowering and fruiting season. In addition to counting the number of flowers and fruits, stem cross-section was taken during the flowering visit (or during the fruiting season if a new plant was found). Stem cross-section was done using digital calipers, measuring from tubercle tip to tubercle tip in two directions, usually perpendicular to each other. In some cases where this was not possible (for example, plants lodged in rock crevices), only one measurement was taken, and this was recorded on the data sheets. Additional notes were taken on plant condition, including stem color, overall vigor, causes of mortality. date of discovery, floral visitors, herbivory, and other miscellaneous comments. When plants could not be relocated, they were logged as missing. If they could not be refound in three years, they were assumed to be dead. As new plants of any size were found within the plot, they were added to the monitoring data sheets.

RESULTS: A workshop was held on February 20, 1996 at the South Llano River State Park/Walter Buck Wildlife Management Area outside Junction in Kimble County. Over forty people were in attendance, and represented the following groups (numbers in parentheses indicate number of individuals from each group): TPW (17), Texas Department of Transportation (8), NRCS (6), Texas Agricultural Extension Service (3), National Park Service (2), TNC (2), USFWS (1), Texas Forest Service (1), Southwest Texas State University (1), and Texas Department of Agriculture (1). A packet was given to all attendees that included a distribution map, an information sheet on Tobusch fishhook cactus, a summary of the endangered plant laws, a line drawing of Tobusch fishhook cactus with important features and terms indicated, photographs of both Tobusch fishhook cactus and the closely related and very similar Ancistrocactus brevihamatus, line drawings of the spines of both species, an article on Tobusch fishhook cactus from the Texas Organization for Endangered Species newsletter, a table comparing the morphology of the two species, and an informal survey sheet to report new locations. During the morning of the workshop, Tobusch fishhook cactus identification and habitat were covered. Several live plants of both Tobusch fishhook cactus and A. brevihamatus were available for observation. In the afternoon, the participants helped survey a site on the Buck Wildlife Management Area. Although few plants were found at that site, known populations on the Buck WMA were visited to familiarize the attendees with the plant in its habitat. Although only five informal surveys were returned and these resulted in no new locations or landowners that would allow access, two of the workshop participants located populations on properties under their ownership or management. Both of these sites became monitoring plots. Another benefit from the workshop was the identification of key contacts within the species' range. These biologists were invaluable in identifying potential habitat and willing landowners. Over 50 landowners were contacted, and 36 permitted surveys. A few (5) would not allow the information to be entered into the TPW Biological Conservation Database, but 14 new populations were entered into the database with signed landowner permission.

The status report cited Tobusch fishhook cactus as occurring only in Bandera and Kerr Counties (Weniger 1979). By the time the recovery plan was published, the populations in Kerr and northern Bandera Counties could not be relocated. but new or additional sites had been found in Bandera, Kimble, Real, and Uvalde Counties (USFWS 1987). As of August 1999, populations were known from Bandera, Edwards, Kerr, Kimble, Kinney, Real, Uvalde, and Val Verde Counties. Over 100 sites have been mapped within the TPW Biological Conservation database. Of these 80 were surveyed during the course of this study. Twenty-two sites were not visited, primarily due to access problems. These sites may still have extant populations, as all had been seen sometime between 1970 and 1991 (except the population at the type locality reported as extirpated by Weniger and not relocated by Keeney) (Weniger 1979; USFWS 1987). At seven sites where Tobusch fishhook cactus had been reported, no plants could be found after hours of searching. However the habitat was still intact, and could be recolonized in the future. The same is true of seven sites where tracked individuals of Tobusch fishhook cactus died or were removed (with USFWS concurrence). One site reported in the literature (Wauer 1973) as being in Big Bend National Park was a misidentification of a new species of Ancistrocactus closely related to A. tobuschii. Four sites on the western edge of Tobusch fishhook cactus' range turned out to be misidentifications of Ancistrocactus brevihamatus. One site in this same area had two individuals that appeared to be hybrids between A. tobuschii and A. brevihamatus, but the only other Ancistrocactus found was brevihamatus. One site was so vague as to be unrelocatable, although the location may fall within the range of other known populations. Using the TNC

convention of combining populations within 0.5 mile into one site, 21 mapped locations within the database were combined into five.

During this project, a total of 56 properties were visited. Nineteen were public land sites (highway rights-of-way, state parks and wildlife management areas). The rest were private. Over half (29) had Tobusch fishhook cactus. Several of the properties had multiple populations. As of August 1999 53 populations containing approximately 2000 plants had been verified during the course of the study. Over half of these populations (29) are probably not viable as they contained only one to ten plants. Although more intensive searches of these sites could possibly turn up more plants, usually the plants in such small populations eventually die, leaving no trace that the area was ever occupied. Only four populations, all being monitored, have more than 100 plants. The largest has just over 500 plants. While this may seem viable, the largest known population (over 1100 individuals in 1994) is now comprised of only 24 plants, primarily due to insect herbivory. The other 20 populations have between 11 and 100 individuals. In order to deter vandalism or collection and to maintain landowner privacy, populations are shown only by presence/absence at a 7.5' USGS topographic quadrant scale (Figure 2).

Ten monitoring sites were established within all counties of the known range of Tobusch fishhook cactus. All but two sites are on public land. Most sites contain multiple monitoring plots. A total of 1363 plants were being monitored as of 1999. Plots contain from one individual to several hundred. Appendix I provides the results of the monitoring as site by site annual summaries. Appendix II contains the individual plant data for all years by site.

Four years' worth of data is usually not enough to detect any trends. Confounding the situation was the discovery of new, previously unseen plants in the plots. These were usually not seedlings, but plants of some size, often reproductive. Tobusch fishhook cactus seedlings are extremely small (0.3 mm or less) and almost impossible to detect. Thus it was difficult to determine the annual recruitment to the plots. Also plants sometimes disappeared, only to reappear during the next monitoring session. Small Tobusch fishhook cacti are capable of pulling into the soil, gravel, litter, or spikemoss during dry periods. When conditions are more favorable, they re-emerge. New plants, refound missing plants, and the contributions from new plots within monitoring sites were recorded separately. However all were added into the yearly total of live plants. Missing plants were recorded as were dead plants. Causes of mortality were determined although this was often difficult as plants were often just hollow shells or clusters of spines on the soil surface. However several insects (Gerstaeckaria sp. nov., Moneilema armata, and an unidentified fly larvae) were found within the stems of many cacti. Although Emmett (1995) identified the Gerstaeckaria as nobilis, collections sent to a weevil taxonomist were identified as a new species. Soil disturbance (armadillo, feral hog, and other animal rooting), herbivory, trampling (either by researchers or other animals), and fungal infections also killed plants occasionally. A few plants, either dead or dying, were removed, with the proper permits, for a study on the Gerstaeckaria weevils. However most

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causes of mortality were unknown (see Appendix I).

Despite the brevity of the monitoring component of the project, a few trends were evident. The Devil's River State Natural Area and the Devil's Sinkhole State Natural Area sites have experienced high mortality (>50%), and the populations are declining, that is the amount of mortality exceeds the number of new plants found in the plots. However the addition of new plots does superficially increase the total live count, but does not represent recruitment for the site. The other sites have 20% mortality or less, and during most years, the number of new plants exceeds mortality losses. Some sites such as Lost Maples State Natural Area and the private preserve in Kerr County have less than 10% mortality (see Appendix I).

DISCUSSION: Compared to the habitat description of Weniger (1979), much has been uncovered concerning the habitat of Tobusch fishhook cactus. Originally the cactus was thought to occupy gravel bars and limestone ledges along floodplains or stream terraces (Weniger 1979). Such sites now are considered a minor habitat type. The listing brought the previously unknown species to the attention of consultants, habitat managers, and biologists. With more intensive surveying, many additional populations were found, particularly in upland areas (Bryan 1989, Carr 1992, Chevalier 1993, Clayton 1991, Lockwood 1995, Poole 1987, Poole 1989, Poole 1995). Edaphically the habitat consists of discontinuous patches of very shallow, moderately alkaline, rocky loams or clays (primarily of the Tarrant, Ector, or Eckrant series) over massive, fractured limestone bedrock (usually the Edwards formation or an equivalent formation). Typically the sites are on level to slightly sloping hills or ridge tops of no particular aspect. Occasionally plants will be found on steeper slopes, but on level to gently sloping microsites. The sites are usually open, in full sunlight, with a thin herbaceous cover of grasses and other herbaceous species, but within a matrix of woodland or savannah. This surrounding community is primarily the live oak-juniper woodland community, although pinyon pine-oak is found in the western part of the range, and the species is occasionally found in little bluestem grasslands or ceniza shrublands. The plants regularly grow in a thin layer of soil, gravel, rock crack, or spikemoss. An intensive study of the habitat of Tobusch fishhook cactus was conducted on the Buck Wildlife Management Area in Kimble County (Sutton et al. 1997). However associated species vary across the range sufficiently to render the study of limited use except in the Kimble County area.

Tobusch fishhook cactus habitat is naturally maintained by the harsh conditions in its microenvironment and periodic disturbances. The very shallow soils over limestone bedrock are extremely drought-prone, giving small stem-succulents a competitive advantage. In floodplain habitats, the periodic disturbance of flooding keeps the sites open and free of taller vegetation. In upland areas, long-term stochastic events such as fire discourage woody species and maintain a patchy, open habitat. Drought affects the plants primarily by reducing reproductive output. During periods of limited precipitation, the average number of flowers produced per plant decreases (Lockwood 1995). Drought also affects fruit production as well. Only anecdotal information is available concerning the effect of floods on Tobusch fishhook cactus. The population at the type location was reported to have been destroyed in the catastrophic 1978 flood. However other populations have maintained themselves within infrequently flooded sites (for example the population at Lost Maples State Natural Area). The effect of fire on Tobusch fishhook cactus is still not entirely clear. Other small cactus species are reported to be susceptible to fire (Benson 1982; Bunting et al. 1980). Several fires, primarily controlled burns, have occurred within populations of Tobusch fishhook cacti (Bryan 1989; Roy Heideman, pers. comm. 1996; Bill Armstrong, pers. comm. 1997). While it appeared that individual plants suffered little mortality (probably less than 5%), no baseline data was available to corroborate the observation. Additionally at Lost Maples it was noted that many flowers were burned or desiccated by the fire and aborted. Even the infrequent loss or lessening of reproductive output is significant in a species with seemingly low fecundity and establishment. Preliminary experimental work at the Buck Wildlife Management Area on the effects of common range management practices (burning, grazing, juniper cutting) on Tobusch fishhook cactus suggests that these practices have little effect on the species (Baccus 1999). However small sample size and the lack of a separate burn treatment may limit the application of the conclusions from this study.

Tobusch fishhook cactus has a slow rate of growth, relatively long generation times, limited distance dispersal, and a non-substantial soil seed bank (Emmett 1995). Under normal field conditions Tobusch fishhook cactus can grow at a rate of about one to several millimeters per year (Emmett 1995). However years of heavy rainfall cause increases of one centimeter or more, often in a relatively short time period. Cacti store water in their stems, and often swell dramatically after intense rainfall events. Likewise in times of drought, plants may shrink in size. Long-term monitoring data on stem cross-section needs to be correlated with precipitation records to determine a more refined growth rate for the species. Longevity estimates derived from previous growth rate estimates should thus be taken cautiously. Observations of individual plants indicate that plants can live 10 years or longer. In general plants become reproductive at about 2 cm. The largest recorded plants are over 10 cm in cross-section. Larger plants produce more flowers, but most populations have few individuals over 5 cm with most individuals being between 1 and 5 cm. While most mortality probably occurs during seedling establishment, per capita mortality is high among larger individuals. An average of two to three flowers are produced per plant, and flowers can remain viable for up to one week, opening and closing each day. In large populations (>100 plants) about one-half to two-thirds of the plants are usually reproductive in average years. Flowering begins as early as late January in the southernmost part of the range, and as late as mid-March in the northernmost part. Usually within a given geographic locale, flowering lasts about two to three weeks. Although pollinators have not been identified, honey bees (Apis mellifera), several species of halictid bees (Dialictus comulus, D. pruinosiformis, Lasioglossum morrilli, Osmia subfaciata, and Agapostemon sp.), sulphur butterflies (Eurema nicippe), and spotted cucumber beetles (Diabrotica undecimpunctata) have been observed as floral visitors (Emmett 1995; Lockwood 1995). Tobusch fishhook cactus is an obligate outcrosser. Fruits ripen

within about 8 to 10 weeks of anthesis. Fruit set is between 50 and 70%, with 30-60 seeds produced per fruit (Emmett 1995). The fruits split open when ripe, and are swarmed by small ants (Forelius foetidus) that transport seeds and pulp to their nest (Emmett 1995). These ants may be responsible for as much as 85% of seed dispersal (Emmett 1995). Most of the remainder of the seeds are dispersed by rain or gravity, with a very small percentage moved by birds or small mammals. Tobusch fishhook cactus does not maintain a substantial persistent soil seed bank, and thus is dependent on annual seed production (Emmett 1995). Seed germination experiments have produced mixed results, with germination percentages ranging from 1-65% (Emmett 1995). While uncommon, vegetative reproduction does occur, usually when the apical meristem is damaged. Annual mortality rate varies among sites, and has been recorded from 0 to almost 70%. Any mortality rate greater than the number of new plants found within a monitoring site should be cause for concern. Although some plants appear healthy (stems green, firm, and plump; average flower and fruit production for plant size; new straw-colored spine growth), only a pile of spines will be left by the next year. More often however plants turn various shades of red and/or yellow, become soft, and produce fewer or no reproductive structures. Often the spines are gray although this is also part of the normal aging process. Plants also turn purplish or maroonish although this seems to be related more to cold weather or drought stress, and is usually overcome. Most of the causes of mortality are unknown. Sometimes the stems are hard, dry, and corky inside. Other times the stems are completely hollow with no evidence of insect infestation. There have been a few instances of death from trampling either by humans or by domestic livestock or other animals. Isolated incidents of herbivory have been devastating to small subsets of a population, but in general are not a major cause of mortality. Probably the most significant identified cause of mortality is from insects, specifically the weevil Gerstaeckaria sp. nov., the longhorn beetle Moneilema armata, and an unidentified fly larva. All lay their eggs within the stem or root of the cactus, and the developing larvae eat the stem tissue. As the weevils are smaller, there are often several per stem, leaving small galleries and exit holes behind in the decimated stem. Only one longhorn beetle larva per stem has been found to date, as the larva are about the same diameter as the stem. In the case of the fly larvae, the stem tissue dissolves into a red to orange, foul-smelling liquid. At Devil's Sinkhole State Natural Area, the weevils are thought to be the primary cause of the population's drastic decline from over 1100 individuals in 1994 to less than 25 in 1999. A new study has been initiated on the weevil to determine more about its life cycle, food and host preferences, and its overall effect on Tobusch fishhook cactus.

Although there is probably enough information to calculate a minimum viable population estimate for Tobusch fishhook cactus, none has been determined to date. However from field observations it appears that populations of 10 individuals or less are not viable. Unfortunately over half of the recently verified populations are of this size. Populations with close to 100 individuals or more seem to be stable, but the decimation of the Devil's Sinkhole population makes no current population seem safe.

any reports of Tobus

In the 1990s many reports of Tobusch fishhook cactus started turning up, particularly in the western part of its range. Upon careful examination many of these specimens turned out to be a very closely related species, Ancistrocactus brevihamatus. Aside from the fact that the two species look very similar, A. brevihamatus was not recognized in the widely use Texas flora, The Manual of the Vascular Plants of Texas (Correll and Johnston 1970). Lyman Benson, the author of the cactus treatment in The Manual and author of The Cacti of the United States and Canada (Benson 1982), considered A. brevihamatus to be a synonym of the common south Texas species, A. scheeri. However the two species only bear a slight resemblance to one another. In his book Cacti of Texas and Neighboring States, Weniger (1984) recognized A. brevihamatus. The primary difference between A. brevihamatus and A. tobuschii is flower color. The flowers of A. brevihamatus are dusky rose to greenish or yellowish pink. The flowers of A. tobuschii however are bright, clear yellow or rarely a bright spring greenish yellow. There are other differences such as the number of radial spines (A. brevihamatus usually has 12 -22 and A. tobuschii usually 7-12), but there can be overlap in characteristic numbers even on the same plant of either species. Spine diameter may turn out to be a valid character as spines of A. tobuschii appear more delicate than those of A. brevihamatus. However a detailed spine characterization needs to be carried out in concert with flower color. Another somewhat less reliable distinguishing character is habitat. In general Tobusch fishhook cactus occurs in plant communities associated with the Edwards Plateau such as live oak-juniper woodland while A. brevihamatus is found in associations more typical of the South Texas Plains such as cenizo shrublands.

Collection has been a problem in the past. Shortly after the Recovery Plan was published and made available to the public, one of the populations cited in the plan lost most of the plants to collection. Although the exact location was not published, enough information was given for an avid collector to determine the location of the site. No other incidents are known to have occurred since then. The species is rarely seen in cultivation as it is somewhat difficult to grow and not one of the most showy and attractive species. It is available through a few, legally permitted growers.

CONCLUSION: The range and number of populations of Tobusch fishhook cactus have greatly expanded since the listing and publication of the Recovery Plan. The habitat profile has likewise been augmented with additional topographic, edaphic, and plant community types. Many more people are aware of the existence of this species on the Edwards Plateau, and are knowledgeable as to its identity and where it grows. Much has been learned concerning the life history and demographics of the species as well as the threats to its continued survival. However many of the populations do not appear to be viable, and the long-term impacts of insect predation and controlled winter burns have not yet been determined. The continued survival of this species will be dependent on the clarification of these issues as well as others.

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APPENDIX I

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Annual Monitoring Totals for Tobusch fishhook cactus by site

Devils River SNA, Val Verde County	1996	1997	1998	1999				
Total Live		16	8	6				
Total New		5	1	1				
Total New Stake		0	4	19				
Total Refound MIA		0	0	0				
Total Live at end of year	8	21	13	26				
Total MIA		7	5	1				
Total Dead		4	7	6				
COD* - weevils		0	5	3				
COD* - hollow		0	0	3				
COD* - soil disturbance		0	1	0				
COD* - unknown		4	2	0				
COD* - fly larvae	······	Ō	0	0				
COD* - Moneilma		0	0	0				
Total mia, dead, not A. tobu	schil	11	12	7				· ·
Garner State Park, Uvalde County	1996	1997	1998	1999				
Total Live	Plots establis	ned in	2	1				
Total New	1998			0				
Total Live at end of year			2	1	······································			
Total MIA				0				
Total Dead				1				
COD* - weevils				1				
COD* - hollow				0				
COD* - soil disturbance				0				
COD* - unknown				0				
Total mia, dead, not A. tobu	schii			1				
Private preserve, Kerr County	1996	1997	1998	1999				
Total Live		94	96	100				
Total New		10	12	11			·	
Total Live at end of year	96	104	108	111				
Total MIA		1	5	1				
Total Dead		1	3	7				
COD* - weevils		ō	0	Ö			1	
COD* - hollow	ł	0	0	0		1		
COD* - soil disturbance	. 4	0	0	0				

	COD* - collected for weevil study		0	0	0				
	COD* - fly larvae		1	1	0				· · ·
	COD* - unknown		ō	2	7				
	Total mia, dead, not A. tobuschii		1	8	8				
Private p	property, Real County	1996	1997	1998	1999		· · · ·		
	Total Live	52		51	62				· · · ·
	Total New		40 24	23	7				
	Total Refound MIA		0	0	0				
	Total Live	52	64	74	69	·			
	Total MIA		2	ō	4				
	Total Dead		10	13	8				
	COD* - weevils		1	4	1				
	COD* - Moneilema		2	1	0				
	COD* - hollow		0	0	0				
	COD* - soil disturbance		0	0	2				
	COD* - collected for weevil study		0	0	0				
	COD* - unknown		2	8	5				
	COD* - trampling		1	0	0		- • ···		
	COD* - fly larvae		4	0	0				
	Total mia, dead, not A. tobuschii		12	13	12				
Devil's	Sinkhole SNA	1996	1997	1998	1999				
	Total Live	71	15	34	17	• • • • • • • • • • • • • • • • • • • •			
	Total New	· · ·							
	Total New Stake		76		2	· · · · · · · · · · · · · · · · · · ·			
	Total Refound MIA		0		1				- ·
	Total Live at end of year	71	91	34	24	······			
	Total MIA		10	10	3				
	Total Dead		31	48	14				
	COD* - weevils		5	16	4				
	COD* - hollow		0	3	2		·	· · - ·	
	COD* - soil disturbance		ŏ	3	ō				•
	COD* - unknown		26	25	7				
-	COD* - herbivory		0	1	1		Ì		
· •	Total mia, dead, not A. tobuschii		31	58	17				1
-			1	~~	••				

Pole Hollow, Kimble County	1995	1996	1997	1998	1999				
Total Live	10	8	12	24	26	1			
Total New		8	12	2	4				
Total Live at end of year	10	16	24	26	30				
Total MIA		0	1	Ō	0				
Total Dead		2	3	0	0				
COD* - weevils		0	0	0	0				
COD* - collected for weevil study		0	0	Ō	0				
COD* - Moneilema		0	0	0	ō				
COD* - root rot	1	0	Ō	Ō	0				
COD* - hollow		0	0	0	0				
COD* - soil disturbance		0	0	0	0				
COD* - unknown	· · · ·	2	3	0	0				
Total mia, dead, not A. tobusch	1	2	4	0	0				
						· ·			
Kerr WMA, Kerr County	1996	1997	1998	1999					
Total Live	Plot establis	shed in 1999.		29					
Total New Plot									
Total New									
Total Live at end of year				29					
Total MIA									
Total removed for weevil study									
Total Dead	1								
COD* - weevils			[
COD* - hollow									
COD* - soil disturbance									
COD* - unknown									
Total mia, dead, not A. tobusch	ii								
Junction, Kimble County	1995	1996	1997	1998	1999				
Total Live	34	23	42	86	86				
Total New		31	45	9	37		,		
Total New Stake		5	25	0	Ō				
Total Refound MIA		Ō	0	0	1				
Total Live at end of year	34	59	112	95	124				
Not A. tobuschii		0	0	0	0			Ī	
Total MIA		1	0	4	2				

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Total Dead	:	10	17	22	7				
COD* - weevils		0	1	6	2				
COD* - Moneilema		0	õ	0	0				
COD* - fungus		0	0	0	0				
COD* - root rot		Ō	0	ō	0				
COD* - collected for weevil study		0	0	0	0				
COD* - herbivory		1	0	õ	0				
COD* - hollow	:	Ō	Ö	0	0				-
COD* - soil disturbance		0	0	ō	Ō				Į –
COD* - unknown		9	16	16	5				
Total mia, dead, not A. tobuschi	1	11	17	26	9		· · · · · · · · · · ·		
	_						1		
Lost Maples SNA, Bandera/Real Cos.	1996	1997	1998	1999					
Total Live	357	389	476	479					
Total New		116	45 2	22	s.,	· · ·			[
Total Refound MIA		Ō	2	1					
Total Live at end of year	357	505	523	502					
Total MIA		8	11	21					
Total Dead		6	21	18					
Total Removed		0	0	5				1	
COD* - insect larvae		Ō	0	2					
COD* - hollow		Ō	Ō	ō]	- · ·	1
COD* - soil disturbance		Ō	0	0			1		1
COD* - unknown		6	16	14					1
COD* - herbivory		Ō	0	ō			† · · · · ·	- ·- · ·	
COD* - fungus		0	5	1					
COD* - rot		Ō	0	ō					
COD* - trampling		0	Ō	0			1	· ···-· ··	1
COD* - fly larvae		0	0	0				Ī	
COD* - Moneilema		0	Õ	ō					
Total mia, dead, removed		14	32	44					
			··· · · · ·						
Kickapoo Caverns SP, Kinney/Edwards Co	os. 1993	1994	1995	1996	1997	1998			
Total Live	115	104	84	87	147	205			
Total New			12	14	85	25	148	8	
Total New Plot			. 1	65 5	ō	. 3	102	2	
Total Refound MIA]	,	5	1	0	4	<u> </u>	

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Total Live at end of year	115	104	96	171	233	233	454		
Total MIA		0	17	3	8	11	8		
Total Dead		11	3	6	17	17	24		
COD* - weevils		4	0	3	7	5	16		
COD* - Moneilema		1	0	0	0	0	0		
COD* - researcher		0	1	0	0	0	0		
COD* - fly larvae		0	0	0	0	0	0		
COD* - soil disturbance		0	0	0	0	0	0		
COD* - unknown		6	2	3	10	10	8		
Total mia, dead, removed		11	20	9	25	28	32		
Hwy 674 right-of-way, Kinney Co.	1992	1993	1994	1995	1996	1997	1998	1999	
Total Live	2	2	2	1	1	1	3	3	
Total New		0	0	0	0	2	0	8	
Total Refound MIA		0	0	0	0	0	0	0	
Total Live at end of year	2	2	2	1	1	3	3	11	
Total MIA		0	0	0	0	0	0	0	
Total Dead		0	0	1	0	0	0	0	
COD* - unknown				1	0	0	0	0	
Total mia, dead, removed		0	0	1	0	0	0	0	· _
· · · · · · _					- · · · · · · · · · · · · · · · · · · ·				
COD = cause of death							· · ·		
MIA = missing									

APPENDIX II

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				96DM								98FR			99FR	NOTES
Stake	1 is first	utility po	le on left	t side of i	road afte	er turn, -	- 0.1 mi	from cre	ossroad	to radio	towers	; GPS Ar	nc tob 1	, GPS at	plants; a	Il distances measured over shrubs
1.00	1	42.80) 21	2.20	1	2	4.40	4	3+1A	Dead	Dead	Dead				seedling at base 4/97; COD unknown, not hollow, tag removed, seedling also dead 2/98
1.01		43.70) 20	3.10		0	3.60	0	C	3:30	0	Dead				discovered 5/96; dead, roots damaged by hole digging 5/98
1.02	1	45.50	0 20	4.80		3	5.90	4	5	6.20	3	2+1A	5.77	0	(discovered 5/96; OK, spines gray, yellow tubercle tip 2/98; OK, a few tan & orange tubercle tips 2/99 & 4/99; green with a few tan and orange tubercle tips, good 2/00 & 4/00; green, good 2 & 4/01
103		42.90) 20	2:60		0	3.60			3.10 3.10		0	2.63	C	Deac	J discovered 5/96; poor, spines gray, body yellow 2/98; OK, body green 2/99; dead, hollow, larva & metamorphosized weevils collected, dead 4/99
1.04	• 1	44.00	21	2.30		0	2.80	C)) - 2.20	0	Dead				discovered 5/96; tag uprooted, replaced 4/97; hollow, but no exit holes; weevils?, dead 4/98
1.05		43.70	21	2.30		0	3.30	C)) 2:90	0	0	Dead			discovered 5/96; poor, spines gray, s body yellow 2/98; hollow, dead 2/99
1.06	1	43.7	0 21	2.70		0	3.60	2		3 2.80	0	0	Dead			discovered 5/96; poor, spines gray, body yellow 2/98; hollow, dead 2/99
1.07		44.1(0 22	3.30		- 2	3.50		3 . 4	1 3.10	0	Dead				discovered 5/96; dead, hollow with exit holes, death by weevils 5/98
1.08	1	43.5	0 20	0.40		0	mia			mia	8		mia			discovered 5/96; mia 2 & 4/97, 2 & 5/98, 2 & 4/99
1.09		43.5	0 20	2.50		. 0	3.20			1.90	0	Deac				discovered 5/96; hunkered down 2/98; hollow with exit holes, death by weevils 5/98
1.10) 1	43.6	0 20	0.60		0	mia			mia			mia			discovered 5/96; mia 2 & 4/97, 2 & 5/98, 2 & 4/99
1.11	1	43.6	0 20	0.80		0	Deac									discovered 5/96; dead, COD unknown 2/97
1.12	2 1	43.6	0 20	0.50		0	mia			mia			mia			discovered 5/96; mia 2 & 4/97, 2 & 5/98, 2 & 4/99

	STAKE		ANGLE	a second se	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
1.13		43.60	20	0.50		0	mia			mia			mia			discovered 5/96; mia 2 & 4/97, 2 &
		40.00														5/98, 2 & 4/99
1.14		43.60	20	0.70		0				mia	er er serer o 11.11		mia			discovered 5/96; mia 2 & 4/97, 2 & 5/98, 2 & 4/99
1.15	1	43.20	20				0.60	0	0	mia			mia			discovered 2/97; bad 5/97; mia 2/98, 5/98, 2/99, 4/99 & 2/00; relocated at edge of grass clump, squishy, green, OK 4/00; green, good 2/01; green, hunkering, OK 4/01
1.16	1	44.20	20				1.40		j 0	Dead						discovered 4/97; under rock; dead with weevil larva inside, collected but
1 17	1	42.80	21				. 0.00						Art .			died before pupation 2/98
		42.00					0.90		0	Dead						discovered 4/97; to right of 1:18; dead, COD unknown, just spines left 2/98
1.18	1	42.80	21				0.60		0	mia			mia	<u>3 (141) - 1 (141)</u>		discovered 4/97; to left of 1.17; mia 2 & 5/98, 2 & 4/99, 2/00; relocated or new, hunkered, dull green, squishy, poor 4/00; dull maroon, poor 2/01; green, hunkering, OK 4/01
1.19	1	42.80	20					· <u> </u>		0.90		0	0.92		0	seedling, hunkered down, squishy, discovered 5/98; good 2/99 & 4/99; good, green 2/00; hunkered green, OK 4/00; popping out, green, OK 2/ & 4/01
· · · · · · · · · · · · · · · · · · ·	=	• •			· · · · · · · · · · · · · · · · · · ·	•		<u> </u>				··				· · · · · · · · · · · · · · · · · · ·
Stake 2	2 is pink-	flagged i	ebar thr	ough ga	te in op	ening at	t 180 deg	rees fro	m trans	former p	bost, be	yond de	ad junip	er & alm	⊥_ lost dead	Acacia roemeriana;
(GPS And	cistrocac	tus tobu	schii 2 a	t stake					[··· ·· ·······	[

2.00 2 43.05 260 5.50 1+2 fr disp. 4.90 4 3+1A 5.20 3 1A 4.94 4 4 measured between persimmon & condatia, plant reddish 5/96; green, 2/97; yellowish 5/98; green, 2/97; yellowish green, 2/97; under rock; good 5/98; plant & tag mia 2/99, 2/0; & 4/01 3.01 2 31.62 212 0.50 0 0 0 0 mia discovered 2/97; under rock; good 5/98; plant & tag mia 2/99, 4/99, 2/0; & 4/01 4.00 2 19.90 150 5/10 2/46 fr 5/disp. 2 2 2 2 9/9, 9/9, 2/0; & 4/01 2/98; plant & tag mia 2/99, 4/99, 2/0; & 4/01 2/99; plant ma ad 3/97; under rock; good 5/96; flag uproated 2/98; plant & tag mia 2/99, 9/9, 2/0; & 4/01 2/99; plant ma ad 9/97; under rock; good 2/99; plant ma ad 9/97; under rock; good 2/99; plant ma ad 9/97; under rock; good 2/99; plant ma ad 9/98; 0/0 3 4 4 1 4/01 4.00 2 19.90 150 0.40 0 0.60 0 7 ma discovered 5/96; flag uproated 2/98; 2/99; plant ma 88; 98, & 00	PL#S	STAKE	DIST. /	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
3.00 2 31.62 211 3.10 3.1r 2 Dead 2 2100, yellowish 5/88; green, good 2/99 & 4/99; yellowish 5/98; green, good 2/00, yellow-green, OK 4/00 & 2/01 green, good 4/01 3.00 2 31.62 211 3.10 3.tr 2 Dead 3.tr 2 Dead 3.tr 3.tr	2.00	2	43.05	26 0	5.50	1+2 fr	disp.	4.90	4	3+1A				· · · · · · · · · · · · · · · · · · ·			• ••••••• ••••• ••••••••••••••••••••••
3.00 2 31.62 211 3.10 3.1r 2 Dead 2/09 8.4/99; yellowish-green, Dor 2/00; yellow-green, OK 4/00 & 2/01 green, good 4/01 3.01 2 31.62 211 3.10 3.1r 2 Dead 3.01 2 31.62 212 0.50 0 0 0.70 0 0 mia discovered 2/97; under rock; good 5/98; plant & tag ma 2/99, 4/99, 2/0; & 4/00; plant and tag refound, plant green, good 2 & 4/01 4.00 2 19.90 150 5.30 24-6.1r 5disp; 3.01 3.01 2 19.99 150 0.40 0 0.60 0.70 0 mia 2.299; plant ma 88, 99, 800 4.01 24 19.99 150 0.40 0 0.60 0 0 ma 2.299; plant ma 88, 99, 8.00 4.02 2 19.99 150 0.40 0 0.60 0 ma 2.299; plant ma 88, 99, 8.00 4.03 2 19.99 150 0.40 0 0.60 0 ma			:														
3.00 2 31.62 211 3.10 3 tr 2 Dead 2 Stem hollow; no grubs, maybe weevis dead 2/97 3.01 2 31.62 212 0.50 0 0 0.70 0 0 mia discovered 2/97; under rock; good 5/98; plant & tag mia 2/99, 4/99, 2/C & 4/00 2/10, 2/																	
3.00 2 31.62 211 3.10 3.1r 2 Dead green, good 4/01 3.01 2 31.62 212 0.50 0 0 0.70 0 0 mia Stem hollow, no grubs, maybe weevils dead 2/97 3.01 2 31.62 212 0.50 0 0 0.70 0 0 mia Stem hollow, no grubs, maybe weevils dead 2/97 4.00 2 19.90 150 5.10 2+6 fr 5disp. Stem hollow, no grubs, maybe weevils dead 2/97 4.01 2 19.96 150 0.40 0 0.60 0 mia Stem hollow, no grubs, maybe weevils dead 2/97 4.02 2 19.96 150 0.40 0 0.60 0 mia Stem hollow, no grubs, maybe weevils dead 2/97 4.02 2 19.96 150 0.40 0 0.60 0 mia Stem hollow, no grubs, maybe weevils dead 2/97 4.03 2 19.98 150 0.40 0 0.60<																	
3.00 2 31.62 211 3.10 3 fr 2 Dead stem hollow, no grubs, maybe weevils dead 2/97 3.01 2 31.62 212 0.50 0 0 0.70 0 0 mia discovered 2/97, under rock; good 5/98; plant & tag mia 2/99, 4/99, 2/0; & 4/00; plant and tag refound, plant green, good 2 & 4/01 4.00 2 19.90 150 5.10 24-6 fr 5disp; 5 5 5 5 0 0 0 0 0 mia discovered 5/96; tag uproted 2/98; 2/0; 2/0; 2/3; plant mia 98, 99, 8:00 2 19.99 150 0.40 0 0.60 0 mia mia 2 2/99; plant mia 98, 99, 8:00 <																	
3.01 2 31.62 212 0.50 0 0 0.70 0 0 mia discovered 2/97; under rock; good 5/98; plant & tag mia 2/99, 4/99, 2/C & 4/00; plant and tag refound, plant green, good 2 & 4/01 4.00 2 19.90 150 510 24-6 fr 5disp; 2 2 big, long; heavy spines; dead 5/96; 4.01 2 19.98 150 0.40 0 0.60 0 mia mia discovered 5/96; tag uprooted 2/98; 2/99; plant mia 98, 98, 8:00 4.02 2 19.99 150 0.40 0 0.60 0 mia mia discovered 5/96; tag uprooted 2/98; 2/99; plant mia 98, 98, 8:00 2/99; plant mia 98, 98, 8:00 4.03 2 19.99 150 0.40 0 0.60 0 mia mia mia discovered 5/96; tag uprooted 2/98; 2/99; plant mia 98, 98, 8:00 2/99; plant mia 98,																	
3.01 2 31.62 212 0.50 0 0 0.70 0 0 mia discovered 2/97; under rock; good 5/98; plant & tag mia 2/99, 4/99, 2/C & 4/00; plant and tag refound, plant green, good 2 & 4/01 4.00 2 19.90 150 510 24-6 fr 5disp; 2 2 big, long; heavy spines; dead 5/96; 4.01 2 19.98 150 0.40 0 0.60 0 mia mia discovered 5/96; tag uprooted 2/98; 2/99; plant mia 98, 98, 8:00 4.02 2 19.99 150 0.40 0 0.60 0 mia mia discovered 5/96; tag uprooted 2/98; 2/99; plant mia 98, 98, 8:00 2/99; plant mia 98, 98, 8:00 4.03 2 19.99 150 0.40 0 0.60 0 mia mia mia discovered 5/96; tag uprooted 2/98; 2/99; plant mia 98, 98, 8:00 2/99; plant mia 98,																	
3.01 2 31.62 212 0.50 0 0.70 0 0 mia discovered 2/97; under rock, good 5/98; plant & tag mia 2/99, 4/99, 2/C & 4/00; plant and tag refound, plant green, good 2 & 4/01 4.00 2 19.90 150 5.10 2+6 fr 5disp; 2 2 2 big. long, heavy spines; dead 5/96; tag uproted 2/98; 2/99; plant mad 88, 99, & 00 4.01 2.4 19.98 150 0.40 0 0.60 0 mia 2 2 2 19.99 150 0.40 0 0.60 0 mia 2 2 2 19.99 150 0.40 0 0.60 0 mia mia discovered 5/96; tag uproted 2/98, 2/99; plant ma 98, 99, & 00 2 2/99; plant mia 98, 99, & 00 2 2/99; plant mia 98, 99, & 00 2 2/99; plant mia 98, 99, & 00 2 2 19.99 150 0.40 0 0.60 0 mia mia 2 2/99; plant mia 98, 99, & 00 2 2 2/99; plant mia 98, 99, & 00 2 2 2/99; plant mia 98, 99, & 00 2 2 2/99; plant mia 98, 99, & 00 2 2 2/99; plant mia 98,	3.00	2	31.62	211	3.10	3 fr	. 2	Dead									stem hollow, no grubs, maybe
4.00 2 19.90 150 5.10 2+6 fr 5disp; 5 5 6 6 7 6 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 7 7 8 100 5/98; plant kag mia 2/99; µlant kag mia 2/99; µlant kag mia 2/99; µlant kag mia 2/99; µlant kag mia 2/98; µlant ka	3 01	2	21 62	210							<u> </u>						
4.00 2 19.90 150 5110 2+6 fr 5disp; 6 6 7 5.50 5 10 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3<	3.01	2	31.02	212				0.50	0	0	0.70	0	0	mia			
4.00 2 19.90 150 5.10 24.6 fr 5disp;																	5/98, plant & tag mia 2/99, 4/99, 2/00
4.00 2 19.90 150 510 2+6 fr 5disp. <																	
4.01 2 19.98 150 0.4C 0 0.60 0 mia mia discovered 5/96; tag uprooted 2/98, 2/99; plant mia 98, 99, & 00 4.02 2 19.99 150 0.40 0 0.60 0 mia mia discovered 5/96; tag uprooted 2/98, 2/99; plant mia 98, 99, & 00 4.02 2 19.99 150 0.40 0 0.60 0 0 mia mia discovered 5/96; tag uprooted 2/98, 2/99; plant mia 98, 99, & 00 4.03 2 19.99 150 0.40 0 0.60 0 mia mia discovered 5/96; tag uprooted 2/98, 2/99; plant mia 98, 99, & 00 4.04 2 19.98 150 0.40 0 Dead Discovered 5/96; may not be 4.05 2 20.05 150 0.50 0 mia mia mia discovered 5/96; may not be 4.06 2 20.08 150 0.90 0 mia mia mia mia discovered 5/96; may not be 5.00 2 38.85 85 4.60 3+5 fr 1, rest 5.40 6 <td></td> <td>1</td> <td></td>																1	
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4.03 2 19.99 150 0.40 0 0.60 0 mia mia 2/99; plant mia 98, 99, & 00 4.04 2 19.98 150 0.40 0 Dead 2/99; plant mia 98, 99, & 00 2/99; plant mia 98, 99, & 00 4.04 2 19.98 150 0.40 0 Dead 2 20.05 150 0.50 0 mia mia 2/99; plant mia 98, 99, & 00 4.05 2 20.05 150 0.50 0 mia mia mia discovered 5/96; COD unknown 4.06 2 20.08 150 0.90 0 mia mia mia mia discovered 5/96; may not be 5.00 2 38.85 85 4.60 3+5 fr 1, rest 5.40 6 7 5.50 5 Dead orangish at base 2/98; dead, larvat collected 2/99	1 02	<u>6</u>	10.00	150	0 40				調 注意機								
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4.04 2 19.98 150 0.40 0 Dead mia mia Discovered 5/96;COD unknown 4.05 2 20.05 150 0.50 0 mia mia mia discovered 5/96;COD unknown 4.06 2 20.08 150 0.90 0 mia mia mia discovered 5/96; may not be 4.06 2 20.08 150 0.90 0 mia mia mia mia discovered 5/96; may not be 5.00 2 38.85 85 4.60 3+5 fr 1, rest 5.40 6 7 5.50 5 5 Dead orangish at base 2/98; dead, larvat 6150 2 38.85 85 4.60 3+5 fr 1, rest 5.40 6 7 5.50 5 5 Dead orangish at base 2/98; dead, larvat														11110			
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4.06 2 20.08 150 0.90 0 mia mia mia mia discovered 5/96; may not be 4.06 2 20.08 150 0.90 0 mia mia mia mia Ancistrocactus tobuschii; mia 97; ta 5.00 2 38.85 85 4.60 3+5 fr 1, rest 5.40 6 7 5.50 5 5 5 Dead orangish at base 2/98; dead, larva 0 0 0 0 0 6 7 5.50 5 5 Dead orangish at base 2/98; dead, larva	4.05	2	20.05	150	0.50		0	mia			mia	- A second and Address - 12-62-5, 1983 - Surrow (1993) - Surrow (1993)		mia			A REAL PROPERTY AND IN THE REAL PROPERTY AND INTERPORT
Store Store <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>																	
5.00 2 38.85 85 4.60 3+5 fr disp: 1, rest 5.40 6 7 5.50 5 5 Dead orangish at base 2/98; dead, larva	4.06	2	20.08	150	0.90		Õ	mia			mia			mia			discovered 5/96; may not be
5.00 2 38.85 85 4.60 3+5 fr 1, rest 5.40 6 7 5.50 5 Dead orangish at base 2/98; dead, larva		AND ASA														4004	Ancistrocactus tobuschii; mia 97; tag
disp: disp:													ta i da da da	or series and series is			
	5.00	2	38.85	85	4.60	-3+5 fr	L DOLLAR DE LA COLLAR DE LA COLLA	5.40	6	7	5.50	5	5 5	Dead			
	6.00 fr	om # 5	12.80	58	310	2		3.20	n in the second se	Dead			영 국민 (종이) 이 국민 (종이)				
unknown, no insect holes 4/97								0.20		veau							

PL #	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM		98FR		005		NOTEO.
6.10	2	43.05		UODINI		30111	37 DIVI	5/12	9/Fn	SODIN	SOL	SOLU	99DM 6.14	99FL	99FR	NOTES
0.10	-	40.00											0.14	7	D+IA	yellow petals with pinkish midribs,
						.										may not be Ancistrocactus tobuschii,
																petals partially eaten on 1 flower
																2/99; fruits split open, drying 4/99;
																dull dark green, good, right besdie
																serious hog rooting, tag mia 2/00;
						;										more fresh rooting, plant covered
						1										with dust, OK, fruit dispersed with a
																few seeds on plant; one flower
																(stigma yellow, petals dirty yellow)
						Ì										partially eaten, plant green with a few
																tan tubercle tips, good 2/01; green,
						į										good 4/01
			· ·	<u> </u>									,			
															· 	
Stake	3 is the	second re	ound me	tal fence	e post fr	om the a	ate.				·		·		·	
7.06	3	42.10		3.40		1A	5.20	- 4	. 5	5.70	3	S S	Dead			very orange 5/98; hollow with weevil
130 C 14																chambers, dead 2/99
8.00	3	40.60	164	3.20	1+2 fr	disp.	4:30	3	13	Dead	Ha Ming					Dead, hollow, probably weevils, tag &
				Constant Constant							1.1645					flag removed 2/98
			<u></u>		2.5	Internet in the second		CINERATOR CONTRACTOR		<u>1965)18816 33 5</u>		the construction of the	ERBL-1. US	1997 - 1991 - 11 ⁹	5.6.5 1917 1004	
			· ••••••••	•		• • · · · · · · •				-	• <u> </u>			· · ·	•	
Stake	4 is 0.2 i	mi NE of	Finnega	n house	, then ~	40 m SE	of road	where r	oad dro	os by cli	ump of	iuniper s	shinoak	and mo	untain la	urel; GPS 4 at plants
1.00	4	2.87	112	Γ	<u> </u>					1.70	1	1A	3.04		3	maroonish, OK 2/00; dark green, OK
													0.01			4/00, 2 & 4/01
						ļ						:				
2.00	4	3.43	113	+- · ···-		· · · · · ·									ļ	under rock, discovered 2/01; green,
						1										OK 2/01; green, OK, hunkering 4/01
						1										Cit 201, green, OK, hunkening 4/01
															!	
3.00	4	3.16	112	-		i						· ·		+ ·		under rock, discovered 2/01; green,
							1							ļ	1	OK 2 & 4/01
						:	I							1		
														1		
	10				 	-10.44							L.,	: ·		
	I∠ seed	lings we	e tound	at 112 0	legrees	at 3.11 r	n at the	pase of	a dead	plant 2/9	98; of th	ne 12 see	edlings,	1 was d	ead,	

PL#	STA	KE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
	10 w	rere	mia, dig	iging in t	he area;	8 seed	lings we	re found	at 93 de	egrees a	it 3.41 m	at the	base of	a dead r	plant 2/98	3;	
	of th	ne 8	seedling	gs, 6 we	re mia 5	/98; all s	seedling	s from bo	oth sets	were m	a 2/99. 3	2 & 4/0	0.2 & 4/	01	·· ·	,	
					1	1		[]		1		, , ,	ř— —	· · · · · · ·		
											†			+	··· ···		
Stake	5 is ().3 n	ni NE of	Finnega	an house	on mai	n road,	W side o	f road b	y two la	ģe (1 m	square	e) rocks.	stake is	old utility	pole E	of road; GPS5 at plant
1.00	5		58.00	257	ł			T		Ĩ	5.10	7	1, res	t 5.00	8		squishy, sunken in center 5/98;
													disp.	1 1			flowers pinky green, Ancistrocactus brevihamatus?, plant green, healthy 2/99 & 4/99; dark yellowish-green, OK, 2 flowers partially eaten, petals dusky yellow, long spines 2/00; dark yellowish-green, OK 4/00; flowers and stigma yellow, plant olive, OK 2/01; green, good 4/01
				····			<u> </u>										
			·····		+		<u> </u>							<u> </u>			
Stake	6 ic (Finnega				 N. alala af			ļ _		. <u>.</u>				
Stake		36 a	t stake	Гппеуа		<u>on mai</u>	n road,	IN SIDE OF	road, 2	na tence	eless ter T	iceposi	with wir	e beside	E of a fe	enceless	fencepost by a dead juniper;
1.00		****	25.85	290					- Charles 1	100.000	0.00	STELESIT:	0.44		HR SEC TRACTOR		
											6.60		2+1A, rest disp.	6.98			buds too tight for color 2/98; plant very yellow 5/98; buds too tight, but probably Ancistrocactus brevihamatus, olive green, good 2/99; reddish olive green, OK 2/00; very poor, yellowish 4/00; COD insects (hollow with large galleries) 2/01
2.00	6		17.40	65						Providence Frankriger Frankriger Frankriger Frankriger	4.70	2	0	Dead	15 (24 m 3 (14 m)		flowers greenish-yellow 2/98; dead
																	but firmly rooted 5/98; hollow, probably weevils, dead 2/99
		ļ	· .			 		+		l		···· - · · - ·		<u> </u>			
Ctol/-	- 7 in -		· · ····			l	L		l	· · · · ·	l	L	L			L	
ыаке	1 IS 8	n n U	DOTED	stump w	nin rocks	s in roots	<u>3, <0.1 i</u>	ni E from	junctio	n to Finr	iegan H	ouse, n	nai <u>n tra</u> il	, and roa	ad to HQ		
	2/9/8	9.6	-3/ AN	cistrocad	aus tobl	ISCHII CIU	uster; re	shot 2/10	<i>99 GP</i>	57 stake	3						

A Second Second

	STAKE		ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
1.00	7	26.12	310										2.49	1	1	tag mia, replaced, greeen with a few tan tubercle tips, pulling into soil, OK 2/00; green good 4/00, 2 & 4/01
1.10	7	26.06	310													discovered 2/00; green; good 2 & 4/00; tag mia, replaced, green, good 2 & 4/01
2.00	7	26.70	310										3.14	1	1	tan and poor; probably Ancistrocactus brevihamatus 4/99; olive green with a few tan tubercle tips, OK 2 & 4/00, 2/01; green, OK 4/01
3.00	7	26.87	311										3.44	3	2	looks tan and bad; probably Ancistrocactus brevihamatus 4/99; petals pinkish, stigma yellow, body olive green with a few tan tubercle tips, long spines, OK 2 & 4/00; tag mia, replaced, olive, OK 2/01; green with reddish tubercle tips, very squishy, poor 4/01
4.00	7	26.64	311 4										5.26	3(I+1fr	1	reddish green, OK 2 & 4/00; flowers yellow, body olive, OK 2/01; hollow with large chambers, larvae inside, collected for weevil study 4/01
5.00	2	26:98	315										2.45	O A	C	closest to stake; olive green, OK; tag chewed, replaced 2/00; green, good 4/00; tag mia, replaced, plant green, good 2/01; removed for weevil study, hollow 4/01

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
6.00	7	27.00	315										2.55	0		to right and behind of 5.00; reddish green, OK, tag chewed, replaced 2/00; green, good 4/00; tag mia, replaced, plant maroonish-green, OK 2/01; removed for weevil study, larvae inside 4/01
7.00	7	27.02	315										2.44	0	0	to right of 6.00; reddish green, OK, tag chewed, replaced 2/00; green, good 4/00; tag mia, rreplaced, plant green, good 2/01; green, OK 4/01
8.00	7	27.01	315										1.74	0	C	left and between 6.00 & 7.00; tag chewed, replaced, reddish green, OK, flower partially eaten 2/00; green, good 4/00; tag mia, replaced, plant green, good 2 & 4/01
9.00 9.01		23:45 23:41											523	3		found by Bea Harrison in prickly pear 2/99; dark reddish green, OK 2 & 4/00; COD insects (Moneilema ?), large gallery in body 2/01 between 9.00 and 11.00; one measurement only, poor 2/00; poor,
10.00	7	23.48	3 341										1.06	0	(looks dead 4/00; plant mia 2 & 4/01 D behind and right of 9.00; one measurement only, OK 2/00; poor,
			:													maybe dead 4/00; plant mia 2 & 4/01

	<u> </u>															······································
	STAKE		ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	_99FL	99FR	NOTES
11.00	7	23.40	341										0.90	0	С	in front of 9.00; may be a small seedling behind 4/99 (see 9.01); OK 2/00; poor, maybe dead 4/00; plant mia 2 & 4/01
12.00	7	27.00	316					· · · · · · · · · · · · · · · · · · ·					4.41		1fr+1A	good, may not be Ancistrocactus tobuschii, discovered 4/99;dark reddish green, long spines, flowers past, good 2/00; green, good 4/00; olive, OK 2 & 4/01
13.00	7	26.90	311										3.09		C	good, may not be Ancistrocactus tobuschii, discovered 4/99; maroon, OK 2 & 4/00; green, good 2/01
14,00	Z - 3	26.95	311										2.56			good, may not be Ancistrocactus tobuschii, discovered 4/99; maybe dead, but firmly rooted 2 & 4/00; just spines left; COD unknown 2/01
14.01	7	26.96	311					<u>nan an an S</u> ide Sin						E		behind 14.00; discovered 2/00; green, good 2 & 4/00; plant and tag mia 2 & 4/01
15.00			311										2.30) good, may not be Ancistrocactus tobuschii, discovered 4/99; green, good 2 & 4/00; orange mush inside, flies 2/01
Dead (16:00		ide 14.00 26.97	0, 14.01, 311,	, and 15	.00, CO		own, prot	ably pa	rent of a	·	2/00		0.96			OK, may not be Ancistrocactus tobuschii, discovered 4/99; plant mia 2/00; relocated, under grass in front of 3.00, green, good 4/00; red, poor 2/01; hard, dry, solid, COD unknown 4/01

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PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTÉS
17.00	7	27.07	311	-									0.54		O	OK, may not be Ancistrocactus tobuschii, discovered 4/99; OK 2/00; very loose and squishy, poor 4/00; green, OK 2 & 4/01
18.00	7	27.10	311							• • • • • •					-	discovered 2/00; green, good 2 & 4/00; tag mia, replaced, plant green, good 2 & 4/01
19.00	7	16.40	332												-	discovered 4/00; olive green, OK 4/00; hole in vicinity of where plant was, plant mia 2 & 4/01
20.00	7	16.50	333													discovered 4/00; green, good 4/00; nibbled on one tubercle, olive with a few yellowish tubercles, OK 2 & 4/01
20.01	7	16.52	333	1												on west side of 20.00, not tagged, discovered 4/01; green, OK 4/01
21.00	7	~24.86	~318						· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·				discovered 2/01; green with a few tan tubercle tips, OK 2 & 4/01

22.00	7	~24.97				96FR	97DM	97FL	97FR	98DM	JOLI	98FR	99DM	99FL	99FR	NOTES
		~24.37	~318													discovered 2/01; maroonish-green,
'																OK 2/01; green, good 4/01
. !															1	
23.00	7	~24.84	~320												{	discovered 2/01; yellowish-green, OK
ı İ																2 & 4/01
								···· _								
i l	İ															
i I					· ······-											
l							· ·	·								
Stake 4		inted incr			l aida -f							· · · · · · · · · · · · · · · · · · ·				
1.00	8 8		n gate po 336	DSL ON W	side of	gate 0.4		rom Fin	negan ⊢	touse; C	iPS8 a	t plants			-	
	0	34.30	ააი										5.02	2	2	flowers yellow, plant reddish, good 🧓
								165 C 1630		10						2/99; OK, pinkish orangey green
								35.6 350					2.18-2.1. million			4/99; reddish, poor 2/00; new spine
1200410-11 1200-112-11																growth, plant orange red, OK 4/00;
2.00	8	34.47	336							an ding.			0.55			body solid, COD unknown 2/01
2.00	0	34.47	330										2.55	1	0	flowers yellow, plant green, good
																2/99; reddish green, OK 2 & 4/00;
													,			slightly reddish-light green, OK 2 &
																4/01
· · · · · · · · · · · · · · · · · · ·			L													
			L	L							1					
Stake 9	9 (still n	eeds reb	ar) 0.1 n	ni NE fro	om SW e	end of re	sidence	landing	strip, W	side of	strip ar	nd 0.1 mi	SW of	road to E	of strip,	opposite inactive harvester ant mound
	GPS9 a	t plants													, _	

PL #	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
1.00	9			1									4.91	8	4+1A	between tasajillo, small Opuntia
								:								lindheimeri and hog plums, flowers
																greenish-yellow, plant looks good 2 &
																4/99; next to hog plum, old ant
								į								mound across road, flowers pinkish,
																stigma yellow orange, long spines,
																green, good 2/00; fruit already
																dispersed, 1 partial fruit with seeds left, green, good 4/00; pale green,
																OK 2 & 4/01
								·								
]					· · · · · · · · · · · · · · · · · · ·
Stake	10 io 1 m	i M of a	to in for									·			. <u> </u>	· · · · · · · · · · · · · · · · · · ·
1.00	10 is 1 m 10	6.50	ate in lei 146			Devils	Hiver tria	angle								
		1.00	1.40									1 100 1		·영수 · 영수 · 영수 · 영수		flowers dusky yellow, long spines,
		19.6 <u>5</u> - 1		inster.				- 36.3211		of solution	h islander	196.				body green, good 2/00; green with
								- 1000 BED						and the second		some yellow tubercle tips, OK 4/00; body solid, COD unknown 2/01
2.00	10	6.60	160	1-154-692m				1985 F	i da seriesta de la companya de la c			2 EN 2 2				
				Constraint.				293.00 1927 State				2 4 4	1.5			flowers slightly pinkish yellow, long spines, body reddish green, OK 2 &
	A Number of State							1 and the	15. 11. 582		in Single Role			nan nan		4/00; COD weevils, galleries 2/01
. < 194948			REASES OF F		中国制度的			12 14 14 14 14			2.1166.23	10 CENT		And the state		Too, cod woovins, galieries 2/01
				·			-				·	· •••				
Data w	as taken	and rec	orded by	v Jackie	Poole o	n 2/96 f	5/96 2/1	8/97 4/	28/97 2	/10/98 /	5/4/98	2/9-10/9	9 1/10/	00 2/17/0	0 1/24	00, 2/15/01, 4/24/01
										. 0, 00, 0	<i></i> ,		0, 1 101	55,2117	10, 4/24/	00, 21001, 4/24/01

PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
Stake 2	= GPS1	R022321	Ā	1																	
2.20	2	5.47	205				4.40	6	6	3.80	3	3	3.50	2	nd	Dead					And Andrew Constraints
2.22	2	6.30	212							1.60	0	C) 2.20	0,	0	mia			a mia	10-18 1 0 11-12-18 12-18	
																			Singe dimension		
2.23	2	6.20								1.90		1	2.10	Contraction in the second		mia			Dead		
2.24	2	5.96	214							1.40	0	()) 1.50	0	0	- mia			, mia		
2.25	2	5.95	215							1.60	0) 1.80	0	0	1.30	0	0	1.50		0
2.26	2	5.95	215			 Antipactical states Antipactical states 				1.30	i t)) 1.40	0 0	0	Dead			3 12 15 18 19 19 19 19 19 19 19 19 19 19 19 19 19	 Address Address Address 	K AN CONC.
2.30							4.30	2		4.00				1				1 (1 25)	145.00	4,5	
2.31		7.78	2727 V CORPT VAR		34 18		0.40					*****	0.90	0,0	0	mia	3 j	1.14	🚛 mia		
		Pol growing or							1990 av								460 A	, 1 24		e el sugar	
2.32		?	?	2.5	1.44					425145	1999 A			e (1)		0.90	0	98. * . "MACSV. W.	19 99 919		
2.40	تبثنه درجميس	11.10					3.50			- nel de la bigenerginen	······································		1 4.50	1000025 200700 0000	1	2.70	0	Z. Same	1.	2	
2.41	al in the second second second second second second second second second second second second second second se	11.15					2.30) 0	infining chartening		CITER.	1 3.90	AL COART AND ACCORT MADE	4	2.20	0	- 192.4 I a selen deleasemente			- Strong
2.60	÷	11:15	· · · · · · · · · · · · · · · · · · ·				3.80		·····				1 4.50 4 4.40				0 0		1	-	
2.70	2	11.64	218			Sarah, ay	3.50	撤告	3 0	4.00			4 4.40) - S	0 }	3.00	V		Deau		
						1. S. C. 190				1.1		5 (Sec. 1.		1000		1981 (14410)		2.16			
			040		i la de la de		4 60		4 0	3:80			1. 19 BK 5. 18			Chillipsi OF March		illina: Seats	がた。出始 とその数:*		
2.80		4.40	an a COOR ANY 101	1.60)) 0	4.60	·····	4 0 0 0	. Scholt sheet Krich Carry			0 3.00) ()	Dead				2.41	
3.00		10.18		1.00			2.60		2 0		**************************************	States and the second second	0 3.00	- 3 Part & 26.00, 928, 5	0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1. 1941 PA			
3.20		10.35					1.90		0 0				0 2.30	1	to Call a train to a	Dead					
3.30		10.35	(m. 4) (M.)				1.40		0 0	20.000 20000000000000000000000000000000		the second secon	0 1.50			an a state in some in the	mia	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
		division and a second sec																			
4.00) 2	7.50	266	3.00) 2	2 1	2.80		1 0	2.90))	0 2.90)) C	Dead		1 9 26			
5.10		8.92	ta (Il Nidio)				1.90			1.50))	0 1.70)) C	1.90	1	0			
								.: 													
5.20		8.52		1			1.60) (0 0)	1	1 2.1)) <u> </u>	Dead					
5.35	5 2	33.50	0 270													nd	nc	l nd	Deac		
6.00	2	5.7	5 278	2.0	0) (3.30		1 C	3.20	5 C	2	1 3.5	0 2	2 0) Dead	<u> </u>				
9.00		8.3		2.6	0	2 2	2.70)	0 C	2.40) (0	0 2.0	0) (2.00	<u> </u>) (Dead		cal:

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MC17P	97FI	97FR	98DM	98FI	98FR	99DM	00F1	99FR	NOTES
57 D W			30DM		5011	55DIVI	331 L		
									partly eaten 5/92; sickly 8/92; better, new pup? 3/93; sickly 8/93; seedling 2/94; 2 larvae (beetle & lepidoptera), Dead 2/95
mia			mia						needs tag 4/94 & 2/95; mia 2/95; plant, tag, and flag mia 3/97; mia 98
					37				sickly 8/93; only spines left 96
mia									needs new tag 4/94 & 2/95; no tag 2/96; plant, tag, and flag mia 3/97
i i i i i i i i i i i i i i i i i i i			: mia			mia			needs new tag 4/94; tagged, sickly 2/95; green 2/96; plant, tag; and flag mia 3/97; placed flag in vicinity 5/98
1993) 1993) 1994)									Dead 95
					a 				2 additional seedlings 4/94; Dead 95
mia									mia 95; tag & flag mia 2/96; plant, tag, and flag mia 3/97
				Ma Dispeter, And A. Pasterio de Cartonia d					not healthy; Dead 95
			alagangy at						pup w/2.41, sickly 8/93; only spines left 96
Less Pro-			TRUCENI) na Natarati ku	ianing II (a.c.					pup w/2.40; sickly 8/93; only spines left 96
1000 Ale			- 46						not seen 8/92; only spines left 96
									hot seen 8/92; sickly 8/93; nestled in grass, grass growing up through cactus (year ?); Dead 96
								31,45 31,45 31,65	sickly 8/93; very sickly 2 & 4/94; Dead 95
AND MEL				for hearts an Australian					tag missing; Dead 95
				149943-54		100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100		21 (22) 21 (24)	eaten out 2/95; Dead 95
Contraction of									pup w/ 3:3; Dead 95
mia									pup w/3.2, tag missing; mia 95; tag & flag mia 2/96; plant, tag, and flag mia 3/97
	i radi				<u>n (</u>				between rocks; damaged 2/94; Dead 95
									1.2 cm 4/91; spines are gray, probably dead but still firmly in ground 2/96; Dead, center hollow, but no insects 8/96
- 1 polision 1 (1 - 60) polision						<u>.</u>			nöt seen 8/92; Dead 95
									data unclear from 2/95; overlooked 5/95; Dead 96
1989-1913-1 1989-1913-1 1914-1913-1									Dead 95
									hollow, Dead 96

the second second
PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FI	94FR	95DM	95EI	95FR	96DM	96FI	96FR
10.00		10.25		1.10	-	.			· · · · ·	· · · · · · · · · · · · · · · · · · ·		0	4	۰	+				· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
												-					Ŭ	Ŭ		Ĵ	Ŭ
					•																
									i F												
10.10	2	8.20	285	2.10	nd	14	1.80	1		1.90	1	1	2.10	0	Ō	mia			Dead		
						n na seo de la s Cretta de la s		l Sillin Libuqi								AUTRON Sec. E.G.					
10.30	2	5.66	285		l i i		0.90	0	0	0.90	0	0	1.20	0	0	mia	mia	mia	mia	. Ninti i	
											internet et et	e S			de la desta				arra in state		
10.50	ويستعدنا المتحديد فيمتهم	12.41	286				2.40		0	3.40	3	3	3.80	2	0	3.80	3	. 3	Dead		
11.00	2	2.40	299			56													1.20	0	- 0
								1980											1.15		
		and the second second	all side in					et gr													
17.20		, 11.55		1.00	0	0	1.60	0	C	1 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		0		100.3.570 0.300 0.000	, , • 0	1.80	Ö	. 0	Dead		
17.41	<u></u>	11.26						Press and the second se		1.50	1. Second and a house		1.70	7/ 02 70 1 000 7 70 50	0	A the second second					
17.48	2	10.12	10							1.10	. 0	<u>,</u> 0	1.20	Q	, O	1.50	0	0,0	mia	11	
					THE CAR YOUN					- Aligherian								18 29 B			
18.20	2	12:02	350	0.70	nd	0	0.70	0	C	0.90	0	; О	U.90	0	0	1.20	0	0	0.90	C	2. 2 0
							n de la desarre en Mai Manuel de								计数据机						
					S ARC AN																
20.00	2	5.80	2.	1.10	0	0	1.40	0	C	1.30	0, 45, 16	- 0	nd nd	0	1	mia	mia	👘 mla	1.40	<u> </u>	0 0
						0.1597.1749141								1.11.12							
											14	fi de la			2/ 0.1990			19 1941) 1944			
26.10		3.45	1	2.50		0	3.20	10 7 9 1	- 22		LineBool.		3.20	112 21 2442.064	. 0			121 - 32 - 467 		ane i	
27.00		3.00		1.80		0	2.40						2.40		1. 1.	2.00	0	0	Dead	Alexandra -	
27.10		3.10	· · · · · · · · · · · · · · · · · · ·				1.20	the second second second second second second second second second second second second second second second s	2939		0	1-5 110	e mais in a com						<u>ia - 24</u>		(1.35545)
27.20	2	6.00	78				2.80	2	C	3.10	2	C C	3.50	2	1 0	Dead					
28.20	. 2	3.00	85	0.90	nd	0	1.60			1.80	0		1.00					1000 (1000) 1000 (1000) 1000 (1000)		Condition -	
28.20		5.20		0.90		U	3.00	1				C C	6 12. cv/ Sec		910-02-2				Dead	144,135 - 1 144,241 - 1	
28.50	ŧ.:	1.95	511.1.7.440				·····		and the second				2.70		2						
20.00	2	1.30					3.60	4	C) 3.10	0	C C	2.90			Dead					l Georgean Sectors
28.51	2	1.95	95				3.50	3	C	2.70	0	- C				Dead					
							0.50			2.10	•		2:00			Deau					
28.52	2	?	?							0.40	0	C	0.40	0	0	mia	mia	mia	mia		
															1 ··· · · · ·	i ina	a	una	Ind		
	!.	Internet in the	1	A 1971	1 2332253	<u>ti i i i i i i i i i i i i i i i i i i </u>	<u>r</u>	1	t	<u> </u>	1	14 - 197 - 44 - A	11.4 Art. 45.	1.	<u></u>	1	!	1	<u> </u>	E. C. Start	t della

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
1.70	0	0	1.30	0	0	0.99	0	3 & 5/ good OK 5/	, hunkered down in <i>Selaginella</i> 5/96, 97, 2 & 5/98, 2/99; popped out, green, 5/99 & 3/00; slightly reddish-green, 00; green, good 3 & 5/01
								4/94;	4/91; sickly 8/92; eaten, may pup apparently not 2/95; Dead 96
mia								95; hc tag, a	ant mound 3/92; not seen 8/92; mia a ble left where plant was 2/96; plant, nd flag mia 3/97
		6.012				7 <u>1</u> 71.04			ted 2/96
1.10	0	Déad						maybe	red down in <i>Selaginella</i> 8/96 & 3/97; e dead 3/97; COD unknown, stem /, tag & flag removed 5/97
-		665	101					pile of	spines 2/96
			DA CANSIC					Dead	A VER CASE OF A DESCRIPTION OF A DESCRIP
mia			mia						en 8/93; mia 96 & 97; plant, tag; and ia 5/98
Dead		a de la constante de la constante la constante de la constante se se constante de la constante se se constante de la constante de la constante se se constante de la constante de la constante de la constante se se					8/96, COD	een 4/91; under edge of rock; mia one loose spine cluster in the vicinity; unknown, center of stem hollow; no s, tag removed 3/97	
mia			miâ			mia		under	en 2/94; refound 4/94; tag buried grass clump 2/96; flag present; but & tag mia 3/97; flag mia, but placed in y 5/98
					3452		64:34	first se	en 4/91; Dead 95
									bines left 2/96
								and the second se	irvae 2/95 Dead 95
						ile i e i e i e i e i e i e i e i e i e		2 fl bu 95	ds eaten 3/92; with larvae 2/95; Dead
								first se	en 4/91; Dead 96
		Gurige de Gurige dati		i an an an an an an an an an an an an an				Dead	
								pup w	/28.51; rock atop 4/93; sickly 8/93; tag 4/94; Dead 95
								pup w	/28.5; rock atop 4/93; sickly 8/93; tag 4/94; Dead 95
mia									en 8/93; mia 95 & 96; plant, tag, and ia 3/97

PL#	STAKE	DIST ;	ANGLE	91DM	91FL	91FR	92DM	92FI	92FB	93DM	93EI	93EB	94DM	01 EI		95DM	0551	95FR			
28.60	2	5.47	87			k. J		구 구		1.40					100 100 100			100 TH 10 1	96DM	90FL	96FR
30.00	2	16.40	170	4.00	5	5	3.90	2	2	3.70	3	1	3.50			3.60		5		0	Dead
30.10	2	15.62	170				4.30	3	0	4.30	3	3	nd	nd	nd	3.00	2	.	Dead		
30.20	2	4.59	142												na	2.40	2	2	1.60	0	Dead
Stake 3	= GPS2 I	R022321E	3				·	· · · · · · · · · · · · · · · · · · ·					·				· · · ·				
32.20	3	3.15	263				5.10	3	0	4.70	2	2	4.30	1) 	3.90	3	2	2.50	0	Dead
32.21	3	4.35	262							3.80	1		3.10	0	0	3.30	2	2	2.50	0	Dead
32.22	3	4.35	262							3.30	1	1	2.70	.0	0	2.60	2	2	1.70	0	Dead
32.23	3	4.35	262							2:90	- 0	0	2.70	0	0	2.80	0	0	2.10		Dead
32.32	3	4.92	258							1.00	0	0	0.80	0	0	0.80	0	Ö	1.00	0	0
32.40		5.39	255				5.10	5	.0	4.80	1	- 1 1	4:50	3	3	Dead					
32.70		9.34	255				2.20	<u>1</u>	0	1.70	1		1.60	: 0	0	Dead					
33.32	3		?													1.00	0	0	mia		
33.40	3	7.37	259				1.30	0	0	nd	'nd	nd	1.70	0	0	Dead					
33.50	3	7.37	259				0.70	0	Ö		0	0	1.70 1.90	Ō	0	mia		nd	Dead		
33.60	3	7.37	259				0.70	0	0		nd	0	0.80	0	0	0.90	0	0	Dead		ana dia Manganaka
33.70		7.37	259				0.50	0		· · · · · · · · · · · · · · · · · · ·	'nd	nd	0.60	0	0	0.80			Dead	inder die die die die die die die die die die	
34.00	3	8.65	266	2.00	1	<u> </u>	2.40	1	0	2.40		1	2.00	0	0	Dead			<u></u>		

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
mia					<u></u>				mia 95 & 96; plant, tag, and flag mia 3/97
									sickly 8/93; looks dead, but still firmly rooted 2/96; Dead, weevil chambers but no bugs 8/96
									sickly 8/93; eaten to ground 2/94; 2 pups forming 4/94; spines gray, stem hollow 2/96
									in spikemoss; retracted ca: 1" in Selaginella, but feels loose 2 & 5/96; stem hollow, but no bugs, Dead 8/96
									damaged 2/94; 3 seedlings 2/94; 8 seedlings 4/94; sickly 4/94; very hunkered down, green 2/96; killed by grubs 5/96
									pup with 32.22 & 32.23; ant mound surrounding 8/93; bad, dying 2/96; killed by weevils (collected) 5/96
									pup with 32:21 & 32:23; ant mound surrounding 8/93; bad, dying 2/96; killed by weevils (collected) 5/96
									pup with 32:21 & 32:22; ant mound surrounding 8/93; bad, dying 2/96; killed by weevils 5/96
mia	mia	Dead							not seen 8/93; very hunkered down 2 & 5/96; loose spine clusters found, tag & flag removed 5/97
Status Artis			1.02994025 id 3.9845 8						Dead 95
mia			mia						Sickly 2/94; Dead 95 Sickly 2/95; mia 96; plant, tag, & flag mia 3/97; mia 98
	4			in.					not seen 8/92; 3 seedlings 4/94; Dead 95
									not seen 8/92; refound 5/95; stem hollow, Dead 2/96
									notimeasured 2/93; only spines left 2/96
									not seen 8/92; only spines left 2/96 Dead 95
	and an and a second	्वः वर्षेः,	hid never 17	ena en	1		16.00	N 120 3-5.7	Deadlad

PL#	STAKE		ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FI	96FR
34.10	3	7.36	260	1.00	nd	0		0	0	1.00	0	0	nd	0	0	Dead	1				
	1475													i i							
36.20	3	7.20	260				1.40	0	0	1.00	0	0	nd	0	0	mla	mia	mia	- mia		
																		H-harder			
																			369		
37.10	3	7.57	262	1.40	nd	0	1.50	0	0	1.20	0	0	nd	0	nd nd	1.40	0	, O	mia		
									1993 Constant 1993 Constant 19	10 10 10 10 10 10 10 10 10 10 10 10 10 1											
20.10	0		070	1 00										Hard				的名词		t (in the second	
39.10 39.20	3	8.25	272	1.20	0	. 0	1.70	0	0	1.50	. 0	0	1.50	. 0	<u>, 0</u>	Dead	136	1			
03.20	J															1.40	0	0	Dead		
40.00	3	6.83	271	1.60		· 0	1.80	0		1 00	C				100	1975) 1975)					
42.00		7.57	275	3.40	3	0	1.60	0	0	1.60	0	<u>0</u>	1:90 nd	<u>1</u>	1	Dead	i man and a statistic				
		1.07	215	0.40	J	. U	1.30	U	U V	1.10	U	U	no	-U	0	1.50	O	Dead	Dead		
									100												
42.10	3	7.57	275	3.40	.3	0	1.30	0	0	1.10	- O	0	nd	- *n	0	1.20	0	Dead	Dead		
															C.	1.20	V	Dead	Deau		
43.00	3	5.29	277	3.00	3	0	2.00	0	0	1.60		0	nd	Ô	0	Dead					
44.01	3	. ?	?						NER	0.90	0	. 0	0.80	0	. 0	mia	mia	mia	mia	2.10	ND322411
44.02	3	?	?							0.30	1.0	0 = 2	0.60		0	mia		mia	mia		
44.03	3	. ?	?	200 20 201 3 886 - 201 - 1						0.30	0	0	0:50	0	0	Dead				in official states	349 (11) 1993-96
44.04	3	?	?		11-15 11-15					0.40	0	0	nd	- 0	0	Dead			10 Q.	16 50 2	
45.30	3	6.43	270		1990 A					.0.90	. 0	10	nd	0	0	Dead				1.20	
47.00	3	5.85	10 🔤	3.00	2	2	3.50	1	0	2.50	1	1 State	nd	nd	0	3,10	3	3	2.50	2	0
						8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0															
18																	do galago				
		re dentri del			418513						4.4			54,000,000		가지요? 1월 21					
																					28
											a marine for										
50.10	3∙	7.80	88	nd	0	0	0.80	0	0	0.80	0	- 0	0.90	0	0	1.30	0	Ō	mia		Rugel et States
50.20	3	7.80	88	nd	nd	0	0.70	0	0	0.70	0	0	0.80	0	0	1.70	0	.0	mia		
E1 00		600	05																	6	
51.00 51.10		6.83 6.88	85 85			generation de la composition Generation de la composition de la comp										2.90		3			
01.10	3	0:00	co													1.80	1	1	1.20	0	Dead
		n gangagay r		patient in the second	1442				1.13	a an an an an an an an an an an an an an				8			<u> </u>				35 <u>0</u> /1 ⁻¹

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
									found 4/91; not censused 2/94, refound
			ាលសម្តេចផ្លូវ			1.689			4/94; Dead 95
mia									not censused 2/94; refound, very sickly 4/94; mia 95; tag & flag mia also 2/96,
: ::::::::::::::::::::::::::::::::::::				ditanto.	\ 				3/97, 5/97
mia			mia						found 4/91; not censused 2/94; refound 4/94; DM 95 - 1.4; mia 96 & 97; tag, plant, & flag mia 5/98
		131800-3		Inclusion Collection			1901	The diverse	needs new tag 4/94; Dead 95
									too far gone to discern cause of mortality; Dead 96
						Contraction of the	nit filld field Guedenar		Dead 95
									eaten 3/91; 2 pups forming 4/91; pup with 42.1; not censused 2/94; refound 4/94; only spines left 2/96
									pup with 42.00; not censused 2/94; refound 4/94; only spines left 2/96
									eaten 3/91, 1 pup forming 4/91; not censused 2/94; refound 4/94; Dead 95
mia									mia 95 & 96; plant, tag, and flag mia 3/97
mia				divition in the					mia 95 & 96; plant, tag, and flag mia 3/97
			and a second			12,547 11 1			Dead 95
								and the second	not censused 2/94; refound 4/94; Dead 95
		731528143 60208				43.7			not censused 2/94; refound 4/94; Dead 95
3.50	0	Dead							very dessicated 2/92; not censused 2/94;
		20121				Peb -			refound 4/94; very hunkered down in
							City City City City City City City City		Selaginella 2/96; great, very green 5/96;
					÷ • .			as and the second	good, coming out of Selaginella 3/97; top of
	1996 / A				- N				stem popped off, weevil exit holes, tag &
		2011 2011	32.28		<u></u>		130447 120447 120447 120447 120447 120447		flag removed 5/97
mia			mia						found 4/91; mia 96 & 97; tag; plant, and flag mia 5/98
mia			mia		1			I TSANDI S. I	found 4/91; not seen 8/92; mia 96 & 97; tag,
		10014			· · ·			Manager Control	plant, and flag mia 5/98
							- 1227 - 131 - 131		big hole in side 2/96
Dead					-				looks dead 2/96; COD unknown, only spines left, 5/96

	STAKE	D	IST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FI	94FR	95DM	05EL	95FR	96DM	96FL 96FR
55.00	3		6.72	110													1.00				
										105°											
		Hi ini	0.04									200 - 201 - 200 - 480 -									
55.10 58.00	3		6.61	110	0.00															0.70	
60.00	3 3		6.34 ?	135 ?	2.80	2	0	2.20	0	0	2.00	0	0	1.40	0	0	1.	0	Contraction of the second second second second second second second second second second second second second s	Dead	
63.00	3		8.25	154	2.40	0	0	2.50		0							1.60	Ő	12.311,220,000	Dead	11 11 11 14 14 14 14 14 14 14 14 14 14 1
00.00			0.20	1.74	2.40	V	U	2,50	0	0	1.80	0	0	2.00	0	nd	2.20	0	0	Dead	
				0	<u> </u>	<u></u>	1.1" <u>173</u> 14				<u> (1987-1987)</u> 198										
																	• • • • •				
Stake 4	= GPS3	R02	22322	Α				··- ··													
1.00	4		2.10	103													· ·				
68.01	4		4.35	275					Signa selector		0.60	0 0	0	0.90	0	0	0.90	0	0 0 2	0.50	0 Dead
<u> </u>		1822 (18.7)																			
68.02 68.41	4		?	2						10000	nderik Gr			1			2.10	1	1A	Dead	
00,41	4.	i she are are are are are are are	5.01	269							0.80		0	1.00	0	0	1.10	Ō	0	1.00	0 🔤 🛛 0
		5440-054 8.040-010																	n la la la la la la la la la la la la la		
							10.10											1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.			
							n slava Rođenja														
68.42	4		5.01	269							0.60	0	0	0.80	Ō	0	1.00	0	0	mia	mia 🖉 🖸
																		,			
						0							Carriel I			N.					
												Sec.									
			estavilsi s. Kolitziali n	1396.02														1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		8 8 7	
68.43	4		5.01	269							0.70	. 0	0	0.90	Ó	0	0.90	0	0	1.00	0 0
68.44	4		5.01	269									(PAN)			. (B			1.1.1010-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		
00.44	4		3.U I	209							0.70	- 0	0	0.60	0	: 0	1.20	0	0	mia	
68.45	4		5.01	269	dall credit							1 0	0	0.00		Sale (+ -			
											0.00	0	U	0.60	0	0	0.80	0	0	mia	
68.50	4		5.61	277				2.50	1	110.2880 	2.20	0	- 0	2:10	0	0	2.20	1		Dead	
																U	2.20	[]		reau	
69.20	4		5.26	282				0.70	0	0	0.70	0	0	0.90		0	1.00	0		1.20	0 0
																		-			

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
Dead									bad, spines gray, plant loose in ground, 2/96; gone, only a hole in ground left 5/96; presumed dead 3/97
0.70	0	mia	mia			mia	CROAD A	4	found in 5/96; mia 5/97, 2 & 5/98, 2 & 5/99
									sickly 2/93; completely hollow 2/96
			E.J. SP						hollow 2/96
									damaged 3/92; pup formed 2/93; not found 4/94; top popped off 2/96
		·							
									discovered 3/01; dark olive, OK 3/01; maroonish-green, good 5/01
									4 cm South of 68:00; hollowed out, insect, collected 5/96
1	NR)								completely hollow 2/96
1.00	0	mia Mia tanàna amin'ny faritr'ora dia mampina Manana amin'ny faritr'ora dia mampina br>Mang dia mampina dia mampina dia mampina dia mampina dia mampina dia mampina dia mampina dia mampina dia mampina	mia			mia			1 m South of 68:4, 1 m Southeast of 68:5; only spines showing, hunkered down 2/96; spines detached; looks weird 3/97; a few loose spines, no plant 5/97; mia 98; tag & pl mia 2/99 & 5/99
0.90	0		1.30	0	Ô	1.38	0	Ô	see 68.41; feeds (?) pin 4/94; measured in one direction only; yellowish 2/98; green, good, new spine growth 5/98; green, good, soil loose 2/99; green, good 5/99; COD unknown, collected by Bill Calvert 3/00
mia			mia			mia			see 68.41; plant and tag mia 3/97, 2/98, 5/98, 2/99 & 5/99
1.70	0	0	Dead						see 68:41; in grass 3/97; hollow with weevil exit holes 2/98
mia			mia						see 68:41; tag mia/also/2/96; found tag 3/97; plant and tag mia 5/97, 5/98
									fruit odd shape, light color 4/92; sickly; hole at base 2/96
1.60	0	0	1.40	0	Dead				wedged in between 3 rocks 2/96; good 5/96; measured in one direction only 2/98; hollow with weevil exit hole 5/98

PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
71.00	4	3.15	292	3.00	2	2	3.60	0	0	2.80	2	2	3.00	0	0	3.30	3	3	Dead		
									712												清靜
72.00	4	2.35	295	2.20		1 1 1	2.80	1	1	2.60	2	2	3.00	0	0	3.00	. 0	0	Dead		
7010					294 (C.).												a san tan again				
72.10	4	<u>?</u> 4.40	? 296	1 10			1.20			1 10			040		<u> </u>	2.30	0	atur Shipestand frail che	Dead	ca fai	
73.10	4	4.4U	290	1.10	nd	0	1:20	0	0	1.40	0	0	2.10	0	0	2.50		0	Dead		
76.00	4	3.16	308	5.20	5	5	5.40	6	2	5.20	5	5	4.80	3	1 2	4.20	0	0	Déad		1.36 - 2015 - 51.562
76.10	4	12.53	312				4.10	1	Q	nd	nd	2	3.50	0	0	1.60	2	3	2.80	0	Dead
77.50	4	3.11	320	1.00	nd	0		nd	nd	1.30	0	0	1.20	0		1.40	0		Dead		
17.30		ુ ૩.૧૧ આટ	320	1:00	nu	0	nd	nu		1.30	U V	Ų	1.20	U L	0	1.40	U	0	Deau		
77.60	4	3.11	320	-1.20	nd	0	nd	nd	nd	1.40	0	0	1.40	0	. 0	1.50	0	0	Dead	127985	
80.00	4	2.68	334	1.40	0	0	1.90	0	1.0	2.20	0	<u>, 0</u>	2.20	0	<u> </u>	2.30	0	0	Dead		
86.00	4	4.85	54	2.20	1	0	2.80	1	, 0	2.70		1	2.70	1	1	2.40	0	. 0	1.70	0	Dead
																	a series				
88.00	4	2.76	84	3.20	2	2	3.90	4	0	3.90	3	- 3	4.20	4	4	3.80	4	5	Dead	y size and	See Star
88.10	4	3.15	 See Supplies - supplies - statutes 	51239				Contraint (Contraint)				n Shallongi	1 A 1 4 4			3.90			Dead		
88.20	4	4.15				ozer - H			and and	11月1日 - 11日本日 11日日 - 11日本日					a and	22.30		1	Dead	aix interior	
88.30	4	4.55	1 ************************************		ngaba			in later			生化		9946			2.80		Dead	Dead		
89.10	* 4	1.82	103				0.80	Ç	0	nd	nd	nd	1.10	0	0	1.70	- 1 24	0	. 0.70	0	0
89.20	4	4.81	112				3.10	2	0	- 2.70	1	1	2.80	1	1	2.40	3	2	Dead		212 13 P
89.22	4	2.96	117						(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	1.70	0	0	1:90) 0 3 - 9 - 0	0 ,	2.20	2		Dead		
89.23	4 🤘	2.17	168							1.80	0	0	2:30		<u> </u>	2.70	3	3	Dead		
89.24	4	1.90	A						2440044810	2:90		1 Acres 10 Acres 10 - 04 0 Acres	3.50		1	3.30		° O	Sec	The part	
89.25	4	6.30	125	L. Y MARLE					- AL				. na			3.30	3				
89.30	4	4.81					2.80	, Q	0	2:40		0	2.40		- Anna Anna Anna Anna Anna Anna Anna Ann	2.70	4	0	Dead		
89.31		4.81	112							int. Suns.		Nerel (da	. na			2.80		2	j mia	States .	
89.40	4	5.40	115							2.70	2	. 2	- 2:80	1	1	2.60	2	1	Dead		
89.41	4	5.40								2.60		seatel (* 1511) 1993 - 1991	2.40		0	1.50	1	0	Dying		

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
									damaged ? 3/92; fruit half regular size 5/95; top popped off 2/96
									very sickly 8/93; hollow, top popped off but still attached (an exit hole?) 2/96
						3			6 " from 72:00; Dead 96
									found in 4/91; damaged 2/94; sickly 2/95; Dead 96
									hollow 2/96
									not measured 2/93; 2 or 3 orange tubercles with gray spines 2/96; some new spine growth, firmly rooted 5/96; COD unknown 8/96
									found 4/91; ? cm from 92; pup with 77.6; no tag nor flag, only spines left 2/96
									found 4/91; ? com from 92; pup with 77.50; no tag nor flag 2/96; Dead 96
	194991 - 1520 1950 1950 1950 1950 1950 1950								just spines nested in grass 2/96
									1 seedling 2/94; looks dead but firmly rooted 2/96; dead, stem hollow, no insects 8/96
	1840 - 18	QC 2.05				1 1 5, (*			hollow 2/96
	artision (198 199 199 (1997) - 199			ing the second		1. 2.			top popped off like a hatch 2/96
			1, 55 4 (2)				5 (S. 1	1.00	hollow 2/96
305	101 101 101 101 101 101 101 101 101 101	dan soo) dan serin					And And And And And And And And And And		hollow, only spines left 2/96
Dead									14 seedlings by carcass 8/92; just spines left, COD unknown 3/97
			194, 1944			N. CHINA			sickly 8/93; hole in root, root hollow 2/96
									needs tag 4/94; tag replace 2/95; hollow
57 954 -27 954 					20				2/96
									hole in stem, stem hollow 2/96
			l de la compañía de la compañía de la compañía de la compañía de la compañía de la compañía de la compañía de l La compañía de la comp	A Constant of the second secon					hole in bottom, stem hollow 2/96
<u></u>									hollow tube inside stem 2/96
									hole at stem base, stem hollow 2/96 no flag nor tag 2/96, 5/98; mia 96, 97, 98
mia			mia			2010 2010 2010 2010 2010 2010 2010 2010		18. 498 * 18. 100*	tag reads 89.21 - change tag; pup w/89.41,
								ST	89.42, & 89.43; Dead 96
						1			pup with 89.4, 89.42, & 89.43, only spines left 5/96

89.42 4 5.40 115 2.40 1 1 2.00 1 1 2.60 1 1 2.60 1 1 2.60 1 1 2.60 1 1 2.60 1 1 2.60 1 1 2.60 0 2.60 0 2.60 0 2.60 0 2.60 0 2.60 0 2.60 0 2.60 0 2.60 0 2.60 0 2.60 1 1 2.	PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
90.00 4 1.55 110 3.20 2 1 3.00 2 0 2.60 1 1 2.60 1 1 2.40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 2.60 1 1 1 2.60 1 1 2.60 1 1 1 2.60 0				115								t-···	e đ	•	1		ł			Dying	Hexasa Linear	Dead
90.00 4 1.55 110 3.20 2 1 3.00 2 0 2.60 1 1 2.60 13 1 2.40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 2.60 13 1 2.40 0															Le Egilies				26 13		(1853) (1874)	Der State in the
90.10 4 >-49.70 101	89.43	4	5.40	115							2.00	0	0	2.00	0	• 0	2.60	0	2	Dying		Dêad
90.10 4 >-49.70 101												C CTRCAC						21				
92:00 4 26.51 45 1.60 0 1.80 0 0.170 1 1 1.70 0 0 Dead 3.40 2 0 Dead 3.40 2 0 Dead 3.40 2 0 Dead 3.40 2 0 Dead 5 5 3 4.30 4 0.420 3 3.430 2 2 Dead 5 5 5 3 4.30 4 0.420 3 3.430 2 Dead 5 5 5 3 3.430 2 Dead 5 5 5 5 3 4.30 4 0.420 3 3.430 2 Dead 5 5 5 3 1 5 5 3 1 5 5 3 1	خبرة الكلاب بزبنيت سري		in the second second second second second second second second second second second second second second second		3.20	2	1	3.00	2	0	2.80		1	2.60		1	2.40	0	0			
92:10 4 23.75 54 3 4 0 4.20 3 3 4.30 2 0 Dead 93.00 4 27.64 46 4.00 4 4 4.30 4 0 4.20 3 3 4.30 2 2 Dead 1 <td< td=""><td></td><td>Linking and the second s</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>birg (dia di</td><td></td><td>199</td><td></td><td></td><td></td><td></td><td></td><td>48.48</td><td>4.80</td><td>5</td><td>2+4A</td></td<>		Linking and the second s									birg (dia di		199						48.48	4.80	5	2+4A
93:00 4 27:64 46 4.00 4 4.30 4 0 4.20 3 3 4.30 2 2 Dead 93:10 4 27:64 46 1.20 0 0 1.80 0 0 1.60 0 0 1.90 0 0 Dead 1	92.00	4	26.51	45	1.60	0	0	1.80	0	0	1.70			1.70	0	0	Dead		34. 34.	Sider Siz	× ×	
93:00 4 27:64 46 4.00 4 4.30 4 0 4.20 3 3 4.30 2 2 Dead 93:10 4 27:64 46 1.20 0 0 1.80 0 0 1.60 0 0 1.90 0 0 Dead 1	92 10	4	23 75	54					- 1411 - 141 - 142 - 147 - 141 - 141		internal dir. Andre dir ba					- 22-3143 	340	2	388 IO	Dead		and and a second second second second second second second second second second second second second second se Second second
93:10 4 27:64 46 1.20 0 0 1.80 0 0 1.60 0 0 1.90 0 0 Dead Stake 4A is ~100m East of Stake 4, near ashe juniper stump with large flat limestone rock 1.00 4A 3.90 181 1.00 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>																						
Stake 4A is -100m East of Stake 4, near ashe juniper stump with large flat limestone rock 1:00 4A 3:90 181 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 5 5 3 Dead 4 4 4 4 5 5 3 Dead 4 4 5 5 3 Dead 3 4 4 3 4 4 5 5 3 Dead 3 4 4 3 4 4 5 5 3 Dead 3 3 10 4 4 4 30 2 2 5 3 Dead 3 3 10 5 3 10 4 4 4 30 2 2 5 3 10 10 10 10 10 10 10 10 10 10	93.00	4	27.64	46	4.00	4	4	4.30	4	0	4.20	3	3	4.30	2	2	Dead	10 1971 - 11 - 15 - 15				
1:00 4A 3:90 181 1	93.10	4	27.64	46	1.20	0	0	1.80	0	0	1:60	0	0	1.90	0 N	0	Dead					
1:00 4A 3:90 181 1				<u> </u>	l	L	L	<u></u>	l	· · ·		L								· · ··		
90.20 4A 3.90 181 Image: state is at the edge of Condalia Stake 6 = GPS4 R022320B; stake is at the edge of Condalia Image: state is at the edge of Condalia Image: state is at the edge of Condalia 96.00 6 5.55 346 3.60 nd 3 4.10 4 4.30 2 2 5:30 74 4 5.60 5 33 Dead 96.10 6 6:15 222 Image: state is at the edge of Condalia Im					4, near a	ishe jur	niper stu	imp with	large	flat lime	stone ro	ick						Bittine 1150-1				10117 - 10312
Stake 6 = GPS4 R022320B; stake is at the edge of Condalia A B	1.00	4A	3.90	181											1.00				Star of			
Stake 6 = GPS4 R022320B; stake is at the edge of Condalia A B					i i i i i i i i i i i i i i i i i i i																	
Stake 6 = GPS4 R022320B; stake is at the edge of Condalia A B											atomic de											
Stake 6 = GPS4 R022320B; stake is at the edge of Condalia A	00.20	10	2.00	181			Andre Ma		reningtert og	A station		4 18 M			104 (MAR)					1086 (24)- 1076 - 14		163 - 560 - 54 1651 - 551 - 55
96.00 6 5.55 346 3.60 nd 3 4.10 4 4.30 2 2 5.30 4 4 5.60 5 3 Dead 96:10 6 6!15 222 3 3 4.10 4 4/30 2 2 5/30 4 4 5.60 5 3 Dead 96:10 6 6!15 222 3 3 4.10 4 4/30 2 2 5/30 4 4 5.60 5 3 Dead 96:10 6 6!15 222 3 3 2 3 3 2 3 </td <td>90:20</td> <td>47</td> <td>0.30</td> <td></td> <td>- 60752, 1882, 1994 - 753 - 1982</td> <td></td> <td></td> <td></td> <td></td> <td>1000</td> <td></td> <td></td> <td></td>	90:20	47	0.30											- 60752, 1882, 1994 - 753 - 1982					1000			
96.00 6 5.55 346 3.60 nd 3 4.10 4 4.30 2 2 5.30 4 4 5.60 5 3 Dead 96:10 6 6!15 222 3 3 4.10 4 4/30 2 2 5/30 4 4 5.60 5 3 Dead 96:10 6 6!15 222 3 3 4.10 4 4/30 2 2 5/30 4 4 5.60 5 3 Dead 96:10 6 6!15 222 3 3 2 3 3 2 3 </td <td></td> <td></td> <td></td> <td></td> <td>+</td> <td>+</td> <td></td> <td>·</td> <td></td> <td></td> <td></td>					+	+													·			
96.00 6 5.55 346 3.60 nd 3 4.10 4 4.30 2 2 5.30 4 4 5.60 5 3 Dead 96.10 6 6!15 222 3 3 4.10 4 4/30 2 2 5:30 4 4 5.60 5 3 Dead 96:10 6 6!15 222 3 3 4.10 4 4/30 2 2 5:30 4 4 5.60 5 3 Dead 96:10 6 6!15 222 3 5 3 0 5 3 0 5 3 0 5 3 0 5 3 0 </td <td>Stake 6</td> <td>1 = GPS4</td> <td>B022320</td> <td>DB: stake</td> <td>is at the</td> <td>edae</td> <td>of Cond</td> <td>lalia</td> <td>i</td> <td></td>	Stake 6	1 = GPS4	B022320	DB: stake	is at the	edae	of Cond	lalia	i													
96.10 6 6:15 222 3:10 5 97.00 6 6:40 354 2:50 nd 3 2:70 2 0 13:00 2 2 3:50 2 2 3:20 2 Dead Dead Dead 10:00 6 9:74 3:54 1:60 nd 0 1:70 0 0 1:90 0 0 2:00 0 2:00 0 2:00 0 2:00 0 2:00 0 0 0:90 0 1:60 0 0 2:30 1 0 Dead 1:60 1:60 0 0 2:90 4 1 Dead 1:60 1:60 0 0 1:90 0 0 1:90 0 0 2:90 4 1 Dead 1:60 <t< td=""><td></td><td>1 1</td><td>we we wanted a second state of the second second second second second second second second second second second</td><td></td><td></td><td></td><td></td><td>· · · · · · · · · · · · · · · · · · ·</td><td>4</td><td>4</td><td>4.30</td><td>2</td><td>2</td><td>5.30</td><td>4</td><td>4</td><td>5.60</td><td>5</td><td>3</td><td>Dead</td><td></td><td></td></t<>		1 1	we we wanted a second state of the second second second second second second second second second second second					· · · · · · · · · · · · · · · · · · ·	4	4	4.30	2	2	5.30	4	4	5.60	5	3	Dead		
97.00 6 6:40 354 2:50 nd 3 2:70 2 0 3:00 2 2 3:50 2 2 3:20 2 Dead 99.00 6 8:79 351 0:40 nd 0 0:80 0 0:90 0 0 1:60 0 0 2:30 1 0 Dead 1:00 0 0:00 0 1:60 0 0 2:30 1 0 Dead 1:00 0 0:00 0 0:00 0 0:00 0 0:00 0 0:00 0 0:00 0 0:00 0 0:00	En la la la la la la la la la la la la la										Normalia 48.2											
99.00 6 8.79 351 0.40 nd 0 0.80 0 0 0 0 160 0 0 2.30 1 0 Dead 100.00 6 9.74 354 1.60 nd 0 1.70 0 0 1.90 0 0 2.90 4 1 Dead	96.10	6	6.15	5 222											1 194				NB .88	3:10	5	2+2A
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97D	M	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
										pup with 89.4, 89.41, & 89.43; looks dead but firmly rooted 5/96; dead, hollow 8/96
										pup with 89.4, 89.41, & 89.43; looks dead but firmly rooted 5/96; dead, hollow 8/96
						C. 24 Pringe C. 24 Pringe Click of P. Hi				Dead 96
6.8	30	14	12+4A	Dead						weevil exit holes 2/98
										pup w/92.1; alive even after co-pup 92.1 grub-death 2/94; 4/94; Dead 95
										should be renumbered & retagged; hole in root & at stem base; Dead 96
11. 11.								intersity (parts		Dead 95
- - 						110(16)		end how		Dead 95
				-					·	
							4.04		0	green, good, discovered 5/99; plant collected by Bill Calvert, weevil larva,
						Likeli				seedling accidentally uprooted, replaced
				0					g desi.	3/00; seedling and tag mia 5/00
						1 14 16 1 - 15 16 1				weevil exit holes 2/98
-										
										1 seedling 4/94; fruit only half developed; hollow, uprooted 2/96
4.(30	6	5 3+3/	\ mia			mia		Rampo da P Sella presi Regularista	1 fruit moved ~1 cm from plant 5/96; totally orange 8/96; purplish green, healthy, scar
										beneath a tubercle 3/97; plant mia 3 & 5/00
										tubercles purplish 3/95; hollow 2/96
		China (1971)								hole at base 2/96
										sickly 2/94; 1 fruit eaten & larval hole 5/95; only spines left 2/96
								201 17 1 - 201	1. <u>38 262</u> 1. <u>18</u> 1. <u>18</u> 1.	hollow 2/96
<u>d</u> - 11 m ² - 1	i ja Milio		이 2011년 11월 21일						an ismailte Georgia de la composition	hollow 2/96
								- NG - 02-1		Dead 96
										smallest diameter; flower & fruit production!!!; Dead 96

101.31 6 8.56 354 1 0.80 0.0 1.00 0.0 1.00 0.0 1.00 0.0 1.00 0.0 0.0 1.00 0.0	PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
Mark Mark <th< td=""><td></td><td>L</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td><u></u></td><td></td><td></td><td></td><td>L</td><td><u> </u></td><td></td><td></td><td></td><td></td><td></td><td> ·</td></th<>		L									<u></u>				L	<u> </u>						·
101.38 6 8.94 .554 1.10 0 1.10 0 0 1.80 0 1.70 1 0 Deed 2 101.38 6 9.96 354 1.60 0 2.10 1 0 1.80 0 0 1.80 0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ide e</td>																						ide e
101.33 6 894 354 1.10 0 0 1.60 0 0 1.70 1 0 Dead 3 101.34 6 996 354 1.80 0 0 1.90 0 1.90 0 Dead Dead <thdead< th=""> <thd< td=""><td>101.32</td><td>6</td><td>8.80</td><td>354</td><td></td><td></td><td></td><td></td><td></td><td></td><td>1.20</td><td>0</td><td>0</td><td>1.70</td><td>Ó</td><td>0</td><td>2.30</td><td>0</td><td>Dead</td><td>Dead</td><td></td><td></td></thd<></thdead<>	101.32	6	8.80	354							1.20	0	0	1.70	Ó	0	2.30	0	Dead	Dead		
101.35 6 7.75 350 1.40 0 0 1.80 0 2.20 0 0 Dead 2 101.36 6 7.45 358 1.40 0 0 1.80 0 0 2.20 0 0 Dead 2 0	101.33	6	8.94	354					i de potrati		1.10	0	0	1.60	0	0			0	Dead	- Licratol X	
101.36 6 7.45 358	101.34	6	9.06	354			i i i i i i i i i i i i i i i i i i i		lag alle s	insaula.	1.60	0	0	2.10	1	· 0	1.90	0	Dead	Dead		i de l
101.37 6 7.44 356 2 2.50 0 0 340 2.4 3 4.4 3 4.4 5 5 3.60 1 0 Dead 0 <th< td=""><td></td><td></td><td>7.75</td><td>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td></td><td></td><td>112</td><td></td><td>21.15</td><td></td><td>1.40</td><td><u> </u></td><td>0</td><td>1.80</td><td>0</td><td>0</td><td>2.20</td><td>0</td><td>O O</td><td>Dead</td><td></td><td></td></th<>			7.75	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			112		21.15		1.40	<u> </u>	0	1.80	0	0	2.20	0	O O	Dead		
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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
									at 101.30; green, really hunkered 2/96; stem hollow, killed by grubs? 5/96
			ia deba						Dead 96
									barely alive 5/95; Dead 96
						4,641.44			Dead 96
			C21 7 4 0						rock atop 2/94; root hollow, no insects 2/96
mia			mia			mia			hunkered down in rock 2/96; either 101.36 or 101.37 is missing or they are beside each other & indistinguishable 5/96; only one small spine cluster in vicinity 3/97; tag loose 2/98, 5/98; mia 97; 98, 99
mia			mia			mia			hunkered down in rock 2/96; either 101.36 or 101.37 is missing or they are beside each other & indistinguishable 5/96; only one small spine cluster in vicinity 3/97
									Dead 96
		an der					1000		Dead 96
107078			6(5);;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;						not seen 8/93; Dead 96
									damaged? 3/92; fr 1/2 developed 5/95; Dead 96
									2 larvae collected, 2 seedlings at plant base 2/96; Dead 96
									eaten 3/92; pup formed 2/93; sickly 2/95; only one spine cluster left 2/96
Constants -				*102				- 10 5 14	spines only 2/96
		Chevel .		1944 1950 1964			. <u>e</u> : vr40		sickly 8/93; Dead 96
		- 4.6	а. Х						hollow, larvae gone? 2/96
mia			👘 mia	4104		mia			mia 8/96, 97, 98, 99
Dead									pup with 111 1; plant orange 8/96; COD unknown, just spines left 3/97
Dead		in the second		t Arriver		£ 15			pup w/111.00; just spines left 3/97
1.90	0	0	2.10	0	Dead				in seedling ring by salmon pin with blue dot 3/97, measured in one direction only 2/98; stem w/4 chambers, 2 exit holes, 2 dried & dead larvae 5/98
1.00) 0	0	0.80		0	1.01	0) C	in seedling ring by green pin with orange & blue dots 3/97; measured in one direction only 2/98; green, good 3 & 5/00, 3 & 5/01

PL#	STAKE		ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
111.40		6.25	27																		
111.50	6	6.17	26			And a second sec															
111.60		6.17	26																		
113.00	2124101	8.62	22	1.50	nd	0	1.80	0	0	A STATEMENT AND A STATEMENT AN		0	1 1 Margan Wegthe Vegt truck		0	2,00	2.200 compare eres see	A for the look	A REPERTING		
113.10		8.95	15						A CONTRACTOR	. 2.20	1		2.40	1		4.60		9072253077 077 C / Whateholder /	and determine the second		
1 13.11		8.95	15					10.54.0					i K			2.30	r 2	<u>_</u> 0	Dead		
114.00	6	10.24	28	1.20	nd	0	1.70	0	. 0	1.50	0	0	1.90	0	<u>.,</u> 0	Dead	State in the	100	1999 (1891) 1999 (1995) 1999 (1995)		
115.00	and the second sec	.10.20	28	2.20			2.60		1 1 1 1	2.40		7100300	.3:40	1		3.70		mia	Dead		1. 2009 7. 3019 1. 3020
116.00		10.06	29	2.40	nd	* 0	2.70		0	2.40		0	3.20			3,80	3	Dead	Dead		
116.10		11.60	58																		
116.20		11.70	57																		
116.30		11.80	58						-				-								
116.40	6	11.81	58																		

r.

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
1.30	0	0	1.50	0					in seedling ring by green pin with blue dot, barely rooted 3/97; measured in one direction only 2/98; dead weevil inside stem 5/98
0.70		0	mia		Dead				in seedling ring, ca. 10 mm from 111.60 & pin, discovered 5/97; solid & dry, COD unknown 5/98
0.70		0	1.10	0	0	0.71	0	Dead	in seedling ring by green pin with blue dot? or blue pin, discovered 5/97; measured in one direction only 2/98; COD unknown, collected by WHC 99
									2 larvae collected; Dead 96
									hollow, larvae gone 2/96
									pup of 113.11, 2/95; 1 more pup 5/95; hollow, larvae gone 2/96
									sickly 2/94; Dead 95
									tag missing, ground disturbed; one spine cluster left 2/96
					na uter		en alter de la		hollow 2/96
0.70	0	0	0.60	0	0	Dead			in seedling ring, not by a pin, in gravel, loosely rooted 3/97; measured in one direction only 2/98; killed by larva, collected 2/99
0.90	Ô	0	1.00	0	0	Dead			in seedling ring, not by a pin, in grass, loosely rooted 3/97: measured in one
									direction only 2/98; seed ring off, plant hollow, probably killed by weevils 2/99
0.80	0	0	1.40	0	0	mia			in seedling ring, ca. 20 mm from orange pin with blue dot, in grass 3/97; measured in one direction only, either two-headed or two plants 2/98; plant mia 99, 3 & 5/00, 3 & 5/01
1.20		0	1.40	0	0	Dead			in seedling ring; ca: 50 mm from orange pin with blue dot; in grass 3/97; measured in one direction 2/98; slightly hollow, weevil? 2/99
					· · -···			·	

PL#	STAK		ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
		S5 R02232		ler persir	nmon)				<u> </u>			- · ·		+ · ·	· · · · · ·		1	:			
1.00	6B	~66.30	102																		
2.00	6B	~63.70	~104					101 <u>5</u>					<u>let i en m</u>				<u>Makana n</u>		<u> </u>		<u></u>
2.01	6B	63.53	106			·															
118.00	6B	20.90	80	1.50	nd	0 6 6	2.50	Ó	0	2.90	2	0	3.80	2	2	2.10	0	0	2.10	0	Dead
118.10	6B	23.59	114		•			Thrower 2.3.2				i	<u>, i 191. – Jiwa Nyi</u>				. تىغىرى يۇنىڭ 1		<u>,</u>		
118.20	6B	23.53	113						-	· · · - ·											· · - · - · - · ·
122.00	6B	30.42	107													3.90	3	3	2.70	0	Dead
123.30	6B	15.67	108				0.70	0	0	0.60	0	0	mia	0	0	Dead					
123.40	6B	15.67	108				0.80	0	0	0.80	0	0	1.00	0	0	1.20	0	0	1.20	Ú	C .
123.50	6B	15.67	108				0.60	0	0	0.60	0	0	0.70	0	0	0.75	0	0	0.90	Ö	0
123.60	6B	11.66	102		1000 (1000) 1000 (1000) 1000 (1000)	unei shinkad em k Dole si													1.80		11
Stake 7	= GPS	6 R022319	C						+-·				····								
1.00		23.10	r — — — · · ·		+										··		+			<u>ا</u>	
2.00	7	4.40	231			••••	+· ·														
129.00	7	2.07	241	2.20	nd		3.90	3	3	4.10	3	2	4.20	3	3	3.70	2	0	Dead		er er
129.10	7	3.54	210				2.10	nc	l d	1.80	0	Ō	1.90	0	0	1.50	0	Dead	mia		
130.00	7	2.10	269	1.60	nd	0	2.30	1	1 <u></u> 1	2.50	1	0	2.50	2	2	2.40	<u>1 </u>	0	1.80	0	0
																				U	
130.10	7	2.36	273			34 <u>19</u> -11			-						<u> </u>						tinit Marina i jij
									1												

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
						3.81	4	4	dull gray spines, body orangish & maroon, OK 5/99; COD unknown, collected by Bill Calvert 3/00
						3.07	3	3	green, good 5/99; a few tan tubercle tips, otherwise green and good 5/00; plant mia 3 & 5/01
					:				discovered 5/01; green, good, hunkered in Selaginella 5/01
									weevil collected 5/96 discovered 3/01; green, good 3 & 5/01
									discovered 3/01; green, good 3 & 5/01
									1 fr 1/2 size of others, nipped at top 5/95; looks dead 2/96; killed by grubs 5/96
									not seen 8/93 or 2/94; refound 4/94; Dead 4
Dead									not seen 8/93; COD unknown, stem hollow, no insects 3/97
Dead							2012349831		not seen 8/93; sickly 2/95; COD unknown, stem hollow, no insects 3/97
2.50		0	2.60	2	Dead				hollow with weevil exit holes 5/98
			· · · · · · · · ·				· · · · · ·		discovered 3/01; green, good 3 & 5/01
						;			discovered 3/01; hunkered in Selaginella, green, good 3 & 5/01
Monthain and									sickly 5/95; hollow 2/96
									found 4/92; very sick 2/95; tag & flag mia also 2/96; Dead 5/96?
2:30	0	0	Dead						hunkered down in <i>Selaginella</i> 2/96; coming out of <i>Selaginella</i> 3/97; just spines left, COD unknown 2/98
1.10	0	0	1.20	0	nd	1.14	0	0	discovered 3/97; measured in one direction only 2/98; plant & tag covered by rock 2/99; green, OK, hunkering 5/99, 3 & 5/00, 3/01; popping out, green, good 5/01

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131.00 7 2.85 328 2.20 nd 1 3.00 2 0 3.00 2 2 3.10 1 1 4.00 3 3 132.00 7 1.90 340 4.50 nd 4 4.90 3 1 4.20 1 1 4.20 0 0 0 Dead - 132.10 7 1.90 340 - - - - - 6.50 0 132.20 7 1.90 340 - - - - - 3.80 0 0 132.20 7 1.90 340 - - - - - 3.80 0 0 133.00 7 9.30 23 3.30 nd 1 1.3.30 2 1 3.80 3 3.30 0 0 - - - 3.40 3 3.30 0 0 - - - - - - - - - - <	96DM 96FL 96FR 3.60 4 2 Jead - - Dead - - Jead - - Jead - -
132.10 7 1.90 340 650 0 132.20 7 1.90 340 380 0 0 132.20 7 1.90 340 380 0 0 133.00 7 9.30 23 3.30 nd 3 3.10 1 1 3.30 2 1 3.80 3 3 3.30 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 3.00 1 1 3.40 3 3 3.30 0 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 3.00 1 1 3.40 3 3 2.50 0 0 135.00 7 2.75 31 4.60 nd 3 4.70 5 5 4.10 1 0 3:30 0 0 2.80 0 Dead	Dead Control C
132.10 7 1.90 340 650 0 132.20 7 1.90 340 380 0 0 132.20 7 1.90 340 380 0 0 133.00 7 9.30 23 3.30 nd 3 3.10 1 1 3.30 2 1 3.80 3 3 3.30 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 3.00 1 1 3.40 3 3 3.30 0 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 0 3.00 1 1 3.40 3 3 2.50 0 0 135.00 7 2.75 31 4.60 nd 3 4.70 5 5 4.10 1 0 3.30 0 0 2.80 0 Dead	Dead Control C
132.10 7 1.90 340 650 0 132.20 7 1.90 340 380 0 0 132.20 7 1.90 340 380 0 0 133.00 7 9.30 23 3.30 nd 3 3.10 1 1 3.30 2 1 3.80 3 3 3.30 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 3.00 1 1 3.40 3 3 3.30 0 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 0 3.00 1 1 3.40 3 3 2.50 0 0 135.00 7 2.75 31 4.60 nd 3 4.70 5 5 4.10 1 0 3.30 0 0 2.80 0 Dead	Dead Control C
132.10 7 1.90 340 650 0 132.20 7 1.90 340 380 0 0 132.20 7 1.90 340 380 0 0 133.00 7 9.30 23 3.30 nd 3 3.10 1 1 3.30 2 1 3.80 3 3 3.30 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 3.00 1 1 3.40 3 3 3.30 0 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 0 3.00 1 1 3.40 3 3 2.50 0 0 135.00 7 2.75 31 4.60 nd 3 4.70 5 5 4.10 1 0 3.30 0 0 2.80 0 Dead	Dead Control C
132.20 7 1.90 340 380 0 0 133.00 7 9.30 23 3.30 nd 3 3.10 1 1 3.30 2 1 380 3 3 3.30 0 0 0 133.00 7 9.30 23 2.80 nd 1 2.80 0 0 3.00 1 1 3.40 3 3 3.30 0 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 0 3.00 1 1 3.40 3 3 2.50 0 0 135.00 7 2.75 31 4.60 nd 3 4.70 5 5 4.10 1 0 3.30 0 0 2.80 0 Dead	Dead Dead Dead Dead
133.00 7 9.30 23 3.30 nd 3 3.10 1 1 3.30 2 1 3.80 3 3 3.30 0 10 133.10 7 9.30 23 2.80 nd 1 2.80 0 0 3.00 1 1 3.40 3 3 3.30 0 0 0 133.10 7 9.30 23 2.80 nd 1 2.80 0 0 3.00 1 1 3.40 3 3 2.50 0 0 0 135.00 7 2.75 31 4.60 nd 3 4.70 5 5 4.10 1 0 3!30 0 0 2.80 0 Dead	Dead Dead Dead
133.10 7 9.30 23 2.80 nd 1 2.80 0 0 3.00 1 1 3.40 3 3 2.50 0 0 135.00 7 2.75 31 4.60 nd 3 4.70 5 5 4.10 1 0 3!30 0 0 2:80 0 Dead	Dead Dead
135.00 7 2.75 31 4.60 nd 3 4.70 5 5 4.10 1 0 3.30 0 0 2.80 0 Dead	Dead
135.00 7 2.75 31 4.60 nd 3 4.70 5 5 4.10 1 0 3.30 0 0 2.80 0 Dead	Dead
	1.30 0 Dead
137:00 7 3:15 45 1.70 nd 0 2:00 0 0 2:30 0 0 2:30 0 0 2:30 0 0 2:10 2 12	
138.00 7 5.72 45 3.70 nd 2 4.40 11 0 4.00 2 2 3160 0 0 3.30 0 Dead	Sample Barry and Barry Street and Street and Street and Street and
138:10 7 6:31 42 4:60 3 4:40 2 0 4:60 3 2 3:00 0 Dead	
	Dead
138.20 7 7.03 42 3.30 3 3.30 1 1 3.10 1 0 3.00 0 0	Dead
138.30 7 877 30 2.40 2.90 2 2 3.00 2 2 3.00 2 3.00 0 0	mia , mia
138.40 7	Dead
140.00 7 4.13 64 3.80 nd 2 3.60 a 1 1 3.30 1 1 3.00 0 0 3.00 0 Dead	
140.00 77 413 64 3.80 nd 2 3.60 1 1 3.30 1 1 3.00 0 0 3.00 0 Dead	mia
140.10 7 3.80 66 1140 0 0	
	1.10 0 mia
141.00 7 4.49 68 1.20 nd 0 2.20 1 0 2.40 1 nd nd 1 2.00 0 Dead	mia
142.00 7 4.49 68 1.30 nd 0 2.30 0 0 2.30 1 1 2.40 0 0 1.90 0 Dead	mia
143.00 7 4.49 68 1.20 nd 0 1.40 0 0 1.70 0 0 2.20 0 0 2.40 1 Dead	mia
143.10 7 4.45 69 na 2.20 1 1 2.80 2 1 2.60 1 1 mia mia mia	mla

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
Dead									rock atop, removed 3/20/92; very sickly 8/93; 1 fruit ripped on top & ants swarming seeds 5/96; stem hollow with insect exit holes 3/97
									Dead 95
									Dead 96
							이라는 것으로 기관: 고기 :		uprooted 2/96
									2 seedlings 3/92; pup with 133.1; seedling 5/95; completely hollow 2/96
									pup with 133.00; seedling 5/95; completely hollow 2/96
									sickly 8/92; very sickly 8/93 & 2/94; very, very sickly 2/95; hollow 2/96
				4					hunkered down 2/96; killed by grubs 5/96
			li (kaj lakoj of l						only spines left 2/96
						arts della Bella lattera			found 4/92; sickly 2/95; only spines left 2/96
									only spines left 2/96
									found 4/92; 2 unmapped seedlings 4/92; sick 2/93; seedlings tagged 4/94; larval exit holes 2/96
Dead					51) -1-301 				found 4/92; not seen 8/92; tag mia also 2/96; COD unknown, only spines left 3/97
									9.1 cm E of 138.11; hollow, larvae gone 2/96
									sick 8/92; very sick 8/93; Dead 95; tāg miā also 2/96
mia		Case a	mia			mia			ca. 1" from 140.00; mia 8/96, 97, 98, 99
									mammal damage 8/93; pup from stump 4/94; no flag or tag 2/96; Dead 5/96?
									needs tag 4/94; no flag nor tag 2/96; Dead 5/96?
									needs tag 4/94, no flag nor tag 2/96; Dead 5/96?
mia									fruit yellow at maturity 4/94; mia 95; no flag nor tag 2/96; mia 97

PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95EI	95FR	96DM	96FI	96FR
144.00	7	2.71	72	5.60	nd		5.30	2	1	5.50			4.70		·						Dead
146.00	7	5.73	76	2 10			0.10														Rdela (
146.00	/	5.73	76	2.10	nd	1	2.10	0	0	2.00	0	0	1.80	0	0	1.70	0	0	1.70	0	0
147.00	7	5.73	76	1.30	nd	0	1.70	0	0	1.30	0	0	1.70	0	0	1.50	0	0	110	0	0
																					3.0184) 36.0184)
148.00	7.	5.42	78	3.30	nd		3.60		0	3.50	2	2	3.40								
										3:30	4	2	3.40	0	0	3.60	0	, 0	2.80	0	0
																a or je j					
																				18.18 17 - 18	
152.00	7.	6.19	112	3.70	nd	1	4.10	1	0	3.70	0	0	3.70	÷. 0	0	Dead					
153.00	7	3.80	115		i interest														3.30	1.	
																			ა. ა		
Stake 8 =	- 6097	ckin all c	lood														- · ·				
154.00	<u>- Gr37,</u> 8	13.88	264	3.90	nd	6	5.50	11	11	6.00	8	8	6.00	5	2	5.80	4 7	0	3.10		Dead
										100			. 0.00	J	4	5.00		9	J.IU	U	Dead
																					1
											16 - 16 - 19 15 - 16 - 19									1.1.1.24 MW	8.63
15010	<u>é</u>	C 10	00						and the second												
156.10	8	6.13	90				2.50	nd	U	2.50			2,40	0	0	Dead	LFait LFait				
							·														
Stake 9 =	= GPS7 j	plant R02	2319A; i	reshot re	bar RC	223198	3 in a clu	ister of	prickly	pear, Te	exas pe	ersimmo	n, junip	er and a	agarita				·· ·		
1.00	9	~80.83	~259]		f - ·		_ • • •••	; · · · · ·	U					- · ·	
														•							
2.00	9	~80.83	~259							·											
2.00	Э	~60.63	~209											•	:						
		ĺ					:										1				
1						·,						<u> </u>					: 	1			

97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
									needs tag 4/94; spines gray at base; tubercles still green, plant loose in soil 2/96; killed by larvae 5/96
1.70	0	0	1.90	1	0	1.84	1	1	one tubercle brownish-purple 3/97; dull green 5/97; hunkered down in Selaginella, dull green, OK 2 & 5/99; green, good 3 & 5/00, 3 & 5/01
mia			mia			mia			mia 8/96; mia 97; tag mia 2/98; tag relocated 5/98; tag almost covered by Selaginella 2/99
Dead									basal spines gray, tubercles, green 2/96; new spine growth, ants swarming, no fruits 5/96; stem hollow with insect exit holes 3/97
									8 seedlings 3/92 & 2/94; 6 sick seedlings, parent grub-infested, 2/95; Dead 95
Dead									discovered 5/96; shrunk away from Selaginella 8/96; stem hollow with insect exit holes 3/97
									very light colored flowers 3/92; 2 fruit
									collected (68 & 61 seeds) 5/93; 93 seeds germinated 70% & 80%; only loose spines. & hole left, spines scattered in a 1' radius. 5/96
									found 4/92; Dead 95
	· · · · · · · · · · · · · · · · · · ·					2.36	2	1	on old road , about midway down; orangish, OK 5/99; one spine cluster in vicinity, plant mia 3 & 5/00, 3 & 5/01
	.				· · · ·				discovered 3/00; green, good 3 & 5/00; reddish-green, OK 3/01; pale reddish- green, poor 5/01

PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
· · ·	·									• •									·	· ·	
Stake 15	= GPS8	8 R02231	8B	: : i											· · · · · · ·		1	† .	1		
157.10	15	7.61	132				3.40	nd	2	2.70	0	0	3.20	0	0	Dead					
161.00	15	8.80	134	3.30	nd	2	3.60	nd	3	3.10	2		3.20	2	nd	3.20	0	nd	2.60	3	1+11
166.00	15	4.78	160	3.10	nd	1	3.00	2	2	3.00	0	0	3.10	2	0	1:70	0	Dead	Dead		
169.00	15	4.22	176	1.70	nd	0	2.10	nd	0	2.10	0	0	2.60	1	0	mia		22	Dead		
170.00	15	4.55	175	2.10	nd	0	2.30	nd	estart.	2.20	- 1	0	2.30	Ő	0	mia	mia		mia		
171.00	15	6.66	172	1.60	nd	0	1.90	nd	0	1.90	0	0	2.10	Carl N. S. Start	0		mia	<u> </u>			
171.10	15	6.69	172	<u></u>	initi offerende	<u>w</u> .t663-F41.7	end is proposition			<u>, 1999, 1997, 1997</u>					<u> 275 : 306 (51 - 34 - 3</u>				1997 12 11 11 19241	(1997) (1997)	
171.20	15	6.71	173			···· ·	· · · ·	·									~				
172.00	15	6.88	170	1.10	nd	0	1.70	nd	0	1.90	0	0	nd	0	0	mia			Dead	57.04 (PA)	
174.00	15	6.88	176	3.00	nd	3	nd	0	- <u> 0</u>	1.60	0	0	2.20	0	0	Dead	A LOUGH CONTRACT		3		12030000
177.00	15	9.85	174	2.40	nd			0		den anno 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 199	1	1	2.30		<u> </u>	Dead					
178.00	15	9.27	174	0,60	nd	. 0	1,90	nd	0	1.80	0	nd	nd	nd	0	Dead					
178.10	15	9.27	174				0.70	nd	0	mia		nd	0.80	0	0	0.80	0	0	1.40	Ö	Dea
178,20	15	9.27	174				0.80	nd	0	1.10	0	0	1.80	0	0	Dead	1			2 5 8	
180.00	15	6.10	1	1.10	nd	0		nd	Luiten to the state of the	La line and the second	0		1.40			mia			mia		
180.10	15	6.10		1.00	1.0 1.0 1.0 1.0 1.2	0	And the second second	nd					0.90			mia					
183.00	15	6.40	190	1.30	nd	0	1.50	nd	0	1.40	0	nd	1.40	Ő	nd	mia	mia	mia	mia		
185.00	15	11.45	186	1,20	nd	0	1.40	nd	0	1.80	0	nd	2.20	0	ńd	Dead	Dead				
186.00	15	11.10	i i i i i i i i i i i i i i i i i i i	3.10	فيت المتحدث التحد		2.80	nd				2	3.20						2.30	2	
188.10	15	8.95	185					1 <u>, 3</u> , 3; 		1,10	0	nd	1.60	0	nd	1.60	0	0	1.60	0)

97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
			<u>.</u>						· · · · · · · · · · · · · · · · · · ·
		1. gil. s.			1. <u>191</u> . (191				
									found 4/92; appears damaged 4/92; pup forming 2/93; Dead 95
3.20	3	Dead		Long		ana ang ang ang ang ang ang ang ang ang			growing from under rock; orange & mushy
									inside, fruit not formed, tag & flag removed
					e . Ristance				5/97
							X. 11.		2 fruit with 23 & 17 seeds 4/92; sick 8/92;
						na se la selas 2. presenta de			very sick 8/93; looks dead 5/95; only spines
					andra Mita Artista	Sector 21			left 2/96
mia		160 milder 18				Same and the second second second second second second second second second second second second second second			Dead 96
mia			aize robini Striteri Stat			Ballio dia tra Galgio dia tra			mia 95, 8/96, 97 not seen 8/93; mia 95; tag missing; tag &
									flag missing also 2/96; mia 97
			<u>in an an Art</u>	i i ribi i venar	1998 (1997) - 1998 (1998)	2000000 00000000	<u></u>	26.121 1.121	possibly 171.00; discovered 3/01;
									hunkered, green, OK 2 & 5/01
		-		· · ···			 		discovered 5/01; green, OK 5/01
									not censused 2/94; refound 4/94; Dead 96
		21.58 St.	111 원 41 112 년 41 년 41			MICHT Sete	121325		eaten, pup forming 3/92; Dead 95
S21-44		1		2000 E		tings of the			eaten, 2 pups forming 3/92; only 1 pup
				11118					measured 2/93; Dead 95
						in is den i Note doub	以 9倍 - 신 御神祇, 一社		pup from stump 3/91; not censused 2/94;
	11 23							DON: Patro	refound 4/94; Dead 95
									found 4/92; not seen in 1993; between 2
									rocks 2/95; hollow; killed by larvae 5/96
	950 - 210 950 - 210 950 - 210						ik su		found 4/92; Dead 95
mia									pup with 180.1; mia 95, 8/96, 97
mia									pup w/180.00 (formerly 181.00); mia/95 & 96; tag mia 3/97
mia			·						pup with 183.1; 183.1 dead but 183.00 still
									alive 4/94; mia 95, 96, 97
								34 	Dead 95
Dead									COD unknown, stem hollow inside & filled
			.: 						with granular substance 3/97
1.90	0 1	Dead	1.					5740 1571	COD unknown, stem hollow 5/97

PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FF	95DM	95FL	95FR	96DM	96FL	96FR
190.10	15	13.64	198				4.90	nd	3	4.50	2	2	4.30		_ n		·····		4.20	3	2+11
				う者 (第1) 人 権勢																	
			. *																		
191.10	15	12.43	203				0.90	nd	0	0.90	0	nd	0.90		n n	1.70	0	0	2.30	0	0
																			inglis at		
191.20	15	~12.44	~204														55		1.60		0
194.00	15	12.48	206	4.80	nd	7	4.80	5	3	5.10	4	4	4.70		n n	4.90	7	7	4.00	8	8
194.01	15	12.48	206					nomen Haliouu								n opolen ein is Sinder Sand		1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
194.02	15	12.48	206											1	192			14 at 14 at			in Carbon
194.03	15	12.48	206					and and a second second second second second second second second second second second second second second se					inter and a second								
								Prizing													
194.04	15	12.48	206					0.085		NULL LLAS											
194.10	15	12.66	204				2.40	nd	2	2.20	0	nd	2 60		n n	3.40	3	3	2.50	2	2.2
					- Contraction of the second se																
194.20	15	12.20	200															- [/ n initial difficulty			
197.00	15	9.87	264	2.20	nd		1.90	nd	0	2.00			2.10	t C	n 🤅	d 2.10	0	1 1 1	1.90		disp.
197.01	15	~9.84	~264					2 and 2											1.00		0
					SALEMARD I	·별 전도 (하고 문															
197.02	15	10.05	265				1				· · · · · · · · · · · · · · · · · · ·	1 - 1000, 62, 72 3., 67 Y.,	<u></u>		- <u>-</u>			<u>_</u>	· · · · · · · · · · · · · · · · · · ·		<u></u>
				- SBORT CALLER	<u>u 1001</u>																
197.03	15	10.07	265																	18.57 19.57	Control of States
197.04	15	9.96	267			·	<u> </u>	e stratelyi	pie uppi. I	ina nikiw	st og tille		3* <u>. p .</u>	· · · · ·							的公開的
197.05		10.00	266				<i>"</i>			<u> </u>	<u> </u>				-	+ -· ·	+ · ·	l	ł		
197.10	15	6.45	265							2.00	0		nd			1.50	Ó	0	1.60	0	0
																					ada San Garage Maria
197.20	15	6.45	265													2.00	0	0	2.30	2	0
202.20	15	9.95	264				1.60	nd	خيسب سيخدان	1.60	0		1.90)n	d 1.90	0	0	1.70	2	disp.
					et et et et et et et et et et et et et e	·	1.00									1.30		0		2	usp.

97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
Dead									found 4/92; 3 seedlings 4/92; 2 seedlings 2/95; seedlings mia 2/96; COD unknown, stem hollow, filled with yellow granular matter 3/97
2.30	0	Dead							found 4/92; not seen 8/93; COD unknown, stem tissue solid but granular 5/97
Dead?	0	Dead							found 5/96; looks dead, but check again 3/97; COD unknown, only loose spines left 5/97
Dead									1 seedling at base by tag 5/96; COD unknown, only spines left 3/97
0.80	0	mia	mia			mia			discovered 3/97; mia 5/97, 98; one tag for all, uprooted & chewed, nail mia 2/99
0.40	. 0	mia	mia			mia	SPEC 2	5	discovered 3/97; mia 5/97, 98, 99
0.40	0	mia	mia			mia			discovered 3/97; uprooted with parent, replanted 3/97; mia 5/97, 98; 99
0.40	0	mia	mia		12 A. 172	mia			discovered 3/97; green pup off similar size stem 3/97; mia 5/97, 98, 99
Dead	in ann								found 4/92; COD unknown, small hôle, perhaps weevil exit hole 3/97
									discovered 3/01; green, good 3 & 5/01
Dead									eaten, pup forming 3/92; sick 8/92 & 8/93; very sick 2/95; much better 2/96; COD unknown, only spines left 3/97
1.20	0	0	Dead						found 5/96; base of grass clump 3/97; just spines left, COD unknown 2/98
1.30	0	0	mia			mia			discovered 3/97; tag & nail loose 2/99; plant mia 3 & 5/00, 3 & 5/01
3.60	4	2+1A	Dead						discovered 3/97; hollow, just spines left, j.e. weevils? 2/98
	Face nationalities				•				discovered 5/01; green, good 5/01
	†··		-			:			discovered 5/01; green, OK 5/01
3.00	Ó	0	Dead						partly eaten 2/94; 2 pups forming 4/94; a few spines left, COD unknown 2/98
2.20	0	0	2.10	1	nd	Dead			small larva inside, larva killed by calipers 2/99
2.20	1	0	mia			mia			found 4/92; plant mia 98, 99, and 2000

	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
202.30	15	13.34	265													2.50	2	2	2.10	0	4 0
203.01	15									0.70	0	nd	0.80	0	nd	1.10	0	0	0.80	0	0
203.10	15	13.83	276				4.10	nd	4	3.70	3	3	4.60	3	nd	5.60	9	6	4.80	5	4+4A
203.11	15	14.05					4:10			3.70		3	4:00		1 IU	2.50	9 2	2	4.80		
203.12	15	14.74	280					R RATE O	2 101 122 1			BL distant				1 00	0		1.60		
ECO.IL E ASSACION	i Giagra di Mungan		200													1.80		U A	1.00		1
203.20	15	13.37	274				3.70	nd	3	2.80	, O	nd	3.40	3	~ 3	3.00	. 0	Ö	3.20	4	3+1A
									and an an an an an an an an an an an an an												
203.21	15	13.37	274		es contra				nela Esc				- B			Balan, (*)		0	1.20	0	- 1 O
		,																V	1.20	V	0.0
203.211	15	13.37	274																2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
000 00		10.07	074	상태에 가격하였다. 24 - 25 - 28 - 28 - 28 - 28 - 28 - 28 - 28					4 ta 121 a. Aria tara					en seren in References		in an					
203.22	15	13.37	274				il and and a						dada eta Pandar dan ya						1.40		<u></u> 0
203.30	15	13.23	274				1.00	🤌 nd	the she O	1.00	0	nd	1:00	0	nd	mia		-0	1.50	0	. 00
		Ali 1998 (Ali) Ménéralan										nter sport Millioner Ca									
203.40	15	13.00	297			ni za ole	2.60	nd	nd	2.70	1 S O	0	2.70	0	nd	-2.60	0	.0	2.20	2	mia
	• • • • • •									2.10			2.10			2.00		, v	2.20		IIIId
			4261 - 11261 - 8																		
												shur siG (chi									
203.41	15	13.51	297								in desi	ode sont							0.50		1
204.00	15	13.51	297	4.50	nd	6	4.50	7	5	4.60	6	6	+ 3.90	2	nd	4.20	1 10 2 1000	1A	Dead		
							전 것으로 다. 말, 다.					n far i Ninger									

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07011		0755	00011	000		00000	<u> </u>		Devil s Sinkhole State Natural Area
97DM	97FL	97FR	98DM	98FL	98FH	99DM	99FL	99FR	NOTES
Dead									in rock; COD unknown, stem hollow, no insects 3/97
mia			mia			mia			55 cm W of 203.00; base of grass clump; mia 8/96, tag & flag also mia; mia 97, 98, 99
Dead									found 4/92; COD unknown, stem solid 3/97
mia	lan an		mia			mia			very loose in soil, green, 1 seedling underneath 2/96; Dead 8/96, hole in stem, no insects, seedling still alive; seedling mia 3 & 5/97, 98, 99
Dead									in solution pocket in rock; COD unknown, - drought?, stem solid 3/97
Dead									found 4/92; 5 seedlings 4/92; seedling by tag 5/95; numbered as 203.21 2/96; COD Unknown, stem hollow, no insects 3/97
Dead	alan an								discovered 5/95; COD unknown, stem hollow, no insects 3/97
1.30		0.	Dead						seedling or pup of 203:21, discovered 5/97; just spines left, COD unknown 2/98
1.30	0								discovered 5/96; stem hollow; with weevil holes 3/97
2.10	1	0	1:90	0	0	1.20	0	Dead	found 4/92; not seen 8/92; refound 5/95; looks poor, yellow green 2/99; COD unknown, collected by WHC 5/99
Dead									found 4/92: recently dead plant nearby (actually closer to 205 & 204.1), not hollow; no insects 5/96; relocated 8/96; COD unknown, stem hollow, no insects 3/97
	A sufficient parts and the sufficient address prove								found 5/96; Dead, tag removed, cause of death unknown 8/96
	e de la constant de la constant de la constant de la constant de la constant de la constant de la constant de l Esta de la constant de la constant de la constant de la constant de la constant de la constant de la constant d Esta de la constant de la constant de la constant de la constant de la constant de la constant de la constant d								3 self fruit, 50/0/1 seeds (17 average) 4/92; also collected unmanipulated fruit with 37 seeds 4/92; damaged & sick 8/92; 2 yellow & black-spotted beetles feeding on tepals 2/20/93; very sick 8/93; stem hollow, weevils gone 2/96

	STAKE		ANGLE	91DM	91FL	91FR	92DM	92FL	92F	R	93DM	93FL	93F	R	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
204.10	15	13.66	297					4.11										1997) 1997) 1997)			0.80		0
204.20	15	13.67	297											2									
204.20	13	15.07	231																0.6				
205.00	15	13.67	296	2.90	104 104	4	2.90			4	2.60			1	3.30	0	nd	2.60	2	. 2	2.30	4	1
205.10	15	11.92	812				2.30	nd	and a second		2.50	2		nd	3.00	2	nd	3.40	4	4	2.80	2	0
			<u> </u>						2410		2.00			10	0.00	4		0.40		•	2:00	2 4	2
206.00	15	11.20	319				1.5.05.											3.00	3	1+1S	1.50	0	Dead
- 000 10	4 -	10.00	<u></u>																				1.1.1.1.2.2.2.2 1.1.1.1.2.2.2.2.2 1.1.1.2.2.2.2
206.10	15	12.02	321							aliat. M											2.10	2	
206.20	15	9.94	328		2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.							or Locale. Side Media		Sa la	and the second			<u>849-6</u> 8695					
										5				() }					s, is, folging				
206.30	15	10.38	328																				
								;										1					
206.31	15	10.40	328					:				t									1		
												;											
207.00	15	13.22	332	•					+	+-				-					·				• • • • • • • • • •
208.00		12.17							+				• •	+.		-		-					
			L													- ··	• •						
Stake 04										349.3	ন নহকালে হাত	LOADSHUT 72	 										
213.00	UA	2.32	112	1.50	nd	0	1.90	0		nd	1.90	C		nd	2.30	1	1	2.50	1	0	1.50	0	Dead
219.00	0A	1.86	62	2.70	nd	0	2.80	2	48 3 ⁵ 1	nd	2.00	C		nd	2.40	2	1	Dead		0			
222.00		5.20		2.40	and any high second second					21	2.40			nd	2.00				1		11 1 1 1 1 1 1 1 1 1 1 A A A	0	Dead
			gran e Note																				
								1. A.S.						·		1		•					

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
0.90	Ō	Dead							smaller seedling (204.20) below 8/96; in grass clump, very loosely rooted 3/97; stem hollow, weevil larvae collected 5/97
0.50	0	0	0.70	0	0	0.61	mia	0	discovered 3/97; measured in one direction only 2/98; pl mia 2/99; hunkered, green, good 5/99 & 3/00; very hunkered, green, OK 5/00; plant mia 3 & 5/01
Dead									COD unknown, stem hollow, no insects 3/97
Dead									found 4/92; very sick 8/93; COD unknown, stem filled with granular material 3/97
									looks dead but firmly rooted 2/96; dead, killed by weevils 8/96
Dead	atesti. Marine								COD unknown, stem filled with granular material 3/97
	Ö		2.10		Dead				discovered 2/98; hollow with weevil exit hole 5/98.
						0.66		0	right beside orange pin with blue dot, in seed ring, discovered 5/99; one measurement only, hunkered, green, OK 3 & 5/00; very hunkered, green, OK 3/01; popping out green, OK 5/01
					· · · · · · · · · · · · · · · · · · ·	0.81		Ō	~1cm from orange pin w/ blue dot in seed ring, discovered 5/99; one measurement only, hunkered, green, OK 3 & 5/00; green, OK 3/01; green, good 5/01
	 			+··					discovered 5/01; green, good 5/01
		•		+					discovered 5/01; popping out of crustose lichen, green, good 5/01
···· ·		+	· · · · ·	-		1	<u> </u>	<u> </u>	
									found 4/91; hunkered down 2 & 5/96; looks dead 5/95; just spines left, dead 8/96
								(1997-01) - 26 (1991-01) - 26	ALC: AND MALE AND ALC: AND ALC: AND ALC: AND ALC: ALC: ALC: ALC: ALC: ALC: ALC: ALC:
									found 4/91; hunkered down 2 & 5/96; Dead 8/96, stem hollow in center, but no insects

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PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL				93FR		94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
														. <u></u>	-				-		
1		R02231	•								· · ·	• ••••	···								• • · · · · · · · · · · · · · · · · · ·
223.00	16	4.22	120															1	2.70		0
												:									
224.00	16	4.35	120																3.20		0
										:								ļ		5	
															· · · - ·						
						· · · · · · · · · · · ·	· · · · ·														
Plot 17		0.3 mi fro																			• • • • •
1.00	15 dead	Ancistro		buschil	were o	DServeo	<u>a witnin t</u>	nis pio I	t in 5/97	, and or	ne wee	vil was (collected			Ngjarja				i i e stilligt	i akitan natik
1.00			330		A demarkane bereiten er																
2.00	and a second second second second second second second second second second second second second second second	1.37	65																		
3.00	17	9.46	68																		
4.00	17	7:40	. 72						nik 1946 19 Nor												
5.00	17	7.46	72																	No fi	
0.00																					
6.00		6.94									2 2										
7.00	17	3.33	284													la di si Ngangana					· · · · ·
8.00	17	2.75	288												<u> </u>						
9.00	17	2.81	292						1		M 1922 Mar 201										
9.00		2:01	292																		
	i	<u></u>	<u>↓</u>			[i	<u> </u>	<u> </u>		1 (10)		<u> </u>	- I			l		J	<u>-</u>	<u></u>	!

97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
									······································
		· · ·					· ·		
2.80	Ő	0	nd	0	0	1.56	0	0	found 5/96; eaten or run over, only one tubercle left 2/98; new spine growth 5/98; hunkered down, green, good 2/99, 5/99 & 3/00; tubercle tips slightly purplish, otherwise green, OK 5/00; plant mia 3 & 5/01
4.40	5	3	5.40	6	4+1A	3.94	6	0	found 5/96; dull green 5/97; bright green 2/98; hunkered down 5/98 & 2/99, visited by 2 honeybees; top totally eaten off 5/99; plant mia 3 & 5/00, 3 & 5/01
			- ·						
0.90		0	1.10	0	0	Dead			measured in one direction only 2/98; dry & solid; COD unknown 2/99
2.60		0	Dead						between rocks, a little reddish 5/97, hollow, weevils? 2/98
2.60		1A	Dead						very squishy & loose, green 5/97; hollow; weevils? 2/98
1.6,0.9			2.00	0		0.80		Dead	two-headed plant in rock 5/97; measured as one 2/98; two separate plants, one dead (not hollow), other green, OK 2/99; no weevil evidence, COD unknown, WHC collected 5/99
1.00		0	1.30	0	Dead				in rock; measured in one direction only 2/98, hollow with exit holes 5/98
0.90		0	Dead				301 3.22		in rock; just spines, COD unknown 2/98
2.10		0	1.10	C	Dead				measured in one direction only 2/98; hard and solid, COD unknown 5/98
1.00		0	Dead						in rock; tag chewed and uprooted, plant hard and dry, COD unknown 2/98
2.60		0	Dead						in rock; tag chewed and uprooted, plant hard and dry, COD unknown 2/98

PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
										l <u>.</u>	·										
Stake 18	One dea									nts	F	 	• • • •	· ···· · <u>-</u> ·							
1.00		14.44	79																		
			· ·																		
2.00	18	14.45	79											NICON.							
3.00	Line in the second second is	14.35	79							n han ye dahar ye Nange dahar ye											
4.00	18 18	14.35 14.40	a and the second second second second second second second second second second second second second second se				ing tille (Br.				22										
5.00		11.19										2.56	500 KG 100 KG	SS SS SS		Ne contractor			- KALK	tine se	46 A 3
														Sankey below							
					198959																
6.00	1	12.14	277			anit Jennet		0.12.28					12331432-441								
6.01	110,1139 12 - 22 - 34	12.09	277																		
6.02	18	12.13	277		10082 10086514 14086514 14085514																
6.03	18	12.10	277							<u>14.000000000000000000000000000000000000</u>				Sec.4							
										torigen den se torigen den se											
6.04	18	12.11	277																		
6.05	18	12.14	277			10.000 10.000							a gradeni	NIDT TRIES				A			
		ang pangang																			
					· ·····									<u> </u>	.						
					<u> </u>		·	·						· - ·- ·	_						
									+							i .					
Plot 19	has no st	ake. The	e plant is	in a shi	n o <mark>ak</mark> g	rove ac	ross from	n some	e old ba	rb wire,	0.1 mi	straight	from roa	ad junc	tion, ca	0.5 m V	v of pri	⊥ ckly pea	1 Ar.		
19.00		nd														.5					
	ļ .					ļ					l		 		ļ .						
Plot 20	sta ke is (loft from	road int	oregati	on Eau	r dood T			 d within	the ele	t when		tablick	od in El		1.		-	-	
1.00			133	road ini				FC we				when I	it was es	abiish	ea in 5/	97.				The state	
		, 2.00	<u>100</u>	0	1.5.00	Par 1	1	1	1 *** 5 5	And the second	laws city.	it ister i viel	and and the	1.5	1		<u> </u>	1	i di li	n alberti	let.

97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
:	i								
1.50		0	1.40	0	Dead			a	measured in one direction only, bad, tightly,
1.50		V		U	Deau				rooted 2/98; hollow with weevil exit hole
									5/98
2.30		0	Dead						one larva collected 2/98
2.50		0	Dead						just spines, COD unknown 2/98
2.30		0	Dead						exit holes 2/98
	La agareg		0.50				179/58.50	1000	discovered 3/01; green, good 3 & 5/01
3.30		0	2.50	0	0	Dead			between rocks; loose spines; somehow damaged, green, with new growth 5/97; green, OK 5/98; hollow with weevil chambers 2/99
3.90		2+2A	Dead		-loghad ra			12-10-228 CI-210-228 229-229 229-229 200-2000 200-200-	tubercle tips red 5/97; COD unknown 2/98
0.90		0	Dead						root exposed, barely rooted 5/97; COD unknown 2/98
0.60		` 0	Dead						barely rooted, root out of ground 5/97; COD unknown 2/98
1.00		.0	Dead						to the right of 6.04 and 6.05; COD unknown 2/98
0.60		0	Dead						between 6.03 and 6.05; COD unknown 2/98
0.60		0	Dead				and an		to the left of 6:03 and 6:04; COD unknown
<u>rakon attak</u>	<u>i' . end M</u>	stindigt tite.	<u>CHR TREA</u>	<u></u>		Deuter de l'	1991 1991 1991	1125	
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	-							·	
			 			·		ļ	
	1	4+2A		1 77.3	0.44	4.11			
4.30		4+2A	4.80	4	3+1A	4.11			green, good 5/99, 3 & 5/00; chambers and galleries; COD weevils 3/01
		1						ļ	
			 		· · -				
2.30	l la cigaño	ЗA	Dead		· · · · ·		र का स		
2.30	le de de	SA SA	Deau	14 144	1	1 1 1	No. C. Sta		reddish 5/97; larva collected 2/98

										ne State											
PL#2.00	STAKE 20	DIST 72.80	ANGLE 133	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
3.00 3.10		72.78																			
3.20 4.00		72.77 73.02					· · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		·									
5.00	20	73.01	133										·						- - 		
6.00	20	72.80																			
7.00	20	7.69	189																		
8.00	20	7.74	190																		
9.00		7.82 51.15																			

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES												
1.20		0	mia			2.04	mia	0	green, good 5/99; almost totally buried, only spines out, covered by ant litter, green, OK 3/00; no litter, very hunkered, may be dead 5/00; plant mia 3 & 5/01												
1.80		0	mia	mia	Dead				tag & plant mia 2/98; plant found, hollow, with weevil exit holes 5/98 discovered 5/01; uprooted, replaced, green, OK 5/01												
2.10		0	2.70	0	0	2.70	1	1	discovered 5/01; green, good 5/01 Plants 4.00 & 5.00 may represent two heads of one plant; right of 5; green, good 5/99; covered by ant litter except spines, green, OK 3/00; litter gone, reddish-green, hunkered, OK 5/00; plant mia 3 & 5/01												
2.10		0	2.80	0	0	2.78	1+2fr	2+1A	Plants 4.00 & 5.00 may represent two heads of one plant; left of 4; green, good 5/99; covered by ant litter, except spines, green, OK 3/00; litter gone, reddish-green, hunkered, OK 5/00; tag loose, replaced, plant mia 3 & 5/01												
2.50			1.90	Ō	0	1.79	0	0	in grass clump; covered with dirt and duff 2/98; new spine growth 5/98; green, good 2 & 5/99; weevil larvae, collected by Bill Calvert												
2.60		0	, 2.10	0	Dead				turning reddish, spines gray 2/98; hollow with weevil exit holes 5/98												
1.30		0	1.40	0	0	1.89	mia	0	measured in one direction only 2/98; loose spines in area and lots of tossed around rocks 2/99; under rock; green, good 5/99; plant mia 3 & 5/00; relocated but dead, just spines, COD unknown 3/01												
0.90		0	Dead						root exposed, barely rooted 5/97; COD unknown 2/98												
2.60		0	Dead						center of stem eaten, two tubercles resprouting spines, plant reddish 5/97, COD unknown 2/98												
	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
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11.00	20	51.20	175																		
12.00	20	51.58	174	. <u>t</u>		<u></u>	<u></u>		<u>ar (80)</u>	<u>19. (1991–198</u>			<u>la estas a tri</u>			<u> </u>	ante ellas	tat septimpi	di civiniti		
		11.22. 11.27. 11. 11. 11.																			
13.00	20	51.65	173																		
14.00	20	51.70	173			Hori															<u>, de la 199</u> Sel el 199
15.00	20	23.77	254					6 2058										A second			
16.00	20	23.90	254																		
16.01	20	23.92	254					- It it states													
17.00	20	13.65	258							3 A	- 68 - A										
18.00	20	13.71	258										is in the		1000						AND ALL AND
19.00	20	13.73	258									建制计									法行在
20.00	- 20	11.43	257		318 Jangaras 148 15																
		ana a B Teas a B			12,4124																
21.00	20	11.38	257										Anna Anna Anna Anna Anna Anna Anna Anna	10.500 11.500 12.500 14.5000 14.50000 14.50000 14.50000 14.5000000000000000000000000000000000000							
22.00	20	11.64	257													 	218 57 17				
										1990 (A. 1980	ANDUCAL XXXXX					· · ·	2.6				
22.01	20	11.64	257																		
23.00	20	11.50	258													· · · ·					

97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
1.60		0	Dead						severely damaged, three tubercles resprouting spines 5/97; COD unknown 2/98
1.50		0	1.20	0	0	mia			center of stem eaten, one tubercle resprouting spines 5/97; measured in one direction only, may be a seedling; mia 99; plant mia 3 & 5/00, 3 & 5/01
2.10		0	Dead						center of stem eaten, two tubercles resprouting spines 5/97; COD unknown 98
2.50		0	1.90	0	Dead				edge of grass clump; spines gray 2/98; hollow with weevil exit holes 5/98
1.90		0	1.50	0	mia	mia			looks bad, covered with dirt 2/98; mia 5/98, 2/99, 5/99, 3/00 & 5/00, 3 & 5/01
3.90		1	2.60	0	Dead	obara			bad, collapsed, mushy, loose spines 2/98; hollow with weevil exit holes 5/98
0.50		0	mia			mia			seedling of 16.00; plant & tag mia 2/99, 5/99, 3/00 & 5/00, 3 & 5/01
0.70		0	0.80	0	Dead	5 (S 44)			solid and dry, COD unknown 2/98
1.30		0	Dead						COD unknown 2/98
1.80	10	0	Dead	in a survey					COD unknown 2/98
. 1.90		0	1.60	0	0	Dead			edge of rock; measured in one direction only 2/98; body dry & solid, COD unknown 2/99
1.00		0	1.50	0	0	mia	mia	Dead	measured in one direction only 2/98; just spines left, COD unknown 5/98
3.40		Ō	0.70	Ô	Dead				in rock, center of stem eaten, many loose spines 5/97; only a tubercle, measured in one direction only 2/98; only spines left, COD unknown 5/98
1.10		0	0.90	0	0	Dead			in rock, seedling of 22.00; measured in one direction only 2/98; just spines left, COD unknown 2/99
1.70		0	1.80	0	0	Dead			in grass clump; dry and hollow, probably weevils 2/99

PL#	STAKE	DIST	ANGLE	91DM	91FI	91FR	92DM								0/FR	95DM	0551	0550	96DM	0651	96FR
23.10		35.05						0212		500.0	501 L	50111	54DW	341 L	94EN	93010	JUL	- SOLU	90DW	901°L	90FH
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23.20	20	34.15	258		ļ	j															
23.20	20	33.18				adra dr. s		g.,		1966	17. L.C. N. 1980. L.	MR CR. 17		24.115906		Silling-1070as	e de la compa				
24.00	20	32.95	i de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l																		
									(34,) (36)) (34,) (36) (34,) (36)												
26.00	20	33.12	**************************************																		
20:00	20	30:12	201																		
27.00	20	33.29													Anna Anna Anna Anna Anna Anna Anna Anna						
									or success												
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								11111111111111111111111111111111111111			1999 88 99										
28.00	20	33.77	267																		
28.01	20	33.79	267																	2480455 2480455	
28.02	20	33.88			<u>, , , , , , , , , , , , , , , , , , , </u>		1. 1993 (1993) (1993) (1993)		<u> </u>	<u></u>		AND AND AND AND AND AND AND AND AND AND		<u> </u>	<u></u>	<u> 191 1111 -</u>			1990 - 19 - 19 - 19 - 19 - 19 - 19 - 19	Contraction of the	10.0.01100
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29.00	20	33.86	266				i														1
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30.00	20	33.25	268					-									+ - 				
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31.00	20	22.84	295							 	:	att. eest 1	-			¦ 	;]			1880-1	
32.00		22.84						-			1. 1. 1. 1. 1.					<u> </u>	<u> </u>				
02.00	20																				
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07044 0701	0750	OOD M		oore-	00011		00000	107770
97DM 97FL	97FH	. ļ	98FL	98⊢H	99DM	i.	99FR	NOTES
		1.30	0	0	1.29	0	0	discovered 2/98; bad, gray spines & body, squishy, firmly rooted 2/99; new spine growth, green, OK 5/99; dull light green, OK 3/00; green, OK 5/00, 2/01; armadillo rooting in area covered plant and tag with dirt, uncovered, green, OK 5/01
				-				discovered 5/01; green, good 5/01
1.60	0	Dead		8.				just spines, COD unknown 2/98
2.00	1 A	2.40	0	0	1.99	0	Dead	plant maroonish 5/97; greenish, but looks bad 2/98; OK, new spine growth 5/98; bad, spines gray, body yellow 2/99; COD unknown, collected by WHC 5/99
1.20	0	mia			Dead	1007-20 15-10-55		relocated, but dead, hollow, probably, weevils 2/99
120	0	1.30	0	0	0.95	0	0	half a plant, only four tubercles 2/98; small, OK, new spine growth, green 5/98; almost buried 2/99; popping out, green, good 5/99; may be weevil gallery 3/00
3.30	1A	mia			Dead			under rock; just spines left, COD unknown 2/99
0.80	0							killed by a larva 2/98
0.90	0	1.30	0	0	mia		• • •	measured on one direction only 2/98; mia 99; spine cluster in area 3/00; plant mia 3 & 5/00, 3 & 5/01
0.60	0	1.00	0	0	0.71	0	0	seedling; measured in one direction only 2/98; bad, dull gray spines, yellow-green body 2/99; under rock, maroonish green, OK 5/99 & 3/00; green, OK 5/00 & 3/01; hunkered, poor 5/01
0.50	0	0.40	mia	0	0.61	0	Ō	seedling; mia in 2/98; refound 5/98; almost buried 2/99; popping out by tag, green, good 5/99; plant mia 3 & 5/00, 3 & 5/01
1.10	0	Dead				1		orangish 5/97; COD unknown 98
1.80	0				mia		Dead	tag covered by llipped rock 2/99; COD unknown, collected by WHC 5/99

PL#	STAKE	DIST	ANGLE	91DM	91FL	91FR	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR
33.00	20	22.77	311																		
																	1672				
34.00	20	35.89	335		· · · ·																
35.00	20	35.86	335																		
36.00	20	35.57	337																		
	and Anglasi An										ê de de			in en Linne in		and and a second second second second second second second second second second second second second second se	1				
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Data tak	en and re	ecorded	by Jackie	Poole 5	5/7/98,	2/23/99	, 5/3/00,	3/08/0	1, 5/08/	01; with	Bill Ca	lvert (N	<u>/HC) 5/</u> 4	/99 & 3	3/2/00	L					
Data tak	en by Ge	ena Jans	sen and i	recorded	l by Jac	kie Poc	ole 2/25/	/98				L									
					T									1 							
	· ··· - · ·																	1	<u> </u>		

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97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
0.70		0	Dead						roots exposed, plant on its side 5/97; COD
									unknown 2/98
1.40		0	Dead						uprooted, only spines left 2/98
0.90		- 0	Dead	8					uprooted, only spines left 2/98
0.70		0	Dead						uprooted by researcher but replanted 5/97; COD unknown 2/98
		• •							· ····································
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									· · · · · · · · · · · · · · · · · · ·

Ancistrocactus tobushii Data for Private Property, Real County

PI #	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FŔ	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
Refere	nce po	int #1 is s	surround	ed by 2	Texas	persim	nmons a	nd one	Texas	mounta	in laure	el clump,	26 JMP	paces	at 74 de	egrees
1	from a	Fexas mo			l a silk	tassel						0309194	\		·	
1.00	1	7.07	183	3.10	1	0	3.30	3	3	2.70	0	0	2.66	0	0	misshapen 3/98; orange 5/98; collapsed on one side, OK 3/99; green, good 4/99; tag mia, replaced 2 & 5/00; green, good 2 & 4/01
1.10	1	6.30	181							5.90	7	7	6.16	4fr	4	discovered 3/98; good 3 & 4/99, 2/00; green, good 5/00, 2 & 4/01
1.20	1	6.95	182							3.00	1	0	2.49	1fr	0	discovered 3/98; good 3 & 4/99, 2/00; green, good 5/00, 2 & 4/01
2.00	1	7.04	181	1.90	ō	0	1.70	0	Ō	2.00	0	0	1.93	0	C	good 3 & 4/99, 2/00 [.] green, good 5/00, 2 & 4/01
2.10	1	6.87	182				1.40	0	0	1.50	0	O	1.24	0	- <u></u>	discovered 2/97; kind of loose, good 3/99; green, good 2 & 5/00; hunkered, green, OK 2/01; popped out, green, good 4/01
2.20		6.79	181										1.20) reddish, OK, discovered 4/99; green, good 2 & 5/00; just spines left, COD unknown 2/01
3.00	1	. 7.38	181	4.40	3	3	5.30	1	1	4.60	5		5 4.80) 3fr	17	A good 3 & 4/99; good, partially buried in old fire ant mound, tag mia, replaced; pale green, good 5/00; green, good 2 & 4/01
	<u> </u>		 				<u> </u>			•						

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
3.01	1	7.17	181							;	_					discovered 4/01; green, good 4/01
3.10	1	7.32	180				2.40	0	0	2.30	0	0	2.04	Ō	0	discovered 2/97; good 3 & 4/99; partially buried in old fire ant mound, green, good 2 & 5/00; plant mia 2 & 4/01
3.20	1	7.56	180										1.01		· — · O	discovered 4/99; green, good, under pebbles 4/99; green, good 2 & 5/00, 2 & 4/01
4.00	1	7.33	180	2.50	1 fr	1	3.00	2	2	3.10	1	1	2.97	3fr	0	1 fruit partially eaten 4/96; against rock, good, fire ants nearby 3/99 & 4/99; partially buried in old fire ant mound, green, good 2 & 5/00; rnound gone, plant pale green, OK 2/01; green, good 4/01
5.00	1 	8.02	189	3.40	2	2 0	3.80	2	3	3.80	4	4	4.09	3fr	3	rock fallen on top, removed, good 3 & 4/99; slightly reddish, OK 2/00; olive, OK 5/00; green with a few tan tubercle tips, OK 2/01; edge of fire ant mound, tag mia, replaced, plant green, good 4/01
5.01	1	7.88	189							1.60	0	0	1.05	0	0	discovered 3/98; good 3 & 4/99; green, good 2 & 5/00, 2/01; sticking out of edge of fire ant mound, green, good 4/01

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
5.02	• • • •	8.00	189	3									1.03			discovered 4/99; green, good 4/99, 2 & 5/00; plant mia 2 & 4/01
5.10	1	ō.1Ū	194				5.20		5	5.60	5	5	5.46	6fr	5+1A	one tubercle eaten, discovered 5/97; good 3 & 4/99; tag mia, replaced, green, good 2/00; orangish, OK 5/00; green, good 2 & 4/01
6.00	1	11.50	184	1.60	0	0	1.50	0	0	1.30	Ō	0		0		between two juniper clumps, hunkering, some loose spines, under grass 3/99; dull green, some loose spines, OK 4/99; tubercle sprout off spineless, gray base, gray-green, poor 2/00; root becoming exposed, gray-green, poor 5/00; gray-green, poor 2/01; root partly exposed, body tan with one reddish tubercle left, very poor 4/01
		9.20		3.60												hollow, weevils?, dead 3/98
8.00) 1	11.41	196	3.00) C) 0	2.80	0	U	2.60	0	Ô	Dead			cow hoofprint beside 2/97; solid; dry; COD unknown 3/99
8.10) 1	9.81	195							3.00	2	2	3.09	1 fr	1	discovered 3/98; good 3 & 4/99; green, good 2/00; olive, OK 5/00; green good 2 & 4/01
8.11	1	9.84	195							1.30	1	C	1.81	0	C	discovered 3/98; good 3 & 4/99; green, good 2 & 5/00, 2 & 4/01

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
8.20	1		196							4.10	3	3	4.21	4fr	4	discovered 3/98; good 3/99 & 4/99; green, good 2 & 5/00; green with a few tan tubercle tips, OK 2/01; maroonish, OK 4/01
8.21	1	10.72	196				<u></u> .	<u> </u>							· · · · ·	discovered 4/01; green OK 4/01
8.30	1	11.23	197													buried in grass clump, discovered 2/00; green, good 2/00; reddish, OK 5/00; body green, tubercle tips maroon, OK 2 & 4/01
9.00		12.39	195	4.50	4	4	4.30	2	2	Dead						exit hole in top, probably weevils, dead 3/98
10.00	1	12.69	195	3.80	- 3	2	4.30	3	3+2A	Dead						just spines, hole where root was, COD unknown 3/98
10.01	1	12.58	195							0.80	0	0	1.63	0	0	discovered 3/98; good 3 & 4/99; green, good 2 & 5/00; very hunkered, almost spineless, green, OK 2/01; coming out, new spine growth, green, OK 4/01
11.00		12.61	195	1.80) 0	Ō	1.80	C) 0	Dead						spines almost eaten off 2/97; body flown away 3/98
12.00		12.92	195	0.70) 0	0	0.70	C	0 0	Dead						root mostly out of ground, photographed 2/97; just one spine left, COD unknown 3/98
12.10		13.32	197				1.80	C) 0	Dead?		Dead				discovered 2/97; looks dead, but check again 3/98; dried up, COD unknown 5/98
12.20		14.30	195				3.00		1	3.50	0	0	3.20	0		discovered 5/97; good 3 & 4/99; green, good 2 & 5/00; dead, large larval (Moneilema?) inside, collected 2/01

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
12.30	1	12.80	197							1.00	0	21、11時1日	1.30	0		discovered 3/98; dull green, OK 3/99 & 4/99; just spines left, COD unknown
									Sport.o.1 of							2/00
12.40	1	9,44	199	" ,"	. .		an an an an an an an an an an an an an a	,		1.40	0	0	1.35	0	0	reddish at base, discovered 3/98;
																orangish 5/98; dull green, OK 3/99 & 4/99; green, OK 2/00; covered by leaf,
			i .													hunkered, green, OK 5/00; plant mia,
																loose spines in vicinity 2/01; mia 4/01
12.50	1	9.63	210	3.50	1	0	3.20	0	0	3.20	Ō	0	3.16	0	0	found 4/96; covered by a detached
																prickly pear pad 5/97; originally tagged as 48; good 3 & 4/99; slightly reddish,
							1									OK 2 & 5/00; olive, OK 2/01; green,
			1										1			yellowish at base, OK 4/01
							-									
12.60	1	8.94	204	3.00)	0	3.60	2	1	3.40	1	1	3.03	1fr	0	found 4/96; trampled by cattle, 2
				:												flowers badly damaged 2/97; good
																5/97 & 3/98; orangish 5/98; originally tagged as 50; tag mia, replaced, dull
														1		green & yellow, OK 3/99; reddish 4/99;
				1									1			reddish, shrunken, poor 2/00; goldish, poor 5/00; green with orange tubercle
				1				1								tips, OK 2/01; green, OK 4/01
				:									1			
19 70	1	9.12	201	12. 34	• 2. :: :::::::::::::::::::::::::::::::::					3,90			3.59	1fr		discovered 3/98; reddish, OK 4/99, 2 &
																5/00; dead, COD weevils (galleries,
						2 × .			THE REAL					<u> </u>		chambers; exit holes) 2/01 right of 12.72, OK, discovered 4/99;
12.71		9.08	3 200										0.34	+.	U	green, OK 2 & 5/00; plant mia 2 & 4/01
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				1		I						1				
L		<u></u>					!	<u> </u>			<u> </u>		1		•	

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PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
12.72	1	9.08	200										0.49		Ō	discovered 4/99; reddish, poor 2 & 5/00; plant mia 2 & 4/01
12.73	1	9.22	201													discovered 2/01; hunkered in moss, green, OK 2 & 4/01
12.80		6:24	202							9.40	8	7	Dead			largest plant so farl, discovered 3/98; somewhat hollow, granular, roach-like insect inside, pillbug near by, no larvae, COD unknown 3/99
13.00		7.99	236	4.00			nd	0	Dead							trampled 3/96; orangish 4/96; new growth from 1996; but severly trampled by cattle; photographed 2/97; only shell left; death by trampling 5/97
13.10	1	9.27	237				2.70	0	0	3.00	2	2	2.91	1fr	0	discovered 2/97; dull green, OK 3/99; reddish, OK 4/99, 2 & 5/00; green with a few tan tubercle tips, OK 2/01; dark green, OK 4/01
14.00	1	11.05	230	3.20	14.ez. 1 et das	0	3.20	0	0	Dead						looks bad, grayish 5/97; stem solid, COD unknown 3/98
15.00) 	12.18	231	4.20	2	0	3.50			4.10	2	2				tag chewed, retagged 98; solid, granular, very small millipede-like creature inside, COD unknown 3/99
15.10) 1	11.99	234				2.50		0	2.50	0	Ċ) Dead			trampled by cattle, discovered 5/97; looks OK, grayish-green 98; solid, moist, COD unknown 3/99

PL# 15.20	STAKE 1	DIST. 12.48	ANGLE 232	96DM 1	96FL	96FR	97DM 3.00	97FL	97FR 0	98DM 3.50	98FL 0	98FR 0	99DM 3.47	99FL 0		NOTES discovered 5/97; buried in grass 98; good 3 & 4/99; green, good 2 & 5/00; almost spineless, yellowish-green, OK 2/01; new spine growth, some orange tubercle tips, OK 4/01
15.30 15.31	1	12.30 12.29								2.10		Ő	2:06 0.57	ma		discovered 5/98; plant & tag mia 3/99; green, good 4/99; plant and tag mia 2/00; COD unknown, tag removed, 5/00 green, good, not tagged, seedling of 15.30, discovered 4/99; plant mia 2 & 5/00, 2 & 4/01
15.40	1	12.40	233										2.27	0	0	good, loosely rooted 3 & 4/99; green, good 2 & 5/00, 2 & 4/01
16.00		14.50		4.70	1	Ô			0	5.00		3+1A	4.53 2.90	- Sir - Sir		severely trampled or eaten by cattle, photographed 2/97; coming back, green, healthy, new apical stem growth, 3 pups or seedlings (16.02-16.04) 5/97; good 3/98, 3 & 4/99, dark green 2/00; reddish, OK 5/00; green with reddish tubercle tips 2/01; dead, collected for weevil study 4/01 discovered 2/97; good 3 & 4/99; good,
16.01	1	14.35	230	 			2.50	2	2	2.60			2.90		0	discovered 2/97; good 3 & 4/99; good, green 2 & 5/00; lots of loose spines, maroonish green, OK 2/01; partly covered with ant dirt, green, good 4/01

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
16.02	\$	14.53					0.70		Ō	0.80	0	0	1.06	0		discovered 5/97; good 3 & 4/99; green, good 2 & 5/00, 2 & 4/01
16.03	1	14.52	230	/			1.10		0	1.20	0	0	1.15	0		discovered 5/97; good 3 & 4/99; green, good 2 & 5/00, 2 & 4/01
16.04		14.50	230				1.30		0	1.30	0	0	1.52	Ó		discovered 5/97; good 3 & 4/99; green, good 2 & 5/00; dead; just spines left, COD unknown 4/01
16.05	1	14:54	230				0.40			0.50		0				discovered 5/97; between 16.02 and 16.03 and 16.00; mia 3/99; measured in one direction only, green, good 2/00; hunkered; OK 5/00; mia 2/01; just spines left 4/01
17.00) 1	15.29	234	3.40	3	3	4.50	4	3	4.20	2	1	4.39	1fr	1A	at base of Texas persimmon; dull green, OK 3/99; green, good 4/99; reddish, OK 2/00; dull green, OK 5/00; covered by spider web and leaves, green, good 2/01; green, good 4/01
17.1() 1	12.68	234				3.70			3 .30		1A	Dead			in grass clump, discovered 5/97; somewhat hollow, but no larvae, COD unknown 3/99
17.10		15.29	234							0.80	0	mia	mia			discovered 3/98; mia 5/98; mia 99; tag and plant mia 2 & 5/00, 2 & 4/01
17.20) 1	13.33					1.30		0	1.70	0 0	C	1.92	2 0	0	discovered 5/97; good 3 & 4/99; green, good 2 & 5/00, 2 & 4/01
18,0	0 1	15.02	238	3.30			Dead									COD unknown, red, mushy-granular inside, tag removed, dead 2/97

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL		98DM	98FL	98FR	99DM	99FL	99FR	NOTES
19.00		10.45	236	2.90	0	0	2.90	0	0	1.70	0	Dead				looks dead, gray, still rooted 3/98; dead, hard & solid, COD unknown 5/98
19.10		10.63	232				3.00	2		3.00	2	0		0		discovered 2/97; good, one orange tubercle 3 & 4/99, 2/00; green, good 5/00; next to dead plant, collected for weevil study 2/01
19.20		10.65	232				1.80	0	0	1.70	0	0	1.72	0		to the east of 19.1, may be a offshoot, discovered 2/97; good 3/99 & 4/99; epidermal abrasion, green, good 2 & 5/00; dead, large cavity in plant (Moneilema?) 2/01
19.30	1	10.45	235				2.20	0	0	2.40	0	0	2.22	0	0	discovered 2/97; good 3/99; olive, OK 4/99; green, good 2/00; olive, OK 5/00; olive, poor 2 & 4/01
19.40	1	11.13	236							3.10	2	2A	2.23	0	0	discovered 3/98; dark dull green, OK 3/99; green, good 4/99; hunkered, green, a few purplish tubercles, OK 2/00; green, OK 5/00, 2 & 4/01
20.00	1	9.99	239	4.20	1+1 fr	0	4.30	2	3	4.30	2	1+1A	4.62	3fr		good 3/99 & 4/99; green, good 2 & 5/00; tag mia, replaced, plant dark green, good 2/01; maroonish, OK 4/01
21.00		11. 74	241	2.80	0	0	2.60	mia	0	2:10	0	0	mia			dark orange, bad 4/96; plant & tag mia 2/97; refound 5/97; plant still looks very bad, although green, very shaded by little bluestem; green, shaded, OK 3/98; hunkered down in moss 5/98; plant & tag mia 3 & 4/99, 2 & 5/00, 2 & 4/01

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR		98FL	98FR	99DM	99FL	99FR	NOTES
22.00	1	9.63	241	2.90	1	0	2.70	1	1	2.60	0	0	3.20	0	0	good 3/99 & 4/99; green, good 2 & 5/00, 2 & 4/01
23.00		9.41	241	3:50	2 fr	1	3.80			3 .60		3	3.8 0	1fr		orangish 4/96; slightly orange on tubercle tips, OK 2 & 5/97; green & good; ~ 5 cm tall 3/98; good 3/99; some reddish tubercle tips, OK 4/99, 2 & 5/00; dead, body solid, no evidence of weevils or Moneilema, COD unknown 2/01
24.00	1	9.60	241	2.70	0	0	3.00	1	0	2.90	1	1A	2.86	0	0	good 3/99 & 4/99; green, good 2 & 5/00; green, OK 2/01; green, good 4/01
24.10	1	9.50	240				3.00	0	0	2.90	1	1	2.56	0	0	discovered 2/97; good 3/99 & 4/99; green, good 2/00; tag mia, replaced, orangish-maroon and green, poor 2 & 4/01
25.00		9.65	241	3.00	1	0	3.40	2	14		2	2A				graylsh looking 2/98; OK 3/99; hunkering 4/99; hunkering, reddish, OK 2 & 5/00; dead, hollow, COD unknown 2/01
26.00		9.99		2.50			- Harris Constraints - Harrison - Harrison - Harrison - Harrison - Harrison - Harrison - Harrison - Harrison - H			mia		A BARANSI A TOTA	\mid 🚬 mia			mia 3/97, 5/97, 3/98, 5/98 & 3/99
27.00		10.14 10.20		3.30 1.70				يعذوا والمتشادة فليتغش من) 0	2.10	0	0	mia	- Seeners		mia 3/97, 5/97; 3/98, 5/98 & 3/99 gone without a trace 3/99; tag and plant, mia 2 & 5/00, 2 & 4/01
29.00	17 TA	10.48	241	3.00)		2.70)) (2.40	0	0	Deac	1	P.	hollow, COD weevils?, dead 3/99

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PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
30.00	1	9.18	241	3.70	1+1fr	1	4.10	2	3	4.00	3	3	4.30	3fr		good 3/99 & 4/99; green, good 2 & 5/00; green, with some tan tubercle tips, OK, tag mia, replaced 2/01; a few reddish tubercle tips, OK 4/01
31.00	1	8.85	239	2.60	0	Ō	2.40	0	0	2.50	1	0	2.43	0		at edge of grass clump, accidentally stepped on by researcher 5/98; green, good 3/99 & 4/99; green, good, loose 2 & 5/00; small holes near apex, green, OK 2/01
32.00		9.19	246	2.70	0	0	Dead		UNIT SALES							orangish 4/96; COD unknown, only a few spines left 2/97
32.01	1 1	9.19	246	<u>1922 : 1924 : 47. 291</u>	36° 147,7201		0.50	0	0	1.00	mia	<u>. 0</u>	0.89	mia	0	seedling of 32, discovered 2/97; popping up through moss, stem mostly pink & spineless, tag mia, retagged 5/98; green, good 4/99, 2 & 5/00; hunkered in moss, green, OK 2 & 4/01
33.00	1	9.34	242	3.90	1	1	3.90	2	1+1A	3.50	0	0	3.16	0	0	buried in grass, grayish-green 98; tag uprooted, good, green 3/99; good, green 4/99, 2 & 5/00, 2 & 4/01
33.10	1	9.32	243		· · · · · ·					1.00		0	1.04	mia	0	discovered 5/98; tag uprooted and several meters away 3/99; tag replaced almost on top of plant, plant green, good 4/99, 2 & 5/00; plant mia 2/01; green, good 4/01

PL# 33.20	STAKE	DIST. 9.37		96DM	96FL	96FR	97DM	97FL	97FR	98DM 1.20	98FL	98FR 0	99DM 1.50		99FR	NOTES discovered 5/98; good 3/99; olive, OK
00.20		5.07	240							1.20		0	1.50	0		4/99; green, good 2 & 5/00; hunkered in moss, green, OK 2 & 4/01
	1															
34.00		9.52	244	2.40	2	0	1.70	0	0	Dead						looks bad, slightly loose in ground 2/97;
																looks dead, but firmly rooted 5/97; only one spine cluster left, COD unknown 3/98
35.00	1	9.85	246	1.30	0	0	1.40	0	0	1.60	0	0	1.96	0	0	good 3/99 & 4/99; green, good 2 &
												-		:		5/00, 2 & 4/01
	- <u>-</u>							<u>-</u> .								
35.10	1	10.04	246													discovered 2/01; reddish-green, OK 2 & 4/01
			,													
36.00	1.00	9.96	247	2.80	0	0	2:60	0	0	Dead						totally red 5/97; stem solid, COD
36.10	1	9.96	250				1.70		0	1.70	0	0	1.62	0	0	unknown 3/98 slightly reddish, discovered 5/97;
																purplish 3/98; reddish, OK 3/99 & 4/99; green, OK 2/00; green, good 5/00,
																2/01; dull green, OK 4/01
36.20	1	10.21	251				1.50		ō	1.50	0	ő	2.14	0	0	discovered 5/97; good 3/99 & 4/99;
															1	green, good 2 & 5/00, 2 & 4/01
37.00	1	7.73		2.80		2	Dead									COD unknown, stem hollow, no insects, tag removed 2/97
38.00	1	7.90	250	2.50	0	0	Dead									orangish 4/96; COD unknown, hollow around a central core, no insects, tag
					1		GET Cart									removed 2/97

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PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
39.00		8.09	252	2.80	ંગ	특히 1 년-	3.60	2	3	3.40	1		3.48	2fr	2	green, good 3 & 4/99, 2 & 5/00;
								19722 of								reddish, poor 2/01; dead, collected for
			0.50	States Salari	an philippi The second second											weevil study 4/01
39.01	1	8.10	252													seedling of 39.00; discovered 4/01;
						1										green, OK 4/01
39.02		8.11	252												<u></u> .	
39.02	I	0.11	202											l		seedling of 39.00; discovered 4/01; green, OK 4/01
														1		green, OK 4/01
48.00	1	16.82	267				3.70		1	3.20	2	2	3.31		0	discovered 5/97; originally tagged as
					•							_	0.01		Ū	53; good 3/99; maroonish, OK 4/99 &
								·								2/00; ants swarming fruits, plant olive,
																OK 5/00; maroonish, OK 2/01; green
		1														with some maroonish tubercle tips 4/01
	· · · · · · · · · · · · · · · · · · ·														_	
50.00	1	10.36	47							7.50	9	8	8.22	8fr	8	measured around mountain faurel;
														-		discovered by Frank Roberts 3/98;
			1											-		photographed 5/98; great 3 & 4/99; great, green 2 & 5/00, 2 & 4/01
				1				i								(measurement 109.43 & 106.65 for
														i		diameter of 10.80 4/01)
49.00		9.45	202	1.10		0	1.30	Ō	0	Dead			na mina romina na mina kasa r	687 7752		found 4/96, yellowish; cattle hoofprint
													an an an an an an an an an an an an an a			beside 2/97; hollow shell, COD
																unknown 3/98
51.00		9.41	201	3.50	na	1A	Dead									found 4/96; orangish; 51 and 52 were
							e e e La composición de									actually two heads on one stem/root; stem was hollow, and heads were filled
							· · ·									with dark yellow mush, cattle hoofprints
				1.20												on top of plants, but plants probably
			utry bi 201 <u>Dagari a</u> a													died previously 2/97; tag removed 5/97
52.00	2	9.36	201	3.70	na	1A	Dead								14	found 4/96; see comments on 51

PL# S	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
54.00	1	17.17	265				3.00		2	Dead						discovered 5/97; stem hollow, with weevil exit holes, dead 3/98
Numbe	r skip di	ue to usi	n g nu mt	pers 40-4	7 at t	ne seco	ond stake	e. This	will be	correcte	d throu	ugh time.				
															· · · · · · ·	
		nt 2 is ~				degrees	from re						ore or le	ss NE	from util	ity pole; stake 2 = GPS3 R030921A
40.00		2.36		3.00			and a second second second second second second second second second second second second second second second		2+1A			Dead				purplish 3/98; weevils, dead 5/98
41.00	2	1.63	164	2.00	C	0	2.80	2	2	3.20	2	1	3.60	2fr	1	good 3/99 & 4/99; green, good 2 & 5/00; slightly maroonish-green, OK 2/01; new apical green growth, good 4/01
42.00	2	2.53	161	2.70			Dead									COD unknown inside red and liquid, tag removed 2/97
43.00	2	2.45	175	2.80) 0	Dead									stem hollow, insect exit holes, tag removed 2/97
43.10	2 /	26.26	185							3.30	0	0	Dead			uprooted by armadillo or squirrel, replanted 3/98; yellow, bad 5/98; death by uprooting 3/99
43.20	2	26.47	185							3.90	Ó	0	Dead			uprooted by armadillo or squirrel, replanted 3/98; yellow; poor 5/98; old dead piece of plant left, COD uprooting 3/99
43.30	2	26.20	185							nd	0	0	mia Maria			small seedling without roots, replanted, 3/98; still here but spineless 5/98; needs to be tagged; mia 3/99, 2 & 5/00, 2 & 4/01
44.00	2	2.59	196	2.70	-	1 1	3.00	0	0	3.10	1	1	3.27	' 1fr	1 1	good 3/99 & 4/99; green, good 2 & 5/00; nibbled on one side, green, OK 2/01; green, good 4/01
44.01	2	2.61	196								·				! <u>-</u>	seedling of 44, not tagged, discovered 2/01; green, OK 2 & 4/01

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
44.10	2	24.10	218							3.60	4	4	3.68	4fr		measured over agarita & mountain laurel; discovered 3/98; good 3 & 4/99, 2 & 5/00; nibbled on one side, green, OK 2/01; green, good 4/01
44.20	2	24.24	218							1.90		2	2.96	1fr	1	measured over agarita & mountain laurel; discovered 5/98; good 3/99 & 4/99 but almost covered by ant dirt, ants under nearby rock; tag mia, replaced, green, good 2 & 5/00; rock on top, removed, plant green, OK 2/01; green, good 4/01
45.00	2	4.32	219	4.00	3	0	5.20	6(7?)	5+1A	5.60	6	5	6.34	2+7fr		good 3 & 4/99; green, good 2 & 5/00, 2 & 4/01
46.00	2	4.59	223	3.60	1+3fr	2	4.80	6	5+1A	4.70	6	7	5.14	6fr	3+disp +2A	good, accidently stepped on 3/99; green, good 4/99, 2 & 5/00; green with some maroonish tubercle tips, good 2/01; green with some maroonish tubercle tips, OK 4/01
46.01	2	4.62	223													at 6 o'clock on 46/00, discovered 5/00; green, good 5/00; green, OK 2 & 4/01 (one measurement only 2/01)
46.02	2	4.50	223				· · · ·									discovered 4/01; green, OK 4/01

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
46.03	2	4.62	223					· · · ·								discovered 4/01; under rock, green, good 4/01
47.00 48.00	2	4.50 3.72	245 251	4.50) 0	Dead			2.40	0	0	2.33	0		orangish 4/96; COD unknown, husk of stem and root left; spines dried and gray, tag removed 2/97 discovered 3/98; good 3 & 4/99; green,
48.10	2	3.62	232						- 						·	good 2 & 5/00, 2 & 4/01 discovered 2/01; green, good 2 & 4/01
40.00	· • • •	3.85	269					•	·	2.10		·	0.00			
49.00	2	3.85	203							3.10			3.03	0	U	discovered 3/98; a few orangisn tubercle tips, OK 3/99 & 4/99; green with reddish tubercle tips, OK 2/00; yellowish, OK 5/00; yellowish-green, with tan tubercle tips, OK 2/01; green with reddish tubercle tips, OK 4/01
50.00	2	24.40	225													measured around mountain laurel and persimmon, discovered 5/00; green, good 5/00, 4/01
51.00	2	~24.7	~225		· · · · ·											measured over agarita, around mountain laurel and persimmon, discovered 2/01; green, good 2 & 4/01

PL#	STAKE	DIST.	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
52.00	2	~24.5	~225													measured over agarita, around
					l											mountain laurel and persimmon,
																discovered 2/01; green, good 2 & 4/01
53.00	2	~25.3	~225	•		· · —		+			} +		· · · · ·	·=- ····		measured over agarita, around
						•							l l	-		mountain laurel and persimmon,
					İ											discovered 2/01; green, good 2 & 4/01
			 	· ·				+					+			······································
												·····•••				
Monito	ring plot	set up t	by Jackie	Poole	on 3/12	2/96; fru	liting da	ta colle	cted by	Poole	on 4/29/	96	+		,	· ···· ·
			ie Poole										2/13/01	, 4/27/()1	

Ancistrocactus tobuschii Data for Garner State Park

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PL#	STK#	DIST	ANGLE	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
Stake	1 = GPS	10 R030)417A; reb	ar remov	ed, repl	aced 2/(01			
1.00		6.33		7.30	7	7	6.22		Dead	tag mia, replaced 5/98; spines dull gray, poor 3/99; dead, weevil damage, riddled with galleries 4/99; collected by WHC 5/5/99
2.00	1	12.75	264	4.90	6.	6	4.52	6fr	7	good 3/99 & 4/99, only 2 m from road edge; green, good 2 & 5/00; slightly reddish- green, good 2/01; green, good 4/01
2.01	1	12.71	264							green, good 2 & 5/00, 2 & 4/01
3.00		4.64	6							spines gray, body reddish, OK-poor, 2/00; spines gray; body reddish, poor 5/00; tag uprooted, plant mia 2/01; tag mia, pieces of dead plant in vicinity, weevil chambers and galleries 4/01
Data c	ollected	by Jack	ie Poole 3	/4/99, 4/2	1/99, 2/	29/00, 5	5/1/00, 2	2/13/01	, 4/27/	01
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PL#	STAKE	DIST.	ANGLE	92DM	92FL	92FR	93DM 4.00	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR	97DM	97FL
1.00	1	~7.15	nd	4.00	1+4fr	nd	4.00	0	nd	3.50	1	nd	Dead					Lipporta 🕅		d. 11
Stake	2 is the r	eflector p	post on I	E side of	highway	in Acaci	a rigidula	ι												
2.00	2	6.48	134	5.00	1+9fr	nd	5.00	1	nd	4.00	9	nd	5.00	- 5	nd	5. 60	7fr	3,rest disp.		6
2.01	2	7.22																		
2.02	2	7.19	134																	
2.03	2	7.20	134																	
2.04			134															· · · · · · · · · · · · · · · · · · ·		
2.05	2	7.25	134									· · · · ·								

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97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
7	6.00	7	2+5A	5.28	5	5	1 seedling (~ 1 cm) at base 2/94; seedling (=2a) 4 cm to W 2/95; seedling mia 3/96; reddish, shrunken 2/99 and 4/99; very poor, reddish 2 & 4/00, 2/01; stem damaged, loose spines, dull green, poor 4/01
· · · · ·			· · · · · · · · · · · · · · · · · · ·	1.09		0	discovered 4/99; mia 2/00; relocated 10cm West of 2.00 4/00; green, good 4/00, 2 & 4/01
			·	0.82		0	discovered 4/99; mia 2/00; relocated 12cm West/Northwest of 2.00 4/00; green, good 4/00, 2 & 4/01
				0.78		0	discovered 4/99; mia 2/00; relocated 10cm West/Northwest of 2.00 4/00; green, good 4/00, 2 & 4/01
				0.38	; ;	. 0	discovered 4/99; mia 2 & 4/00, 2 & 4/01
				0.28	}	C	discovered 4/99; mia 2 & 4/00, 2 & 4/01

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									11wy 07-	i Right-o	Ji-Wuy									
PL#	STAKE	DIST.	ANGLE	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR	97DM	97FL
2.06	STAKE 2	7.23	134	92DM							• •					÷-	~			
																•				
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2.07	2	7.24	134						• I											
												-								
				L					l											
2.08	2	7.25	134																	
		Ē		-																i
3.00	2	12.13	154	- ·						+				- 1 14					2.20	
4.00	2	~11 00	139		·											·			2.20	
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97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
				0.50		0	discovered 4/99; mia 2 & 4/00, 2 & 4/01
				0.79		0	discovered 4/99; mia 2/00; relocated 6.5cm West/Northwest of 2.00 under rock 4/00; green, good 4/00; hunkered under rocks, green, OK 2/01
				0.28	- - -	0	discovered 4/99; mia 2 & 4/00, 2/01; relocated behind 2.07 4/01
0	3.40	5	2A, rest disp?	3.36	6	3	discovered 5/97; distance is around Acacia rigidula; flowers pinkish, stigma yellow, very shrunken 2/99; flowers pinkish yellow, stigma yellow green, body dark olive, OK 2/00; reddish, OK 4/00; flowers pinkish- yellow, stigma yellow, body maroonish- green, OK 2 & 4/01
0	3.50	3	1A, rest disp?	3.54	3+1fr	3	discovered 5/97; distance is over Acacia rigidula; flowers pinkish, stigma yellow, olive, shrunken 2/99; flowers dusky yellow- pink, stigma yellow, plant dark purplish- green, OK 2 & 4/00; flowers pinkish-yellow, stima orange-yellow, plant orangish-green, Ok-poor 2/01; orange, poor 4/01

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PL#	STAKE	DIST.	ANGLE	92DM	92FL	92FR	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR	97DM	97FL
5.00	2	10.82	154																	
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· · ·			<u> </u>	l															- · · · - · ·	
				kie Poole					13/97; 5/	4/98; 2/1	15/99; 4/	20/99, 2	///00, 4/2	25/00, 2/	15/01, 4	25/01	ļ			
Data t	aken by J	lackie Po	oole and	recorded	by Ger	ia Janss	en 2/14/9	95												
Data t	aken by (Gena Jai	nssen an	nd recorde	ed by Ja	ckie Poo	ole 2/17/9	98								1				

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5 of 6

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97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
							discovered 2/00; flower and stigma yellow, body reddish-green, OK 2 & 4/00, mia 2/01
							· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·
		 					
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Ancistrocactus tobuschii Data for

	J	unction	
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DL 4	OTAK			1	T UL		.						Juncti	ion				
PL#	STAKE	DIST.	ANGLE	95DM	FI/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FI	98FR	99DM	99FL	0000	
Refer	ence Poi	int 1 is a	rebar sta	ake ~18m D#1 B032	n at 195 r	degrees	from t	he south	h lea of	the "Cai	ution C				990101	99rL	99FR	NOTES
		1	+	D#1 R032	2415A								<u>sign</u> c	on the				
1.00	1	11.69	145	med	6	3.30	1	0	4.00	2fr	1A	3.50	1 fr	1	4.43	0		feels "squishy" 3 & 5/96; tubercles orange at base, looks bad 3 & 5/97; maroonish, with a few orange tubercles OK 3/99 & 5/99; maroonish, lots of loos spines at base, OK 3/00; maroonish green, OK 5/00; dark olive, OK 3/01; maroonish dark green, OK 5/01
1.10	1	14.53	144						2.70	3	1	3.50	1A	1A	4.28	0	0	discovered 3/97; maroonish, with a few
																		orange tubercles, OK 3 & 5/99; olive, Ol 3 & 5/00; greenish-purple, OK 3/01; dari green, good 5/01
1.20	1	14.64	145						1.80			mia		mia	2.21		1.0	
																		tag & plant mia 3 & 5/98; relocated, tag buried, plant hunkered in gravel, dark green, OK 3 & 5/99, 3 & 5/00; purplish- green, good 3/01; dark green, good 5/01
2.00		13.40	145												2.26	0		
															2.20			discovered 3/99; green, good, 3 & 5/99, 3 & 5/00, 3 & 5/01
3.00	1	11.04	150															1
																	ç	liscovered 3/00; olive, OK 3 & 5/00; light green, OK 3/01
.01	1	11.03	150			,											d	liscovered 5/01; green, OK 5/01
								·										
													<u> </u>					

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DI (/		1		·		<u> </u>							Junct	ion				
PL#	STAKE		ANGLE	95DM	EL/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	
Refere	ence Poir	nt 2 is a	rebar sta	ke in a cl	learing: I	D#2 R03	324150		<u> </u>						33014	99FL	99FH	NOTES
1.00	2	~19.49	~352						· · ·						3.65	ЗА	0	green, good, discovered 3 & 5/99; gr good 3 & 5/00; some apical merister damage, meristem slightly shifted, pla green, good 3/01; pale green, good 5
1.10	2 2	~21.20 ~22.2													5:54			olive; good, discovered 5/99; green, good 3 & 5/00; chambers; galieries a exit holes, COD weevils 3/01 discovered 3/01; green, good 3 & 5/0
2.00	- 2	7:90	216	med-lg	7	4:20	2+4fr		4.20	4fr.	2+1A	4.60	5	4	4:62	- Gfr		fruit eaten 5/96; all fruit partially eater 5/97; green, good 3 & 5/99; dead, collected for weevil study 3/00; large (hole and one large gallery, COD)
2.01	2	7.28	209												1.53	0	0	<i>Moneilma</i> green, good 3/99; slightly maroonish 5/99; slightly hunkered, green, good 3 5/00; popped out, green, good 3 & 5/(
.10	2	6.89	202															discovered 3/01; green, good 3 & 5/0
.10	2	3:20 1.47	300 4 s 312	m-medi .	3	Dead											c	only spines left 3/96, tag mia discovered 3/01; green, good 3/01; oli DK 5/01
	2	3:45 3:48	the matter of the second second	small small		Dead 2.30	Ö E	Dead									. n	only spines left 8/96, tag inta cot eaten, but tubercles still green, pl eplaced 8/96; Dead 5/96

PL#	STAKE				95	1	T						Junct					
6.0			ANGLE			96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
				v. small	0	2.40	1 / 2 / 2 PA / 1 / 1 / 1 / 1	1	A CONTRACTOR OF THE ADD								not Ancistroca	ictus tobuschii, probably
7.0	0 2	3.91	11	v. small	0	2:40	0	0									Coryphantha	sulcata, tag removed 🔬 👘
7.1			a name					1			たみ日						not Ancistroca	ctus tobuschii, probably sulcata, tag removed
1 '."	0 2	6.00	355						2.20	0	0	2.40	1	1	3.15	0	0 green, good 3	/99; purplish, OK 5/99;
																	olive, good 3/	00; maroonish, OK 5/00:
			1		I												maroonish-gre	een, good 3 & 5/01
7.00			and the second second															
7:20		6:13	357						2.70	2fr	- 2A	3.60	. 2	2	2.06		dead some loose sn	lines 6/97; looks good
																	5/97, 3/98; vei	y hunkered, loose
																	Squishy, maro	on, poor, bui lots of new /99; dead, COD unknown
7.30	2	5.24	344		1997 B 16 7		e de la		1. TO 10.4								= 5/99	199, dead, COD UNKNOWN
	_	0.24	044														discovered 3/0	1; green, good 3 & 5/01
,						Ì												
7.40	2	5.84	344							<u>-</u>							discovered 2/0	1
																	rocks, center e	1; wedged between two aten, 2 tubercles with new
														i			spine growth, g	reen, OK 3/01; forming 2
														1			heads, green,	good OK 5/01
8.00	2	12.00	330	small		2.90	2fr		1.00									
				onnain	'	2.90	211	0	1.80	0	0	2.40	2fr	2A	3.56	4fr	0 green, good 3/	99; yellowish, OK,
																	dispersed? 5/9 5/00: vellowish	9; dull green, good 3 & -purplish-green, good 3 &
															i		5/01	pulpiisii-green, good 3 & i
							Ì											
8.10	2	12.91	329			3.40		0	1.60	0	0	2.40	0	0	3.11	ЗA	1 discovered 5/96	6, under evergreen
														1			sumacs; green,	good 3 & 5/99; one
																	flower partly ea	ten, plant green, good
1																	with maroonish	od 5/00; hunkering, green tubercle tips, OK 3 &
														ļ			5/01	, - <i>,</i>
······ /	- <u> </u>			l,l														

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PL#	1	· · · · · · · · · · · · · · · · · · ·	ANGLE	95DM	95 FI/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ·
8.20	2	~12.9	~315			2.70		ЗА	3.40	4fr	2A	3.70	3fr	2+1A			2A,rest	originally tagged as 43.00 from Stake 7 discovered 5/96; fruit mostly eaten 3/97 orangish 5/99; green, good 3 & 5/00; maroonish-green, OK 3 & 5/01
	2	11.84	335 335 343	small.	5 	Dead 1.90 2.00		0 0 0 0 0 0 0	2.30 Dead	2 		2:80	1+2fr	3 3 3	3:14	dfr	1A	only spines left 3/96, tag mia discovered 5/96; green, good 3 & 5/99, & 5/00; chambers, galleries, and exit holes, COD weevils 3/01 discovered 5/96; COD unknown, only
.9.30 9.31	2	. 11.85 11.75				2.70		10 	3!50	0	-0	Dead			2.79	0	0	spines left; tag removed 3/97 discovered 5/96; tag mia, just spines left COD unknown 3/98 olive, OK, discovered 5/99; shaded by juniper, OK 3/00; green, good 5/00; almost covered by juniper litter, green,
9.40	2	13.19	335						3.50	1	1	3.10	2	2	3.44	0		OK 3/01; new green apical growth, good 5/01 between evergreen sumac and female juniper; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01
<u>10:00 k</u> 10.10	2	12:05 ~16	~350	med	13	Dead			2.40		0	2.30	0	0	2.80 2	2A+1fr	1disp t	only spines:left/3/96, tagimia neasured over junipers; discovered 5/97; maroonish, OK 5/99, 3 & 5/00; just a few tubercles left, reddish, one with
10.20	2 ~	16.35	~351				-										a	new spine growth, poor 3/01; new green apex formed, OK 5/01 liscovered 3/01; green, good 3 & 5/01

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PL#	STAKE		ANGLE	95DM	95 FL/FR				97DM		97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
11.00	- 2	11.80	0	small	1	1.70	0	. 0	2.10		1A	Dead						spines falling off, but stem still green
				1.14		0.03.04							di Juli					3/96; new growth 5/96; loose spines
an Santa.					1. H.													beside, looks good 3/97; just spines left.
11,10	2	~16.35	~17						4.90	7/6	5+1A	5.00					10.252	COD unknown 3/98
											941A	- 5:00	5	- 5	5.07	1A+3fr	1A;rest	measured around oaks & juniper;
				ik soe						a Shuddari Tila ma'ali					1.44	an an an an an an an an an an an an an a	uisp:	between side by side juniper & kills by side juniper & kills by side juniper & kills by side juniper by side j
														- 1- I			7	green, good 3 & 5/99; apical meristem
		1.5	1.2.1.1	4,51			C to all										的新闻	shifted to NE side of plant, damaged?
																		green, good 3/00; dull green with a few yellow tubercle tips, OK 5/00; large larva
11.20	2	~15.65	~20											推进 <u>新闻</u>				inside, COD Monellema 3/01
	2	~13.03	~20	i														discovered 3/01; green, good 3 & 5/01
		1																
12:00	2	11:73	0															
13:00	- Sec. 1. 1997	11.70	0	small		1.80	0		2.30	2	. 2	2:30	. 0	- 0	dead			just loose spines, COD unknown 3/99
110.00		11,70	1	small	0	1.40	0	0	2,40	1	1	2:40	. 0	0	1.34	0		very hunkered; loose, maybe dead/3/99;
1000																		dead, collected by WHC 5/99; COD
14.00		11.82		small		0.90	0	0	1.60	.0	0	1.90	0	0	Dead			unknown ust spines left, COD unknown 3/99
15.00	2	11.86		small	nd	0.60	.0	0	Dead									of the cluster 15-17, 15 is closer to 14
																		and in front of and between 16 & 17
		250-5-1																may be pups of a former, larger plant
16.00	2	11.86	2	Small	nd	0.80	0	0	mia			mia			Dead			COD unknown, just spines left 3/97
															Deau			of the cluster 15-17, 16 is behind 15, and o the right of 17; may be pups of a
																1000 C	n a serie de U	ormer, larger plant, loose spine clusters
17:00	2	11.86	2	small	nd	1.00	0	0	mia	- 14 2 15								COD unknown 3/99
		Sance 2							illa			mia			Dead			of the cluster 15-17, 17 is behind 15, and
																		o the left of 16; may be pups of a ormer, larger plant; loose spine clusters,
17.10	2	12:10	5						0.00						習慣習行			20D Unknown 3/99
int in the set		6 d. d. (5			10年1月				2:00	U	0	1.40	0	Dead	or e			liy, hard. & solid, COD unknown 5/98.

PL#	STAKE	DIST.	ANGLE	95DM	95	96DM	96FI	96FR	97DM	9751	97FR		0051	0050	00000		<u> </u>		
18.00	-2				FI /FR	5.60	76		37 DIVI	9/1 L		900101	98FL	98FR	99DM	_99FL	99FR	NOTES	
							1.0	2	. 1.50		2+6A	1.70	917	2A+disp	. 8.10	, 8fr	7+1A	NOTES one fruit about 10 cm from plant, both	
				4.3									1,401					fruit with small holes (ca. 1 cm) 5/96;	
									de fictoria area		Sector Per							tops of flowers & fruit eaten 3/97; green, incredible! 3 & 5/99; green, good 3 &	
				$r \ge 1$												ALC: NO.		5/00; galleries, chambers, exit holes,	
			24.02.04			an an an an an an an an an an an an an a					0-1-144			ur e no e		torse i		COD weevils 3/01	
Referer	nce Poin	t 2A is -	-52.9m at	 21 dear	ees from	1 Stake :	3 arou	nd wee	t sido ol	Luning		<u> </u>					·		
1.00	2A	7.76	14				<u>, aiou</u>	iiu wes		junipei								· · · · · · · · · · · · · · · · · · ·	
														:				discovered 3/01; green with purplish tubercles, OK 3/01; green, good 5/01	
2.00	2A	21.96	41																
		21.00	41															discovered 3/01; green, good 3 & 5/01	
						ľ													
1	1										•					l			
2.10	2A	22.38	41				·	_ ·									·		
	1																	discovered 5/01; green, good 5/01	
3.00														1					
3.00	2A	6.83	78															discovered 3/01; green, good 3 & 5/01	
4.00	2A	8.75	88																
	20	0.75	00															discovered 3/01; green, good 3 & 5/01	
5.00	2A	19.54	18											·				discovered 5/01; green, good 5/01	
						1			Ì										
5.00	2A	20.21	18															discovered 5/01; green, good 5/01	
	·																		
Reference Point 3 was a pointy rock painted pink, at southern edge dopening on top of hills in 300 ewitched to rebar in rock and callche pile 11.8m at 126 degrees from original reference point; ID #3 R032416A 99FR 99DM 99FR NOTES 2.00 3 27.18 11 34 27.18 11 34 22.22 0 discovered 5/99 green, good 5/99, 3 & 5/00, 2 & 5/01 35 discovered 5/99 green, good 5/99, 3 & 5/00, 2 & 5/01 3.01 3 26.84 11 34 24.05 45.02 35.20 discovered 5/99 green, good 5/99, 3 & 5/00, 2 & 5/01 3.01 3 26.84 11 34 24.05 35.27 35.00 discovered 5/99 green, good 300 3.00 .3 26.84 11 34 24.05 45.27 45.00 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35.00 10 35	D1	0			1	06		,						JUNCI					
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Pielerence Point 3 was a pointy rock painted pink, at southern edge of opening on top of htt in 300 availated to rebain in cost and calche piele 11.8 mai 128 degrees from original reference point; D 43 PG224 (6A) 411 42.0 412 overed 500 (attem dariade edge) and the ence point; D 43 PG224 (6A) 2.00 3 27.18 11 2.22 0 discovered 5/39; green, good 5/89; 3.8 3.01 3 27.18 11 2.22 0 discovered 5/39; green, good 5/89; 3.8 3.01 3 26.84 11 2.22 0 discovered 5/39; green, good 5/89; 3.8 3.01 3 26.84 11 2.22 0 discovered 3/30; hurkered, green, God 5/89; 3.8 3.01 3 26.84 11 2.22 0 discovered 3/30; hurkered, green, God 5/89; 3.8 3.01 3 26.84 11 2.22 0 discovered 3/30; hurkered, green, God 5/89; 3.8 3.01 3 26.84 11 2.22 0 discovered 3/30; hurkered, green, God 5/89; 3.8 3.01 3 26.84 11 2.22 0 discovered 3/30; hurkered, green, God 5/89; 3.8 3.01 3 26.84 11 2.22 discovered 3/	PL#	STAKE	DIST.	ANGLE	95DM		96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FI		NOTEO
100 22100 11 22100 1	Refer	ence Poir	nt 3 was	a pointy	rock pair	nted pink	at sout	horn o	dan of	ononin			- 0/00	switched	to robar			5511	I INDIES
2.00 3 27.18 11 2.22 0 discovered 5/99, green, good 5/99, 3.8 2.00 3 27.18 11 2.22 0 discovered 5/99, green, good 5/99, 3.8 3.01 3 26.84 11 2.22 0 discovered 5/99, green, good 5/99, 3.8 3.01 3 26.84 11 2.22 0 discovered 5/99, green, good 5/99, 3.8 3.01 3 26.84 11 2.22 0 discovered 5/99, green, good 5/99, 3.8 3.01 3 26.84 11 2.22 0 discovered 5/99, green, good 5/99, 3.8 500, 2.8.501 3.01 3 26.84 11 2.22 0 discovered 5/99, green, good 5/99, 3.8 500, 13 2.970 7.92 3.8 3.97 3.8 discovered 5/99, green, good 5/99, 3.8 5/00, 10, 10, 10, 10, 10, 10, 10, 10, 10,		j in rook u	nu canc	ne hie i	1.8m at 1	26 degre	ees from	origina	al refer	ence po	oint; ID i	#3 R032	2416A						
2.00 3 27.18 11 2.22 0 discovered 5/99; green, good 5/99; 3 & 5/00; but since discovered 5/99; green, good 5/99; 3 & 5/00; 2 & 5/01 3.01 3 26.84 11 2.23 0 discovered 5/99; green, good 5/99; 3 & 5/00; but since discovered 5/99; green, good 5/99; 3 & 5/00; 2 & 5/01 3.01 3 26.84 11 2.23 0 discovered 5/90; humbered, green, OK 3 & 5/00; plant mia 3 & 5/01 4000 3 22.86 03 2.223 0 discovered 5/90; humbered, green, OK 3 & 5/00; plant mia 3 & 5/01 4000 3 22.86 03 2.2236 03 2.2236 04 4000 3 25.30 8 3.87 11 2.2236 04 4000 3 25.30 8 3.87 14 measured over jumpers, discovered 5/90; green, good 5/99; 3 & 5/00; green, good 5/99; 3 & 5/00; green, good 5/99; 3 & 5/00; green, good 5/99; 3 & 5/00; green, good 5/99; 3 & 5/00; green, good 5/99; 3 & 5/00; green, good 5/99; 3 & 5/00; green, good 5/99; 3 & 5/00; green, good 5/99; 3 & 5/00; green, good 5/99; 3 & 5/00; green green; good 5/99; 3 & 5/00; green; good 5/99; green; good 5/99; 3 & 5/00; green; good 5/99; green; good 5/99; green; good 5/99; green; good 5/99; green; good 5/99; green; good 5/99; green; good 5/99; green; good 5/99; green; good 5/99; green; good 5/99; green; good 5/99; green; good 5/99;	1.00	3	27.30) 11								Lingue 1		And State		411	9	AB	discovered 5/99 a formarance
2.00 3 27.16 11 2.22 0 discovered 5/93; green, good 5/99, 3 & 5/00, 2 & 5/03; green, good 5/99, 3 & 5/00, 2 & 5/03; green, good 5/99, 3 & 5/00, 2 & 5/03; green, good 5/99, 3 & 5/00, 2 & 5/03; green, good 5/99, 3 & 5/00, 2 & 5/03; green, good 5/99, 0 unstelleting 5/00, 2 & 5/03; green, good 5/99, 0 unstelleting 5/00, 2 & 5/03; green, good 5/99, 0 unstelleting 5/00, 2 & 5/03; green, good 5/99, 0 unstelleting 5/00, 0 unstelleting										S. Californ			e data de						Tubercles: OK 5/99, 3 & 5/00; just spine
3.00 3 26.83 11 2.22 0 discovered 5/99; green, good 5/99, 3.4 3.01 3 26.84 11 2.13 0 discovered 5/99; green, good 5/99, 3.4 3.01 3 26.84 11 2.13 0 discovered 5/99; green, good 5/99, 3.4 3.01 3 26.84 11 2.13 0 discovered 5/99; green, good 5/99, 3.4 3.01 3 26.84 11 2.13 0 discovered 5/99; green, good 5/99, 3.4 3.01 3 26.84 11 2.13 0 discovered 5/99; green, good 5/99, 3.4 3.01 3 26.84 11 2.13 0 discovered 5/99; green, good 5/99, 3.4 3.01 3 26.84 11 2.14 0 discovered 5/99; green, good 5/99, 3.4 3.02 3 2.16 11 2.14 0 discovered 5/99; green, good 5/99, 3.4 3.03 3 2.16 11 2.14 0 discovered 5/99; green, good 5/99, 3.4 500 9 <td>2.00</td> <td></td> <td></td> <td></td> <td></td> <td>2.075</td> <td>1.1</td> <td></td> <td></td> <td></td> <td></td> <td>and the</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Clusters left. COD/unknown 3/01</td>	2.00					2.075	1.1					and the							Clusters left. COD/unknown 3/01
3.00 3.2 26.84 11 500, 2.8, 501 500, 2.8, 501 3.01 3 26.84 11 24.34 500, 2.8, 501 3.01 3 26.84 11 26.84 11 400 x.3 22405 9.9 24.05 9.9 25.72 26.8 discovered 50.9 green, 0.4.3 8.500; plant mia 3.8.501 400 x.3 22405 9.9 24.05 9.9 25.72 26.8 discovered 50.9 green, 0.4.3 8.500; plant mia 3.8.501 26.72 26.8 discovered 50.9 green, 0.4.3 9.9 25.72 26.8 discovered 50.9 green, 0.2.6,90,000 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	2.00	3	27.18	11												2.22		0	
300 33 26.83 11 26.83 11 201																		Ŭ	5/00. 2 & 5/01
3.01 3 26.84 11 Cliscovered/5/99;clive; OK5/99;flead; rembved/io/weevilsurg/300;molevidence of weevilsurg/300;molevidence of weight of																			
3.01 3 26.84 11 Cliscovered/5/99;clive; OK5/99;flead; rembved/io/weevilsurg/300;molevidence of weevilsurg/300;molevidence of weight of																			•
3.01 3 26.84 11 Cliscovered/5/99;clive; OK5/99;flead; rembved/io/weevilsurg/300;molevidence of weevilsurg/300;molevidence of weight of	3.00	3 1	26.83	. 11	9 g 19 6 7 1	Station of the state of	the second second second	De Cal	Stell Contraction		1000 No. 14 52 2	Sectors for							
3.01 3 26.64 11																4.31		- 0	discovered 5/99; olive, OK 5/99; dead,
400 -3 24.05 -9 -5.73 -5A discovered 5/49(5) (few/loose spines) 400 -3 23.87 -9 -5.73 -5A discovered (5/49) (a) (ew/loose spines) 5100 -3 23.87 -9 -5.24 -0 discovered (5/49) (a) (ew/loose spines) 6.00 3 25.30 8 - - - - 7.00 3 25.35 9 - - - - - 7.00 3 25.35 9 -	体供养			1. A.								1 P. 1		224651		48.91		- 1 -12	removed for weevil study 3/00 mo
4.00 31 24.05 -9 5.73 5A discovered (5/99) a few loose spines, imationish (5/99) a few loose spines, imationish (5/99) dark green, good (3/00) green with purplish tuberclettips, good (5/00) interior soft and fully, (COD) tungues (200) green with slightly purplish tuberclettips, good (5/00) interior soft and fully, (COD) tungues (200) green with slightly purplish tuberclettips, good (5/00) interior soft and fully, (COD) tungues (200) green with slightly purplish tuberclettips, good (5/00) one large chamber. (COD) Moheliema (2/0) 5100 3 23.87 19 5.24 0 discovered (5/99) green, good (5/99, 3/06) green with slightly purplish tuberclettips, good (5/00) one large chamber. (COD) Moheliema (2/0) 6.00 3 25.30 8 3.87 1A measured over junipers, discovered (5/99, green, good 5/99, 3 & 5/00; center eater, outer tubercles left, green, scarred over, poor 3/01; 3 new apices forming, green, OK 5/01 7.00 3 25.35 9 measured over junipers, discovered	3.01	3	26.84	11					100 C 100 C 100	and a second	Contraction of the	1 - 1				2. 200 B			evidence of weevils, COD unknown
400 31 24/05 9 57.3 5A discovered 5/99; a law loose spines; imaconish 5/99 dark green; good 3/00; green with purplish tubercle tips; good 5/00; http://dor.soft and/fullify; (COD) 5100 31 23/87 9 5124 0 discovered 5/99; green, good 5/09; http://doc.soft and/fullify; (COD) 5100 31 23/87 9 5124 0 discovered 5/99; green, good 5/09; a law loose spines; imaconish 5/99; dor.soft and/fullify; (COD) 6.00 3 25.30 8 3.87 1A measured over junipers, discovered 5/99; green, good 5/09; a law loose spines; imaconish 5/99; green, good 5/09; a law loose spines; imaconish 5/99; dor.soft and/fullify; (COD) 6.00 3 25.30 8 3.87 1A measured over junipers, discovered 5/99; green, good 5/99; a law loose spines; imaconish 5/99; green, good 5/99; a law loose spines; imaconish 5/99; green, good 5/99; a law loose spines; imaconish 5/99; green, good 5/99; a law loose spines; imaconish 5/99; green, good 5/99; a law loose spines; imaconish 5/99; green, good 5/99; a law loose spines; imaconish 5/99; green, good 5/99; a law loose spines; imaconish 5/99; green; good 5/99; a law loose spines; imaconish 5/99; green; good 5/99; a law loose spines; imaconish 5/99; green; good 5/99; a law loose spines; imaconish 5/99; green; good 5/99; a law loose spines; imaconish 5/99; green; good 5/99; a law loose spines; imaconish 5/99; green; good 5/99; a law loose spines; imaconish 5/99; green; good 5/90; a law loose spines; imaconish 5/99; green; good 5/9	1																		discovered 3/00; hunkered, green, OK 3
5:/3 5A discovered 5/99; a few loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines food 300; dreen with purplish tubercle tips good 5/00; one large chamber, COD Moneilema 3/01 6.00 3 25.30 8 5.24 0 discovered 5/99; green, good 5/99, 3/00; Dreen with slightly purplish tubercle tips; good 5/00; one large chamber, COD Moneilema 3/01 6.00 3 25.30 8 1 1 measured over junipers, discovered 5/99; green, OK 5/01; 3.87 7.00 3 25.35 9 9 1 1 measured over junipers, discovered																			& 5/00; plant mia 3 & 5/01
5:/3 5A discovered 5/99; a few loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines food 300; dreen with purplish tubercle tips good 5/00; one large chamber, COD Moneilema 3/01 6.00 3 25.30 8 5.24 0 discovered 5/99; green, good 5/99, 3/00; Dreen with slightly purplish tubercle tips; good 5/00; one large chamber, COD Moneilema 3/01 6.00 3 25.30 8 1 1 measured over junipers, discovered 5/99; green, OK 5/01; 3.87 7.00 3 25.35 9 9 1 1 measured over junipers, discovered							1				ĺ								
5:/3 5A discovered 5/99; a few loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines matconish 5/99; datew loose spines food 300; dreen with purplish tubercle tips good 5/00; one large chamber, COD Moneilema 3/01 6.00 3 25.30 8 5.24 0 discovered 5/99; green, good 5/99, 3/00; Dreen with slightly purplish tubercle tips; good 5/00; one large chamber, COD Moneilema 3/01 6.00 3 25.30 8 1 1 measured over junipers, discovered 5/99; green, OK 5/01; 3.87 7.00 3 25.35 9 9 1 1 measured over junipers, discovered	400	0.0	103×05																
6.00 3 25:30 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 9 8 8 9 8 9<	4.00	0	-24.05	9	d saturation			- 18		H (1997)						5.73	Classical I	5A	discovered 5/99: a tew loose enince
Stole 3 23:87 9		1.									140-11-0			2000 - 100 -					maroonish 5/99; dark green, good 3/00
5100 3 23/87 9 5100 3 23/87 9 5124 0 discovered 5/99; green; good/5/99; 3/00; green; good/5/99; 3/00; green; good/5/99; 3/00; green; good/5/99; green; good	-10-4				148.24	6.5 av 64	10-44-014		100-10-24	Sheer Street				4 . T. F			and an or		green with purplish tubercle tips: noor
5:00 3 23:87 9<																			5/00; interior soft and fluffy COD
6.00 3 25.30 8 3.87 1A measured over junipers, discovered 5/99; green, good 5/99; 3 & 5/00; center eaten, outer tubercles left, green, scarred over, poor 3/01; 3 new apices forming, green, OK 5/01 7.00 3 25.35 9 measured over junipers, discovered	5:00	3	23 87	9		- Andread Income							1. N. A.				6-3-3 A		fungus? 3/01
6.00 3 25.30 8 9<																5.24		0	discovered 5/99; green, good/5/99, 3/00;
6.00 3 25.30 8 Morellema 3/01 6.00 3 25.30 8 1A measured over junipers, discovered 5/99; green, good 5/99, 3 & 5/00; center eaten, outer tubercles left, green, scarred over, poor 3/01; 3 new apices forming, green, OK 5/01 7.00 3 25.35 9 measured over junipers, discovered										200 B. 1948					Service et				green with slightly purplish tubercle tips,
3.87 1A measured over junipers, discovered 5/99; green, good 5/99, 3 & 5/00; center eaten, outer tubercles left, green, scarred over, poor 3/01; 3 new apices forming, green, OK 5/01 7.00 3 25.35 9																	2	29432	good 5/00, one large chamber. COD
7.00 3 25.35 9 5/99; green, good 5/99, 3 & 5/00; center eaten, outer tubercles left, green, scarred over, poor 3/01; 3 new apices forming, green, OK 5/01 7.00 3 25.35 9 measured over junipers, discovered	6.00	3	25.30	8			145-14 A 2 1- 4 1-			24578				House 1					
7.00 3 25.35 9 measured over junipers, discovered									1	I						3.87		1A	measured over junipers, discovered
7.00 3 25.35 9 scarred over, poor 3/01; 3 new apices forming, green, OK 5/01			1	1															5/99; green, good 5/99, 3 & 5/00; center
7.00 3 25.35 9 forming, green, OK 5/01																			eaten, outer tubercles left, green,
7.00 3 25.35 9 measured over junipers, discovered																	ĺ		scarred over, poor 3/01; 3 new apices
measured over junipers, discovered			[i															iorming, green, OK 5/01
measured over junipers, discovered	7 00												Í						
3/00; green, good 3 & 5/00, 3 & 5/01	1.00	3	25.35	9															
					Í														3/00: green good 3 & 5/00 3 & 5/01
			ĺ				ĺ												
		<u> </u>		·····															

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PL# 8.00	STAKE 3	DIST.	ANGLE	95DM	95 EI /ER	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
0.00		14.42	20													~		8.00 is right of 9.00 & 10.00; discovered 3/00; green, good 3 & 5/00; center eaten, scarred over, tubercles reddish- green, poor 3/01; 3 new apices forming, green, OK 5/01
8.10	3	14.42	21															discovered 3/01; green, good 3 & 5/01
9.00	3	14.48	20	· · ·														
																		9.00 is left of 8.00 and behind 10.00; discovered 3/00; green, good 3 & 5/00; maroonish-green, OK 3/01; green with yellowish tubercles, OK 5/01
9.01	3	14.51	22				-											behind 9.00 at 7 o'clock; discovered 3/01; green, good 3/01; poor 5/01
10.00	3	14.42	20															10.00 is left of 8.00 and in front of 9.00; discovered 3/00; green, good 3/00; green with some orange tubercle tips, OK 5/00; green, with red tubercle tips, OK 3 & 5/01
11.00	3	13.74	28														d	discovered 3/00; green, good 3 & 5/00, 3 & 5/01
12.00	3	~11.1	~292														c v t	discovered 3/00; green with a few brange tubercle tips, good 3/00; one fruit vith hole, plant green with a few orange ubercle tips, OK 5/00; green, good 3 & 5/01

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13:40	2 120 143 143 141 336			mia 2:70			3:50	0		3.70	3fr	2+1A	99DM 3:39	99FL	99FRNOTESSpine cluster about 30 cm away, tag removed 5/961+1Adiscovered 5/96; tannish, shrunken at base, very loose, but rooted 3/97; 3 fm partially eaten, plant reddish with gray spines 3 & 5/98; reddish with gray spines, OK 3 & 5/99; dead, collected fi weevill study 3/00; no evidence of
13.44	<u>7</u> 141					0					3fř	2+1A	3:39	1A+1fr	1+1A discovered 5/96; tannish, shrunken at base, very loose, but rooted 3/97; 3 fr partially eaten, plant reddish with gray spines 3 & 5/98; reddish with gray spines, OK 3 & 5/99; dead, collected f
		lg	6	5.70			1.50								partially eaten, plant reddish with gray spines 3 & 5/98; reddish with gray spines, OK 3 & 5/99; dead, collected f
		lg Ig		5.70			1.50	0							spines, OK 3 & 5/99; dead, collected f
		lg	6	5.70			1.50	0	0						weevinstudy slooping evidence of
7.20	336	Ig	6	5.70		(E.S. K. K. K. K. K. K. K. K. K. K. K. K. K.		Set 1	States of the second second second second second second second second second second second second second second	Dead					weevils, COD unknown Jabba the Hut syndrome 3 & 5/97; har
		Ŭ	-		i 2+3fri	3	6.30	1+2fr	1+2A	6.00					& dry, COD unknown 3/98
						0	0.30	1+211	I+2A	6.00	4	3+1A	6.30	0	0 tubercle tips orange, OK 3 & 5/99; becoming lop-sided, green with orange tubercle tips, good 3 & 5/00; two tubercles eaten, scarred over, maroonish-green, OK 3/01; green, goo 5/01
7.23	336	v. sm	0	0.80	0	0	1.20	0	0	1.80	0	- 0	1.36	0	
															0 pup of 20.00, not tagged 3/97; measure in one direction only 3/98; green, good & 5/99, 3 & 5/00, 3 & 5/01
6.26	352														
													2.51	0	0 misshapen, OK 3/99; green, good 5/99 3 & 5/00, 3 & 5/01
6.08	350												1.97	0	0 green, good 3 & 5/99; slightly reddish-
															green, OK 3/00; green, good 5/00, 3 & 5/01
6.86	350														discovered 3/00; green, good 3 & 5/00, & 5/01
	6.08	6.08 350	6.08 350	6.08 350	6.08 350	6.08 350	6.08 350	6.08 350	6.08 350	6.08 350	6.08 350	6.08 350	6.08 350	6.08 350 1.97	6.08 350 1.97 0

PL#	STAKE	DIOT	11101 -		95								Junci					
20.05	3 STAKE	DIST. 7.06	ANGLE 347	95DM	FI/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
	0	7.00	347															discovered 3/00; green, good 3 & 5/00; few tubercles eaten, scarred over, green, OK 3/01; apex slightly shifted, green, good 5/01
							[
20.60	3	7.30	343															measured over Acacia; discovered 3/00 green, good 3 & 5/00, 3 & 5/01
0.07	3	7.60	333											<u> </u>				
																		measured over Acacia and sumac; discovered 3/00; green, good 3 & 5/00; loose spines covering either tubercle tip or seedling, green, poor 3/01; green, good 5/01
.50	3	29:05	100			2.40		0	Dead			43,5	Series -	1012772		Sec. 2		discovered 5/96; measured over
																		evergreen sumac; originally tagged as 54; only a few loose spines left, tag removed s/97
	3	13:20		-med	4	4.90	4 fr	0	Dead									ruit may have already dispersed 5/96; COD unknown, only spines left, tag
	original)		340 m	iedium)	6	3.60	4		Dead									removed 3/97 ruit may have already dispersed 5/96; COD unknown, only spines left, tag
(0	3 Iriginal)	12:00	345	med-lg	4	3.60	1+21r		Dead									emoved 3/97 lower partially eaten 3/96; COD Inknown, only a few loose spines left;
00	3	14.30	237	med-lg	3	470	3	3	5.20	4+2fr	242A	5.40	5	5	5.36	3fr	1+1/A	ag removed 3/97 ruit partially eaten 3/97, duil green, OK 3/99, yellowish, OK 5/99, 3/00; green
																		vith some yellow tubercle tips, good /00; plant uprocted, dead, COD prooting, agent unknown 3/01

PL#	STAKE	service in the service of	ANGLE	95DM	95 FI/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FI	99FR	NOTES
25.10	3	10.64	240								· ·							discovered between rocks 3/00; green, good 3 & 5/00; purplish-green, good 3 & 5/01
25.20	3	13.58	~231															discovered 3/00; green, good 3 & 5/00, 3 & 5/01
		15.86	194	med	4	4.00	3	0	Dead	40 TZ Ze	7 33 13 4 3	NE SOL		No. Second	No. Adv. Tak	152.00		
and the second sec	(original) 3	and a second to the second second second second second second second second second second second second second	176													aller in Se aller Ande		shaded; CCD unknown, only loose scattered spines left, tag removed 3/97
		adda, e adda, adda, e adda, adda, adda, adda, adda, adda, adda, adda, adda, ad				3.90		2	5.20	Z÷1.fr	7 +1A	.5.10	5	5 1911 - 1 1914 - 1 1	5:48	2fr		discovered 3/96; holes in fruit 5/96; tubercle tips marconish, plant OK 3/99; good 5/99; good, green 3 & 5/00; eaten
26.11	3	9.23	176			1.50	0	0	2.30	1	1	2.10	0	0	2.50	2	2A	below/soil surface, COD herbivory 3/01 discovered 3/96; seedling or pup of 26.10; green, good 3 & 5/99, 3 & 5/00; center eaten, scarred over, plant green, poor 3/01; two new apices forming, green, OK 5/01
26.12	3	9.21	175									-						discovered among rocks 3/00; one measurement only 3/00; tag mia, replaced 5/00; green, good 3 & 5/00, 3 & 5/01
26.13	3	9.18	176															discovered 5/00; green, good 5/00, 3 & 5/01

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26.20	STAKE 3		ANGLE	95DM	EU/EB	96DM	I	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ·
20.20	J	9.26	176			1.60	0	0	2.00	2	1	2.30	0	0	2.35	1A		discovered 3/96; green, good, hunkering 3/99; green, good, popping out 5/99; hunkering, green, good 3/00; very hunkered, center depressed, loose spines, eaten?, green, OK 5/00; one tubercle left, poor 3 & 5/01
26.40	3 (original) 3 (original)		140 194			3.70 2.70	1+2fr		Dead Dead									discovered 3/96, edge of small juniper; originally tagged as 40; COD unknown, only spines left, tag removed 3/97 discovered 5/96; originally tagged as 49; COD unknown, only a tew loose spines
26.50	3	1.65	191						2.50	2fr	0	3.10	0	0	3.04	2A		left, tag removed 3/97 p green, good, hunkered 3/99; green, good, popping out 5/99; accidentally stepped on, green, good 3 & 5/00, 3 & 5/01
26.70	3	22.56 12.85	134						4.60 3.00	2+2fr.	0	Dead 3.50	2	2	3.95	1+1fr	2	weevilichambers 3/98 dull green, OK 3/99; green 5/99; green, good 3 & 5/00, 3 & 5/01
26.80 (original) 3 original)	14,777 27,78 19:89	126						1.60 4.90 1.10	0 716 0	2	Dead Dead 1150	0	0 6	1:68		0	Jabba the Hut syndrome 3 & 5/97; hard & dry, COD unknown 3/98 plant reddish 3/97; fruit badly eaten 5/97; COD unknown 3/98 Jabba the Hut syndrome 3 & 5/97 agged as 29.3, retag: reddish 3/98; - green, good 3/99; olive, OK 5/99;
S Fair P								alative a Strategy										squishy, hunkered, green, OK 3/00; veevil inside, dead 5/00

					1.11-						Anci	stroca	ctus toł Juncti	ouschii (on	Data for			
PL# 40.1			ANGLE	95DM	95 FL/EB	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
		~24.3	~71						4.20	2	1+1A	4.20	0	0	3.57	.	1disp	originally measured form Reference Point 7; under shin oak; squishy, poor 3/99; green, OK 5/99; almost buried in oak leaf litter, green, good 3 & 5/00; coming out, green with gold tubercles at base, OK 3/01; green, good 5/01
42.00) 3	22.34	~75			1.60		0	2.70	1	1	2.90	2	2	3.40	ЗĂ		originally measured from Reference Point 7; discovered 5/96; green, good 5/99, 3 & 5/00, 3 & 5/01
42.10	-3	17:26	57						2:60	3fr	3	2.30	0	0	2.60	0		originally shot from Reference Point 7; reddish, loose 3/97; pupping off side of apical meristern, green, OK 8/99; OK
				andre en Sternog							ar 14. Andres							green 5/99; no pup, green, good 3& 5/00; just spines left, COD tinknown 3/01
42.20	3	21.84	71															measured through juniper on west side; discovered 3/00; green, good 3 & 5/00; green with some tan tubercle tips, OK 3/01; green, good 5/01
42.30	3	22.12	71															measured through juniper on west side, discovered 3/01; green, good 3 & 5/01
42.40	3	20.01	77															discovered 5/01; green, good 5/01
										-								
42.50	3	20.30	78														(discovered 5/01; green, good 5/01
																	-	

												istruca		ouschii l	Jata for			
PL#	STAKE	DIST	ANGLE	95DM	95	0.0001				······	1		Juncti	ion				
42.60	1	20.41	78	950101	FI /ER.	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ·
		20.41	70															discovered 5/01; olive, OK 5/01
43.10	3	20.76	62						3.20	5fr	1+4A	3.80	3fr+1A	3+1A	4.42	6A+1	1	originally measured from Reference Point 7; dark green, OK 3 & 5/99, 3/00 olive, OK 5/00; blue-green, good 3/01 maroonish, OK 5/01
14.00	3	27.78	28		n a seann an 1920 - Seann Anna 1920 - Seann Anna 1920 - Seanna	2:40		0	3.00	0	- 0	3:60	0	0 	3.50	2A	0	discovered 5/96; under juniper by Nol OK 3/99; green, good 5/99; 3 & 5/00; j
5.00	3	28.10	28			1.90	29. 	0	2.30	0	0	2.40	0	0	2.29			spines lieft, COD unknown 3/01
													Ū	Ŭ	2.23	U		discovered 5/96; under juniper by Nol green, good, getting buried 3/99; gree good, popping out 5/99, 3 & 5/00, 3 & 5/01
0.00	3	17.22	58			2:90		0	3:90	2+2fr	141A	4!50	3	8,	4.67	142fr		discovered 5/96; originally recorded a 50 in 3/96; switched to 20 10 in 3/97; switched back to 50 00 in 3/00; fruit
).10	Andread and a second se	13.89	50					238 5 4 2 238 5 4 2 238 4 5 4 1 238 4 5 4 5 4 5 4 1 1 248 4 5 4 5 4 5 4 1 1 1 1 1 1 1 1 1 1 1 1 1										eaten 3/97; green, good 3/99; few orangish tubercle tips, OK 5/99; gettin partially buried in juniper litter, green, (3 & 5/00; large cavity, COD Moneilem 3/01
														;				discovered 3/00; green, good 3 & 5/00 & 5/01
.00	3	17.14	59			1.30		0	1.80	0	0	1.90	0	0	2.71	1fr		discovered 5/96; originally tagged as 5 in 3/96, then recorded as 20.20 in 3/97 switched back to 54.00 in 3/00; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01

Ancistrocactus tobusebil Date 6

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	07.1/5				<u> </u>	·····	 					Juncti	ion				
PL# 52.00	STAKE 3	DIST. 17.57	ANGLE	95DM	95 FL/FR		 96FR		97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
02.00	5	17.37	60			2.80	0	3.50	2	1+1A	3.60	2	2	4.45	3+1fr		discovered 5/96; originally tagged as 52 in 3/96, then recorded as 20.30 in 3/97, switched back to 52.00 in 3/00; petals partially eaten, green, good 3 & 5/99, 3/00; one fruit partially eaten, plant green, good 5/00; dark green, good 3/01; maroonish-green, OK 5/01
53.00	3	19.22	59			1.80	0	2.90	1+1fr	1+1A	3.70	1	1	3.74	2fr		discovered 5/96; originally tagged as 53 in 3/96, then recorded as 20.40 in 3/97, switched back to 53.00 in 3/00; green, good 3 & 5/99, 3 & 5/00; some damage to apical tubercles, plant green, OK 3/01; pale maroonish-green, good 5/01
54.00	3	20.43	48				 										measured over small juniper, discovered 3/01; green, good 3 & 5/01
55.00	3	19.86	87			1.30	0	1.90	0	0	2.10	0	1	2.88	2fr		in rock jam; discovered 5/96; originally tagged as 55 in 3/96, then recorded as 20.6 in 3/97, switched back to 55.00 in 3/00; measured in one direction only 3/98 & 3/99; a few orangish tubercles, OK 5/99; dull green, OK 3/00; orangish at base, otherwise green, OK 5/00; pale green, good 3/01; green, good 5/01
55.10	3	19.90	87				 				0.90	0	0	1.10	0		dead Ancistrocactus tobuschii beside, ive plant measured in one direction only, discovered 3/98; originally tagged as 20.61, switched to 55.10 in 3/00; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01

PL#	STAKE		ANGLE	95DM	95 FL/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTEO
55.20	3	21.18	8 .83												2.59		0 	NOTES Originally tagged as 20.62, switched to 55:20 in 3/00; green, good, hunkering
55.30	3	20.27	/ 85							Part of P								3/99; olive, OK 5/99; 3 & 5/00; eaten to soil surface, COD herbivory 3/01
															`2.61	0		originally tagged as 20.63, swithced to 55.30 in 3/00; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01
55.40	3	20.84	78															discovered at edge of shin oak 3/00; green, good 3 & 5/00, 3 & 5/01
56.00	3	12.60	83			2.90		1+1A	3.10	2+2fr	2+2A	3.70	2	2	3.46	3fr		discovered 5/96; measured over
																		evergreen sumac; originally tagged as 56 in ??, then recorded as 20.70 in ??, swithced back to 56.00 in 3/00; a few orangish tubercle tips, OK 5/99, 3 & 5/00; green with a few tan tubercle tips, OK 3 & 5/01
56.01	3	12.61	83			•	-								0.52	0		originally tagged as 20.71, switched to 56.01 in 3/00; one measurement only 3/00; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01
56.02	3	12.58	83															discovered at base of 56.00 (~11 o'clock), not tagged 3/00; green, OK 3/00; green, good 5/00, 5/01
6.03	3	12.63	83															lose to 56 at 4:30 o'clock; discovered 5/01; not tagged, green, good 5/01

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											Anc	istroca	ctus toł Juncti	ouschii [Data for			
PL#	STAKE	DIST.	ANGLE	95DM	95		0651	OFED	97DM	0751	0750	00014						
57.0	0 3	15.23			FI/FR	3.00		90FN 4	2.80			98DM		98FR	99DM	99FL	99FR	NOTES
						3.00			2.80	3fr	3	2.80	0	0	2.67	0		fruit eaten, discovered 5/96; measured over evergreen sumac; originally tagged as 57 in ??, then recorded as 20.80 in ??, swithced back to 57.00 in 3/00; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01
57.0	1 3	15.21	85												0.81	o		originally tagged as 20.81, switched to 57.01 in 3/00; green, good 3/99, 5/99, 3 & 5/00; green, OK 3 & 5/01
57.10	3	15.45	86															discovered 5/01; green, good 5/01
58.00	3	15.90	87			2.30		0	2.70	2fr	2	2.40	0	0	2.84	1fr		discovered 5/96; originally tagged as 58 in 3/96, then recorded as 20.90 in 3/97, swithced back to 58.00 in 3/00; green, good 3 & 5/99; hunkered, green, OK 3/00; popping out, green, OK 5/00, 5/01
58.10	3	15.63	101															discovered 3/00; green, good 3 & 5/00, 3 & 5/01
59.00	3	15.49	101													_		discovered 3/01; green, good 3 & 5/01

Ancistrocactus tob

PI	-					95	1	· · · · ·						Junct					
60.		STAKE 3	DIST. 15.44	ANGLE 101	95DM	EL/ER.	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
																			discovered 5/01; green, good 5/01
		3 riginal)	22.63	122					(1) 13 (D) (1) 13 (D)						4	4.22	4fr	2+1A	maroonish, OK 3 & 5/99; dead, weevil 📲
62.		3	6.30	117						4.50	5fr	3	4.00	0	0	4.11	4fr	2	chambers 3/00 fruit partially eaten 5/97; dull green, OK 3/99; orangish, OK, tiny seedling (62.01) in front 5/99; green with orangish tubercle tips, OK 3 & 5/00; olive with some missing tubercles (scarred over) and tan tips, OK 3/01; maroonish-olive, OK 5/01
62.0	1	3	6.28	117											•				discovered 5/99; not tagged, OK 3 & 5/00; mia 3 & 5/01
62:0	2	3	6:26	117												veneration National			discovered 3/00; not tagged, OK 3 & 5/00, 3/01; just spines left, COD
62.1	0	3	7.81	113															unknown 5/01 discovered 3/00; green, good 3/00; dull green, OK 5/00; dark green, good 3/01; green, good 5/01
62.20) ;	3	7.85	111														3	discovered 3/00; green, good 3 & 5/00, 3/01; dull green, OK 5/01
62.30		3	8.72	113														с 8	liscovered 3/00; green, good 3 & 5/00, 3 & 5/01

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51 U	OTAKE		1	· · · · · · · · · · · · · · · · · · ·	- 115	,		· <u> </u>					Junct	lon				
PL# 63.00	STAKE		ANGLE	95DM	FI/ER	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ·
2240 540 360	(original)		118						3.40	4fr	3+1A	3.80	- 2	1+1A	Idead			2 weevils collected, tiny seedling
64.00	3		107						0.10			0.47				1.42	(Fair)	replanted 3/99; seedling dead 5/99
	a dimension of the second second second					111			2.10	. 1fr		2.60	2tr	- 2	-2:83	3fr	6	dull green, OK 3 & 5/99; dead, weevil
64.01	3	8.17	104		- <u> </u>										1.03	0	C	exit holes 3/00 green, good 3/99; hunkered, green, OK 5/99; hunkered, green, good 3/00; popping out, green, good 5/00; yellowish- green, good 3 & 5/01
64.10	3	8.62	100	··			<u> </u>											
																		discovered 3/00; green, OK 3 & 5/00; green, good 3 & 5/01
64.20	3	8.64	100		•	· ······												
		0.04																discovered 3/00; green, good 3 & 5/00, 3 & 5/01
64.30	3	0.07																
04.00	3	8.87	109															discovered 3/01; pale olive with reddish tubercles, OK 3 & 5/01
65 00	3.44	20.03	117	South Index Data States		CONTRACTOR OF												
	(original)	20103							2.00	tifr	1A	2.40	lfr		2.69	2fr	. 2	dulligreen, OK 3 & 5/99: just spines left,
66.00	3	4.71	93						0.90	0	0	1.20	0	0	1.23	0	0	COD unknown 3/00 Jabba the Hut syndrome, barely rooted 3/97; measured in one direction only, gray 3/98; dull green, OK 3 & 5/99; hunkered, green, good 3/00; popping out, green, good 5/00, 3 & 5/01
07.00	3	4.73	94						1.30	0	0	2.10	0	0	1.49	0		measured in one direction only 3/98; duil green, OK 3 & 5/99; hunkered, green, OK 3 & 5/00, 3/01; popped out, green, good 5/01
<u> </u>				<u> </u>								1						

PL#	STAKE		ANGLE	05014	95				· · · · · · · · · · · · · · · · · · ·			<u> </u>						
58.00				95DM	FI/FR	96DM	96FL	96FR	97DM	1	1	98DM	98FL	98FR	99DM	99FL	99FR	NOTES '
an the project of	(original)	*10.20	115		1.1		1.2.14		1.00	0	0	Dead						measured in one direction only, half
	(onginal)			1993 (A.S. 1993)				A PERSONAL PROPERTY AND A PERSON AND A PERSO			1							buried horizontally, Jabba the Hut
10						a and the	a series							10.20	0.00	and the state		syndrome 3 & 5/97; hollow, weevils?
69.00	3	4 71	87	6.0		1.254 (1) (1)			1.1.1									3/98
			01	50 S 2				1.439-00	1.60	l fr		2.10	0	0	2,55	lfr+1A	. 0	green, good 3/99; OK, squishy 5/99;
				24.1														dead, just spines left, COD unknown
59.01	3	4.77	88	A REAL PROPERTY AND INCOME.				1000				ALC: NOT					e in the set	3/00
	-		00									0.70		0	0.84	Ō	0	discovered 3/98; almost spineless, dull
																		green, poor 3/99; some spines, green.
																		OK 5/99; hunkered, green, OK 3/00;
		i		1				ľ	[popping out, green, OK 5/00; plant mia
												İ						& 5/01
9.10	3	4.04														ĺ		
9.10	3	4.04	75		i			ľ							2.73	1fr	1disp	green, good 3 & 5/99, 3 & 5/00, 3 & 5/0
								1										5
											[
										·								
9.20	3	3.80	63															
		0.00	00												4.05	0	0	dull green, OK 3/99; yellowish, OK 5/99
																		3 & 5/00; light olive, OK 3/01; light greet
			:															good 5/01
															i i			
9.30	3	4.59	80															
																		discovered 3/01; green, good 3 & 5/01
																	1	
								•										
				_													1	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3	17.86	110	2 14 5 7		a subtraction of		electory a	3.50	- 3fr	3	Dead	Dead	Dead	e a compañía de la compañía de la compañía de la compañía de la compañía de la compañía de la compañía de la co		100000	
.00	3	17.80	110	No. Contraction	107 March 1			1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	1.30	0		0.70						hollow with yellow mush, weevils? 3/98)
(o	riginal)		64202	603.5					1.00		. 0	0.70	0	Dead				measured in one direction only, bad
00	3	6.26	73	and a second second					2.90	06								3/98: hard & dry, COD unknown 5/98
					Ta (acta) o	- 一		-	2.30	-20	2	3.60	्यान्	2.1.2	3.68	3A	0	ruit partially eaten 3/97; tubercle tips
																		prange & red. OK 3 & 5/99, 3/00; entire
	i seri					15.5				(a.a.)	新教教					a dan da a	1.1	plant orange and red, OK 5/00; dry and
								ant former in the		and the second second second second second second second second second second second second second second second	NOT THE PARTY	17/243 (F) 44		and the states		1. 10		luffy linside, COD lungus? 3/01

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	OTAKE				95 -								Junct	ion				
PL# 72.10	STAKE 3	DIST. 7.67	ANGLE	95DM	FI/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ·
12.10	5	7.67	63															discovered 3/00; green, good 3 & 5/00; olive with tan tubercle tips, OK 3 & 5/01
72.20	3	8.12	66															discovered 3/00; dull green, OK 3/00; orangish, OK 5/00; olive, OK 3 & 5/01
72.30	3	6.77	71								·			······································				discovered 3/01; green, good 3 & 5/01
72.40	3	7.10	74															discovered 3/01; green, good 3 & 5/01
72.50	3	7.14	74															discovered 3/01; green, good 3 & 5/01
72.60	3	8.06	53							<i></i>								discovered 3/01; green, good 3 & 5/01
73.00	3	14.23	87						2.10	1fr	0	2.60	0	0	2.67	0	0	in cane big stem clump; green, good 3 & 5/99, 3/00 & 5/00, 5/01
74.00	- 3	17.30	81		a di tang di Sing di Kara			10-20-0 20-00-022-0 20-00-022-0	4.90	1+5fr	6	4.20	0	0	4.30	0	କ୍ରିଲ୍ଲ୍ ତି ।	green, good 3 & 5/99; dead, removed/for
75:00 (0 76.00	3 priginal) 3								2.60		0		And Are - A		MAL HANGE	1914	dead	weevil study 3/00; COD weevils discovered 5/97; dead, loose, shrunken spines gray 3/99; Dead?, collected by WHC 5/99; galleries; COD weevils
0.00	3	14.23	80									1.70		0	2.68	1fr	disp d	discovered 5/98; green, good 3 & 5/99, 8/00; yellowish, OK 5/00; green with naroonish tubercle tips, OK 3 & 5/01

ОГ Д	OTAKE			.1	95								Junct	lon				
PL# 76.10	STAKE 3	DIST. 11.80	ANGLE	95DM	FL/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
/0.10	3	11.80	71															discovered 3/00; green, good 3 & 5/00, 3 & 5/01
76.20	3	11.99	76											·				discovered 3/00; green, good 3 & 5/00, 3 & 5/01
76.30	3	11.82	76														·	
														i				discovered 3/00; hunkered, dark green, OK 3/00; popping out, green, good 5/00, 3 & 5/01
76.40	3	10.55	67															discovered 3/00; reddish, OK 3 & 5/00; maroonish-green, good 5/01
76.50	3	14.35	75															discovered 3/01; apex on one side, stepped on in past?; green, OK 3 & 5/01
76.51	3	13.87	74															
		10.07																discovered 5/01; under rock; green, good 5/01
6.60	3	14.42	73											i				discovered 3/01; green, some tubercle
																		damage, OK 3/01; green, good 5/01
6.70	3	10.69	73														(discovered 3/01; green, good 3 & 5/01

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STAKE	DIST.	ANGLE	95DM	95	DEDM	000		07014	07.00				·				
3				"FI./FR.	900101	90FL	9058	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
_		70															discovered 3/01; green, good 3 & 5/01
3	15.40	76														· · · ·	discovered 5/01; green, OK 5/01
3	22.79	90											•				discovered 3/00; green, good 3 & 5/00, 3 & 5/01
3	23.87	90						Peterski Viterski									discovered 3/00; marcon and orange, poor 3/00; orangish-green, OK 5/00;
3 	23,64	91															dead, collected for weevil study 3/01 discovered 3/00; green, good 3 & 5/00; chambers, galleries, and exit holes,
3	24.87	88														5	COD:weevils 3/01 discovered 3/01; green, good 3 & 5/01
3	28.56	96															discovered 3/00; hunkered, olive, OK 3 & 5/00; tag loose replaced, blue-green with some orange tubercles, OK 3/01; maroonish, OK 5/01
3 	28:40	93															measured underredge of juniper, discovered 3/00; tag loose, replaced 5/00; green, good 3 & 5/00; body with
3	26.72	99															one large cavity COD Moneilema 5/01 discovered 3/00; maroonish, OK 3 & 5/00; green good 3/01; maroon, OK 5/01
	3 3 3 3 3 3 3 3	3 14.86 3 15.40 3 22.79 3 22.79 3 23.87 3 23.64 3 24.87 3 24.87 3 28.56 3 -28.40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3 14.86 73 FI /FR 3 15.40 76	3 14.86 73 FI /FR 3000 3 15.40 76	3 14.86 73 FI /FR 300/W S01/L 3 15.40 76	3 14.86 73 FI /FR 500 / 10 / 10 / 10 / 10 / 10 / 10 / 10 /	3 14.86 73 FI /FR 500 M 91 L 96 FI 97 DM 3 15.40 76	3 14.86 73 FI /FR 0.000 901 974 3 15.40 76 76 76 76 76 76 3 22.79 90 90 90 90 90 90 90 3 22.79 90 <	3 14.86 73 FI /FR 5000 801 1 9674 9700 9741 9700 9741 9704 9744 3 15.40 76 3 22.79 90 3 22.79 90 3 23.87 90 3 23.87 90 3 23.87 88 3 24.87 88 3 28.56 96	3 14.86 73 76 3 15.40 76 3 22.79 90 3 22.79 90 3 23.87 90 3 23.87 88 3 24.87 88 3 28.56 96	3 14.86 73 FI /FR 3000 97L 97L 97L 97L 97L 97L 98DM 98FL 3 15.40 76 3 22.79 90 3 23.87 90 3 23.87 90 3 23.87 90 3 23.87 90 3 24.87 88 3 28.56 96	3 14.86 73 FI /FR 3011 90FL 97FL 97FL 97FL 98FR 3 15.40 76 76 76 76 76 76 77 76 77 76 77 76 77 76 77 76 77 76 77 76 77 76 77 76 77 76 77 76 77 76 77 76 77 76 77	3 14.86 73 99.04 96.1 96.1 97.1 97.1 97.1 97.1 98.56 99.04 3 15.40 76 76 76 76 76 76 76 76 3 22.79 90 76 76 76 76 76 76 3 22.73 90 76 76 76 76 76 3 23.87 90 76 76 76 76 76 3 23.87 90 76 76 76 76 76 3 23.87 90 76 76 76 76 76 3 23.87 90 76 76 76 76 76 3 24.87 88 76 76 76 76 76 3 28.56 96 76 76 76 76 76 3 28.56 96 76 76 76 76 76 3 28.56 96 76 76 76 76 76 3 28.56 96 76 76 76 76 76 3	3 14.86 73 FI /FR 00000 Suit User Print 97000 974. 9744 98000 987. 9867. 9967. 9967. 9967. 9967. 9	3 14.86 73 FI/EB 9011 9711 9714 9714 9814 9811 9914 <t< td=""></t<>

PL#	STAKE	DIST.	ANGLE	OFDIA	95 -		!						Junct					
83.00	3	30.06		95DM	FL/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
	0	30.00	107															discovered 3/00; green with orange tubercle tips, OK 3 & 5/00; two flowers partly eaten, plant eaten on one side (scarred over), green with maroon tubercles, OK 3/01; maroonish-green, good 5/01
84.00	3	25.52	111															discovered 3/00; green, good 3 & 5/00, 3 & 5/01
85.00	3	18.89	101				~	、										discovered 3/01; green, good 3 & 5/01
86.00	3	~73.63	~110	· ·					·									
					·													along old road, ~3m below juniper by big rock, discovered 3/01; lopsided, green, good 3 & 5/01
Refere	nce point	3a																
1.00		14.84	193			ia di France 1975 ne la 1975 ne la 1975 ne la 1975 ne la 1975 1975 ne la 1975 1975 ne la 1975 1975 ne la 1975 1975 ne la 1975	indersjoe Seesender Großenau Spielenau										discovered 3/00; green with a few orange tubercle tips, OK 3 & 5/00;	
2.00	ЗA	14.59	193															chambers, galleries, and exit holes, COD weevils 3/01 discovered 3/00; reddish, OK 3/00; slightly purplish-green, OK 5/00; black
3.00	ЗА	4.35	48												at A -			inside, COD fungus 3/01 discovered 3/01; green with some yellow tubercle tips, OK 3/01; yellowish, OK 5/01
4.00	ЗА	3.45	36															discovered 3/01; green, good 3 & 5/01

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													Junct	ion				
PL#	STAKE		ANGLE	95DM	95 FL/FR_	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ·
21.01	3A	3.46	44						2.20			3:50	3fr			5A		evidently a seedling or pup of 21.00; green, good 3 & 5/99, 3/00; top eaten off of one fruit, plant green, good 5/00; eaten below soll surface, COD herbivory
21.10	ЗА	5.06	34			2.20	1	0	2.70	3	2	2.70	1	1	3.04	1fr	0	3/01 discovered 3/96; below prickly pear; green, good 3/99; hole in petal of flower; green, good 5/99; green, good 3 & 5/00, 3 & 5/01
21.11	3A	4.74	31			<u>,</u>						nď		0	1.38	0		discovered 5/98; green, good, hunkered in moss 3/99; green, good 5/99, 3 & 5/00, 3 & 5/01
21.12	ЗА	4.75	31		~							nd		0	1.18	0		discovered 5/98; green, good, hunkered in moss 3/99; green, good 5/99, 3 & 5/00, 3 & 5/01
21.20	ЗА	5.35	29			2.00	0	0	2.50	2	1+1A	3.10	1+1fr	1+1A	3.13	2A	0	discovered 3/96; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01
21.21	3A	5.58	29															discovered 3/00; popping out of crustose lichen, green, good 3 & 5/00, 3 & 5/01
21/30	3A	1.86	119						3.90	100 - 5 - 100 - 1 - 100 - 10	À	4.60	3 	AC A	5.66	2+4/j		stepped on 3/98; green, great 3 & 5/99; 3/00; fruit with hole in top, plant green, good 5/00; eaten below soil surface, COD herbivory 3/01

	OTAKE				95	1			<u> </u>				Junct					
PL# 21.31	STAKE 3A		ANGLE	= 95DM	EI /ER	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
												1.80	0	0	1.39	0	ro ro	prickly pear; discovered 3/98; loosely oted, green, good 3/99; green, loosely oted, OK 5/99; dull green, OK 3 & 00, 3 & 5/01
21.32	3A	1.85	56								↓ • ·	1.10		0	2.02	1 fr	1 dis &	scovered 5/98; green, good 3 & 5/99, 3 5/00, 3 & 5/01
21.33	AC AA	1.87 2.48										0.80			1.15	0	5/8 Ol	litsiside, loosely rooted, discovered 98; lurning orange on exposed side, < 31& 5/99; dead, hard, solid, dry, COD known 3/00
									3.80	1+5fr	1+3A	4.40		4	4.81	4 A+1ir	1A fru fev da fru a fr	it partly eaten 5/97; marconish with a v orangish tubercle tips, OK 3 & 5/99; rk green, good 3/00; hole in top of one it, green, good 5/00; top mostly eaten, ew red brown tubercles left, poor 3/01; DD herbivory 5/01
21.50	ЗА	3.35	243						3.50	1+1fr	1+1A	3.90	3fr	3	4.41	3A	5/9 pla	e bluestem clump; green, good 3 & 9, 3 & 5/00; one flower mostly eaten, nt green with a few orange tubercle s, OK 3/01; green, good 5/01
21:60		3.45							4.30	2+2ir	1+2A	5.50	1 -53f r	4 	5.50	Sfr	par see gre	vers & fruit partially eaten 3/97; fruit tially eaten 5/97; fruit with ants but no ids, fruit removed by WHC 5/99; en, great 3 & 5/99, 3 & 5/00; eries, chambers, exit holes, COD
1.70	ЗА		243						1.90	0	0	2.30	1	1	2.24	0	Wee 0 righ mea	evilS 3/01 at of 21.8 and in front of 21.90; asured in one direction only 3/98; en, good 3 & 5/99, 3 & 5/00, 3 & 5/01

PL#	OTAKE	D 107		····-	95								Juncti	on				
21.80	STAKE 3A		ANGLE	95DM	EL/ER	96DM	96FL	96FR	97DM		97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ,
21.00	34	3.37	243						1.50	0	0	1.40	0	0	1.50	0	0	measured in one direction only 3/98; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01
21.90	ЗА	3.39	243						1.80	0	0	2.00	0	0	2.05	0	0	measured in one direction only 3/98; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01
22.00	ЗА	2.80	50	sm-med	2	2.70	2	0	3.30	1+2fr	1+1A	3.90	3	3	4.49	6A+1fr	•	fruit partially eaten 3/97; slightly maroonish, OK 5/99; yellowish, OK 3/00; tubercles yellowish on one side 5/00; center eaten, two tubercles with new spine growth, tubercles red-green, poor 3/01; two new green apices forming,
2:10	<u>ЗА</u> ЗА	5:741 5.30	67/ 64						4.30	8	1+1A	4160	1Kr		4.78 2.66	4A 0	0	good 5/01 one flower partially eaten 3/97; 1 orange tubercle tip otherwise green, good 3 & 5/99, 3 & 5/00; eaten down below soil surface, COD herbivory 3/01 green, good 3 & 5/99, 3 & 5/00; center eaten, a few green or red tubercles left,
eferen 1.00	ice point 3B	3B is 19 3.03	9.5m at 1 204	59 degre	es from	Stake 3												poor 3/01; two new green apices forming, good 5/01 discovered 3/01; dull green, good 3/01; green, good 5/01

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	OTAKE	DIGT			95								Junct					
PL# 2.00	STAKE 3B	DIST. 11.87	ANGLE	95DM	EL/ER	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ·
2.00	50	11.87	176															discovered 3/01; one flower partly eater
																		plant blue-green, good 3 & 5/01
			1															
3.00	ЗB	12.71	177			<u>ا</u> ،												
																		discovered 3/01; all flowers partly eater
	}																	plant green, good 3 & 5/01
4.00	3B	12.81	176															discovered 3/01; green, good 3 & 5/01
ł															ļ			discovered 3/01, green, good 3 & 5/01
]							į										
5.00	3B	13.43	168				·					———				[
																		discovered 3/01; all flowers partly eater
					l													plant blue-green, good 3/01; green, goo 5/01
						I												
5.00	3B	18.83	169															
					l					I								discovered 3/01; green, good 3 & 5/01
				i														
7.00		15.55																
.00	3B	18.89	171										•					discovered 3/01; olive, OK 3 & 5/01
														Ì				
		Ì																
												~						· · · · · · · · · · · · · · · · · · ·
leren	i <mark>ce point</mark> cross drai	<u>4 was a</u> nage fo	painted	cross on	a flat ro	ck cover	red by t	flint 14.	65m at	~340 d	egrees	rom ret	ar, wes	t				
00	cross drai 4	10.82	98	ging, ieo		Detwee	n Yucc	a clump	os <u>, ~46.</u>	<u>8m at ~</u>	<u>94 degi</u>	rees fro	m Stake	3			THE ASSAULT OF THE ASSAULT	AF 700 F SA REAL MODULO 2007 A 118 HOUSE WAY ON THE AND A 100 PM
	a set																	discovered 3/00; yellowish, OK 3/00;
																	and the second second	green with some yellow tubercle tips,
00	4	0.00	00															good 5/00; one large chamber; COD Moneilema 3/01
00	4	8.55	92														and the second second second second second second second second second second second second second second second	discovered 3/00; green, good 3 & 5/00;
																	ļt	five flowers partly eaten, plant green,
																	!	good 3 & 5/01

PL#	STAKE	DIST.	ANGLE	95DM	95	96DM	96FL	96FB	97DM	97FL	07ED	98DM	98FL			0051	0055	
2.10	4	6.18	93		FL/FR		0012			J		90DIVI	98FL	98FR	99DM	99FL	99FR	NOTES
																		discovered 3/01; green, good 3 & 5/01
2.20	4	9.76	87	·· ·						·								discovered 3/01; all flowers partly eaten,
2.30	4	9.82	93								· ·····							plant green, good 3 & 5/01
2.00	т	5.02	93															discovered 3/01; blue-green, good 3 & 5/01
2.40	4	10.65	85			· · .												discovered 5/01; green, good 5/01
3.00	4	9.31	107															under juniper, discovered 3/00; green,
																		good 3 & 5/00, 3 & 5/01
4.00	4	8.05	109														ľ	discovered 3/00; green, good 3 & 5/00; tag mia replaced 3/01; green, good 3 & 5/01
4.10	4	8.45	107															discovered 5/01; green, good 5/01
4.20	4	8.56	105															discovered 5/01; green, good 5/01
5.00		8.45	123															
		0.70															6	discovered 3/00; green, good 3 & 5/00, 3 & 5/01
5.10	4	~7.51	~123															liscovered 5/01; green, good 5/01

PL#	STAKE	DIST.	ANGLE	95DM	95 FI /EB	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
5.20	4	1.90	119	· · · · · · · · · · · · · · · · · · ·					<u>.</u>									discovered 5/01; purplish-green, good 5/01
6.00	4	12.20	127															discovered 3/00; green, good 3 & 5/00; some tubercle damage, plant green, OK 3 & 5/01
7.00	4	19.98	103															discovered 3/01; green with reddish tubercle tips, OK 3/01; dull green, OK 5/01
8.00	4	5.83	151								·							discovered 3/01; green, good 3 & 5/01
9.00	4	5.42	157	<u>.</u>												••••		discovered 3/01; green, good 3 & 5/01
10.00	4	4.54	351															discovered 5/01; green, good 5/01
11.00	4	15.54	331															eft of 12.00 and behind 15.00, discovered 5/01; green, OK 5/01
12.00	4	15.53	331															ight of 11.00 and 15.00, discovered 5/01; green, OK 5/01
13.00	4	15.39	330															liscovered 5/01; squishy, olive, OK 5/01

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		i				<u> </u>							Junct	1011				
PL# 14.00	STAKE 4		ANGLE	95DM	95 EL/EB	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
14.00	4	16.09	331			e F											<u>-</u>	discvoered 5/01; green, good 5/01
15.00	4	15.54	331															between 11.00 and 12.00, in front of 11 and left of 12; discovered 5/01; not tagged, green, OK 5/01
16.00	4	18.45	329															discovered 5/01; green, OK 5/01
17.00	4	17.64	328							:	··		1					discovered 5/01; green, good 5/01
18.00	4	18.86	325															discovered 5/01; green, good 5/01
19.00	4	18.92	326															discovered 5/01; green, good 5/01
27.00	4	13.78	345 s	m-med	0	2.50	0	0	2.80	4fr	4	3.00	0	0	3.14	0	 	lower partially covered by animal droppings 3/96; covered by disintegrating animal droppings, good 3 & 5/99; maroonish, some loose spines, squishy, OK 3/00; olive, OK 5/00; maroonish-green, new apical spine
7.01	4	13.80	345											·				growth, OK 3 & 5/01 upper right edge of tag 27.00, discovered 5/01 not tagged, green, OK 5/01

STAKE	DICT	ANOLE	OF D.L	95			1		1		· · · · · · · · · · · · · · · · · · ·						
······				EI /EB.	l		96FR			97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES /
4	13.80	345	small	0	1.80	0	0	2.40	3fr	3	2.90	0	0	2.80	0		flower partially covered by animal droppings 3/96; covered by disintegrating animal droppings, good 3 & 5/99; green, a few orange tubercle tips, OK 3/00; olive, OK 5/00; purplish- green with new apical spine growth, OK 3/01; orangish-green, OK 5/01
			sm-med	1	mia			, mia			mia				an an an an an an an an an an an an an a		could not relocate, unsure of reference point 3 & 5/96; relocated reference point, but plant & tag still mia 3/97 & 5/97, 3 & 5/98
								0.60		0	0.90	0	0 	mia			by old clead plant; discovered 5/97, not tagged; retagged 3/98; mia 99, 3 & 5/00, 3 & 5/01
4	16.78	~332						0.70		0	1.00	0	0	1.26	0	0	discovered 5/97; not tagged; retagged 3/98; green, good 3/99; olive, OK 5/99; green, good 3 & 5/00, 3/01; green with some red tubercle tips, good 5/01
nce point	<u>5 is a n</u>	ainted cr		rod by fli													
5	0.82	172			0.70		o O	1.20	<u>ce point</u> 0	<u>6; ID #</u> 0	5_ <u>R032</u> 1.60	0	0	2.02	0		discovered 5/96, probably a seedling of 31.00; originally tagged as 68 then as 31.01; large hole in center but stem still green 3/97; two new spine clusters at opposite sides 5/97; green, good 3 & 5/99, 3 & 5/00, 5/01
5 5	1.57.0			randra Alfred Salar Alfred Salar	te suesta a Singt es in The etc.			Service Constant Constant								• • • • • • 0 r	preen, good 3 & 5/99, 3 & 5/00; just pines left, COD unknown 3/01 naroonish, OK 3 & 5/99; hunkered, dark preen, OK 3/00; hunkered, green, good
	4 4 Dece point 5	4 13.80 4 3.05 4 16.78 4 16.78 5 0.82	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	4 13.80 345 small 4 3.05 257 sm-med 4 16.78 -332 4 16.78 -332 4 16.78 -332 5 0.82 172 5 11.14 222	4 13.80 345 small 0 4 3.05 257 small 0 4 16.78 -332 1 4 16.78 -332 1 4 16.78 -332 1 5 0.82 172 1 5 1.14 222 1	4 13.80 345 small 0 1.80 4 3.05 257 sm-med 1 mia 4 16.78 ~332 1 mia 4 16.78 ~332 1 mia 4 16.78 ~332 1 mia 5 0.82 172 0.70 0.70 5 1.14 222 1 14	4 13.80 345 small 0 1.80 0 4 3.05 257 small 0 1.80 0 4 16.78 2322 1 mia 1 1 4 16.78 2322 1 1 1 1 4 16.78 2322 1 1 1 1 4 16.78 2322 1 1 1 1 5 0.82 172 0.70 1 0 1 1 1 5 1.14 222 2 1	4 13.80 345 small 0 1.80 0 0 4 3.05 257 sm-med 1 mia 1 4 16.78 ~332 1 mia 1 1 4 16.78 ~332 1 mia 1 1 5 0.82 172 0.70 0 0 0 5 1.14 2222 222 1	4 13.80 345 small 0 1.80 0 0 2.40 4 3.05 257 smmed 1 mia mia 4 3.05 257 smmed 1 mia mia 4 1678 -332 0.60 0 0 0 0 4 16.78 -332 0.70 0 0.70 0 0.70 5 0.82 172 0.70 0 1.20 0 1.20 5 1.14 222 22 24 24 24 24 24	4 13.80 345 small 0 1.80 0 0 2.40 3fr 4 3.05 257 small 1 mia mia mia 4 16.78 -332 0.60 0 0.70 0 0.60 4 16.78 -332 0.60 0 0.70 0 0.70 4 16.78 -332 0.70 0 1.20 0 0 0.70 5 0.82 172 0.70 0 1.20 0 0 1.20 0 5 11.44 222 11.44 222 11.44 222 11.44 1.20 0	4 13.80 345 small 0 1.80 0 0 2.40 3ir 3 4 3.05 257 smimed 1 mia mia mia 4 16.78 -332 0 0 0.60 0	4 13.80 345 small 0 1.80 0 0 2.40 3ir 3 2.90 4 3.05 257 smimed 1 mia mia mia imia imia 4 3.05 257 smimed 1 mia imia imia imia imia 4 16.78 =332 0.60 0 0.60 0 0.90 4 16.78 =332 0.70 0 1.00 5 0.82 172 0.70 0 1.20 0 0 5 1114 222 22 0.70 0 1.20 0 1.60	4 13.80 345 small 0 1.80 0 1.80 0 2.40 3fr 3 2.90 0 4 3.05 3257 smirmed 11 mia mi	4 13.80 345 small 0 1.80 0 2.40 3fr 3 2.90 0 0 4 13.80 345 small 0 1.80 0 2.40 3fr 3 2.90 0 0 0 4 3.05 257 smimed 1 mia mia mia mia mia mia 4 16:76 -332 -332 -0.60 -0.60 0 0.990 0<	4 13.80 345 small 0 1.80 0 0 2.40 3ir 3 2.90 0 0 2.80 4 13.80 345 small 0 1.80 0 0 2.40 3ir 3 2.90 0 0 2.80 4 16.78 -332	4 13.80 345 small o 1.80 0 0 2.40 Str 3 2.90 0 0 2.80 0 4 13.80 345 small 0 1.80 0 0 2.40 Str 3 2.90 0 0 2.80 0 4 13.80 257/ smmed s.1 small mia	4 13.80 345 small PT/ER, 0000 3010 97L 97L 97L 96LM 96LM 99LL 99LH 99DM 99L 99LH 99DM 99L 99LH 99LM 99L 99LH 99LM 99L 99LH 99LM 99LH 99LM 99LH 99LM 99LH 99LM 99LH 99LM 99LH 99LM 99LH 99LM 99LH 99LM 99LH 99LM <

PL#	OTAKE	0107			95								Junct					
FL# 4.00	STAKE 5	1.23	ANGLE	95DM	EL/ER	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ·
4.00		1.23	228												2.91	1A	0	maroonish, OK 3 & 5/99, 3 & 5/00, 3 & 5/01
5.00	5	2.07	96															discovered 3/00; goldish, OK 3/00; maroonish, OK 5/00; olive, OK 3 & 5/01
6.00	5	7.60	146															discovered 3/00; green, good 3/00; yellowish-green, good 5/00; green, good 3 & 5/01
7.00	5	1.35	109										<u>.</u>					discovered 3/01; green, OK 3 & 5/01
8.00	5	6.85	140										·					discovered 3/01; green, good 3 & 5/01
9.00	5	10.11	177															discovered 3/01; green, good 3 & 5/01
D.00	5	10.12	180															discovered 3/01; green, good 3 & 5/01
1.00	5	9.72	180														c	liscovered 3/01; green, good 3 & 5/01

PL#	STAKE		ANGLE	95DM	95 _FL/EB	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
12.00	5	10.83	174															discovered 3/01; dark olive, good 3/01; green, good 3/01
30.00 31:00			140		0			0	Dead									sick 3/96; new growth, OK 5/96; COD unknown, only spines left; tag missing 3/97
	i sina kan	10.000	170 254	A Decar D		Dead 2:40	-	0	Dead									only loose spines left 3/96; tag gone 5/9 discovered 3/96; originally tagged as 43 COD unknown, scattered loose spines in
31.20	5	3.20	254			bn	nd	Dead?	Dead									vicinity 3/97 discovered 3/96; severely eaten; main above ground plant gone, spines still attached to someting 5/96; not tagged;
32.00			160	sm-md	0	Dead												COD unknown, plant gone 3/97 only loose spines left 3/96; tag gone 5/90
32.10	5	1.27	291						3.20	Зfr	2+1A	3.20	Зfr	3	3.63	ЗА	0	reddish 3/98 & 3/99; reddish, OK 5/99; olive, OK 3 & 5/00; reddish, OK 3 & 5/01
33.00	5	7.54	324															discovered 3/01; flowers with pinkish tinge, stigmas yellow to pinkish-yellow, plant purple, OK 3 & 5/01
34.00	5	6.13	340															discovered 3/01; green, good 3 & 5/01
35.00	5	11.50	81															discovered 3/01; green, good 3 & 5/01

D 1 0	07.1/0				<u>u</u>								Junct					
PL# 36.00	STAKE 5	i	ANGLE	95DM	95 FI/EB	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
30.00	5	11.54	77															discovered 3/01; green, good 3 & 5/01
37.00	5	1.41	29															discovered 3/01; reddish-green, OK 3 & 5/01
38.00	5	13.15	76													·		discovered 5/01; reddish-olive, OK accidentally stepped on 5/01
39.00	5	13.35	74															discovered 5/01; green, good 5/01
40.00	5	13.42	74															discovered 5/01; green with maroonish tubercles, good 5/01
41.00	5	13.56	76															discovered 5/01; green, good 5/01
Beferer		C io o o																
	nce point	<u>oisap</u>	ainteo cri	oss cove	red by fli	nt on a f	llat rocl	<u>k</u>										
1.00	6	2.50	180										.		2.05	0	0	green, good 3 & 5/99, 3 & 5/00; purple, DK 3 & 5/01

D1 //				·								Juncu					
PL# 2.00	STAKE		ANGLE	95DM	95 - EL/ER	2 · · · · · · · · · · · · · · · · · · ·	 	97DM			98DM	98FL	98FR	99DM	99FL	99FR	NOTES
2.00	6	2.18	197			1.80	0	1.90	1A	0	2.10	1fr	1	2.97	ЗА	th ge וףנ	iscovered 5/96; originally tagged as 69, een 33.10, retagged as 2.00; green, ood 3/99; olivish, OK 5/99, 3/00; urplish-green, good 5/00; tag loose, eplaced, plant mia 3 & 5/01
3.00	6	5.70	174		· · · · · · · · · · · · · · · · · · ·		 							3.08	1A	0 m O	aroonish, OK 3 & 5/99, 3/00; orangish, K 5/00; plant mia 3 & 5/01
3.01	6	4.45	170				 							2.20		0 di: 3/i 5/i	scovered 5/99; maroonish, OK 5/99, 00; green, good 5/00; plant mia 3 & 01
4.00	6	4.85	174					····						1.39	0	0 gr hu 5/(een, good 3 & 5/99, 3 & 5/00; inkered, green, OK 3/01; green, good 01
5.00	6	5.19	174											1.97	0	0 gre	een, good 3 & 5/99, 3 & 5/00, 3 & 5/01
6:00	6 	5:45	205			1:30 		2.20	1A 	0 	2:80	Jfr 		3:28	0	tag 6.0 hol	der rock, discovered 5/96; originally ged as 70, then 33:20; retagged as 10; green, good 3:& 5/99, 3 & 5/00; le surrounded by spine clusters, COD
7.00	6	9.69	180											2.34	1 fr	0 gre god	known:3/01 een, good 3 & 5/99; hunkered, green, od 3/00; popping out green, good 90; plant mia 3 & 5/01

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					115								Junct	ion				
PL# 7.10	STAKE		ANGLE	95DM	95 FI/ER	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
7.10	6	9.55	207															discovered 5/01; green, good 5/01
8.00	6	13.34	185			2.50		0	2.90	1+1fr	1+2fr	3.30	2	2	3.62	2fr		discovered 5/96; originally tagged as 71, then 33.30, retagged as 8.00; partially eaten but new spine growth 5/97; maroonish, OK 5/99; dull green, OK 3/00; green, good 5/00; almost totally eaten, pup forming on one side, green, OK 3/01; green, good 5/01
9.00	6	16.70	185										34		4.71	4A+2fr		green, good 3 & 5/99; dead, collected for weevil study, no evidence of weevils;
10.00	6	17.47	185												2.91	1+1A+ 2fr	2+2A	COD unknown 3/00 green, good 3/99; OK, almost buried in ant gravel, but coming out 5/99; buried, maroonish, OK 3/00; coming out, red, OK 5/00; plant mia 3 & 5/01
11.00	6	18.54	188												3.02			discovered 5/99; maroonish, OK 5/99; hunkered, maroonish, OK 3/00; green, OK 5/00; misshapen, most spine clusters missing, purplish-green, OK 3/01; new spine growth, purplish-green, OK 5/01
12:00	6	11.77	186												2:43		1977 - 24	discovered 5/99; marconish, OK 5/99; 5/00; yellowish, OK 5/00; just spines left;
13.00	6	8.71	178												2.30		00	COD unknown 3/01 discovered 5/99; olive, dull gray spines, some new spine growth, OK 5/99; olive, DK 3 & 5/00; green, good 3 & 5/01

.

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-		STAKE	DIST.	ANGLE	95DM	95 _EL/EB	96DM	96FL	96FR	97DM	97FI	97FB	98DM	98FL	98FR	99DM	0051	0050	
12	1.00	6	8.12	190				1.12			0.1 L				90FN	NUGER	99FL	99FR	NOTES
No.	a - 6															A Contraction		10.00	discovered 3/00; olive, hunkered, OK 3/00; green, good 5/00; just spines left,
	5.00	6	10.34	195										line also est					COD unknown 3/01
		-	10.01	100															discovered 3/00; green, hunkered, OK
		İ																	3/00 & 5/00; tag loose, replaced, spine
																			clusters in vicinity, plant mia 3 & 5/01
16	.00	6	9.95	198															
		Ũ	0.00	150											r T				discovered 5/00; green, good 5/00;
													1						purple, OK 3/01; dark green, OK 5/01
17	.00	6	17.47	192	···		····												
							ĺ												discovered 3/01; bluish-green, OK 3/01;
																			green, good 5/01
			I																
18.	00	6	~25.60	~186			·												
			20.00	100															discovered 5/01; green, good 5/01
19.	00	6	~25.55	~186			·			·•-				·					
								ĺ											discovered 5/01; green, good 5/01
000											i								
JJ.	00	6	12:50	151	sm	5	3.50	4 fr	Dead	dana i					124.04				under Tiexas persimmon; only spines left
33.0)1	6	12.50	151														ur far vig	5/96, tag removed
																			discovered 5/01; green, good 5/01
									· · · · · · · · · · · · · · · · · · ·										

		B 10-			95	(Junct					
PL# 33.40	STAKE 6	DIST. ~27.98	ANGLE	95DM	EL/ER	96DM	I	96FR	97DM	97FL	·	98DM	98FL	98FR	99DM	99FL	99FR	NOTES ·
0.40	0	~27.98	186			2.10		0	2.80	2fr	1+1A	3.00	0	0	3.41	2A		discovered 5/96; measured through junipers; originally tagged as 72; good, green 3 & 5/99, 3/00; many loose spine sunken in center, olive, OK 5/00; eaten spineless, tubercleless nub left, extreemely poor 3/01; plant mia 5/01
3.50	6	~28 	~186						4.00	4fr	1+3A	4.90	5fr#1'A	5 	4.15			~75 cm NW of 33.4; several tubercles marcon, OK 3/99; spines dull gray, yellowish, collected by WHC 5/6/99; no
3.60	6	8.35	200									1.70		0	2.71	1+1A	1 disp	evidencetof weevils, COD unknown discovered 5/98; maroon, OK 5/99; hunkered, olive, OK 3/00; green, OK 5/00; a few spines nearby, plant mia 3 & 5/01
.00 .00	6 6	3:70 7:35	56 350	Sm:md	0				2.90	2fř	1A	3.00	-2fř	2	3.61	2fr	disp?	dark green, good 3 & 5/99, 3 & 5/00; or large chamber, COD Moneilema 3/01
	6	0.52				- Dead		Dead?	Dead									measured over shrubs; only loose spines left 3/96; looks like a piece of th stem is left 5/96; COD unknown, plant tag gone 3/97
.00	6	3.20	68	na	4	Dead										Sing 2 A		largetholetin root&tag.gone.5/96
	ce point	7 was a	painted		a small		th of a											·
00	and a second	1.81				2,80			Dead Dead	s west	of Hefei	rence p	oint 2, th	iru thicke	t; merge	ed with F		ce point 3 in 3/00 discovered 5/96) originally tagged as 55 20D unknown, just spines left 3/97 discovered 5/06) or discussion
																		liscovered 5/96, originally tagged as 60 20D unknown, only a few loose spines eft, tag removed 3/97

PL# STAKE DIST. ANGLE 95D 96D/line 96F/line 97D/line	
40.00 0.00 <th0.00< th=""> 0.00 0.00 <th< td=""><td></td></th<></th0.00<>	
40 00 7 3 06 92 0.80 70 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 1.00 0 <td>ied as 61</td>	ied as 61
40.00 7 3.061 92 0.60 0 1.00 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.00 0.00 0.00 0.00 0.00 0.00 0 0.00 0	e spines
41.00 7 2:95 95 2:90 3 Dead 3 Sine growth. Jabba the Huts spine growth. Jabba the Huts s 5.97; just spine. Left. GOD v 3.98 discovered 5:90; originally tag COD weevils Sine growth. Jabba the Huts s 5.97; just spine. Left. GOD v 3.98 discovered 5:90; originally tag COD weevils Sine growth. Jabba the Huts s 5.97; just spine. Left. GOD v 3.98 discovered 5:90; originally tag COD weevils COD wee	
41:00 7 2:95 85 2:90 3 Dead 3/38 41:00 7 2:95 85 2:90 3 Dead 3/38 3/38 Reference point 8 is uphill of reference point 1, 19.9m at 274 degrees (through junipers), rusty nail spike behind -	new
41:00 7 2:95 15 2:90 3 Dead 3 Dead 3:98 discovered 5/96; ordinally tag Reference point 8 is uphill of reference point 1, 19.9m at 274 degrees (through junipers), rusty nail spike behind - <t< td=""><td>ndrome (</td></t<>	ndrome (
Reference point 8 is uphill of reference point 1, 19.9m at 274 degrees (through junipers), rusty nail spike behind COD Weevils 46.00 8 1.25 32 1.80 0 2.00 0 2.43 0 0 green, good 3 & 5/99, 3 & 5/00 47.00 8 0.99 61 1.00 0 0 1.00 0 1.00 0 0 1.07 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00 47.00 8 0.99 61 1.00 0 0 1.00 0 0 1.07 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00 48:00 8 0!99 75 1/00 0 1/10 0 Dead closer to reference point/than and measured in one direction; only	IKNOWN:
Reference point 8 is uphill of reference point 1, 19.9m at 274 degrees (through junipers), rusty nail spike behind SQDIWeexils 46.00 8 1.25 32 1.80 0 0 2.00 0 0 2.43 0 0 green, good 3 & 5/99, 3 & 5/00 47.00 8 0.99 61 1.00 0 0 1.00 0 1.00 0 1.07 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00 48:00 8 0.99 75 1.00 0 0 1.07 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00	edias 63
46.00 8 1.25 32 1.80 0 0 2.00 0 0 2.43 0 0 green, good 3 & 5/99, 3 & 5/00 47.00 8 0.99 61 1.00 0 0 1.00 0 0 1.07 0 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00 48.00 6 0.99 75 1100 0 0 1.10 0 Dead Closer to reference point/than 4 measured injoine direction only.	
46.00 8 1.25 32 1.80 0 0 2.00 0 0 2.43 0 0 green, good 3 & 5/99, 3 & 5/00 47.00 8 0.99 61 1.00 0 0 1.00 0 0 1.07 0 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00 48:00 6 0199 75 1100 0 0 1.10 0 Dead Closer to reference point/than 4 measured injone direction only.	
46.00 8 1.25 32 1.80 0 0 2.00 0 0 2.43 0 0 green, good 3 & 5/99, 3 & 5/00 47.00 8 0.99 61 1.00 0 0 1.00 0 0 1.07 0 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00 48:00 6 0199 75 1100 0 0 1.10 0 Dead Closer to reference point/than 4 measured injone direction only.	
47.00 8 0.99 61 1.00 0 0 1.00 0 0 1.07 0 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00 48.00 8 0.99 75 1/00 0 0 1.10 0 Dead Closer to reference point/than 4 measured in one direction only.	
48:00 8 0!99 75 11:00 1 0 0 1.10 0 0 1.07 0 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00 48:00 8 0!99 75 11:00 0 0 11:10 0 Dead closer to reference point/than 4 measured in one direction only.	3 & 5/01
48.00 8. 0199 75 1400 10 0 1100 0 0 1.07 0 0 spines falling off, plant damage 148.00 10 0 10 0 10 0 Dead 1400 10 0 Dead Closer to reference point than 4 measured in one direction only.	
48:00 8 0!99 75 11:00 10 0 11:00 0 11:00 0 0 1:07 0 0 spines falling off, plant damage green, good 3 & 5/99, 3 & 5/00 48:00 8 0!99 75 11:00 10 0 Dead closer to reference point/than 4 measured in one direction only.	
48:00 8 0.99 75 1.00 0 Dead Closer to reference point/than 4 measured in one direction only.	
48.00 8 0199 75 1-00 1 0 0 11.10 0 Dead closer to reference point/than 4 measured in one direction only.	J 3/98;
cioser to reference point/than 4 measured in one direction only	3 & 5/01
Closer to reference point/than 4 measured in one direction only	
cioser to reference point/than 4 measured in one direction only	
measured in one direction only	
	3/98;
48.10 8 0.99 75 driedlup, COD unknown 5/98	
1.16 0 0 new plant or old nub of 48?, gre	en, good
3 & 5/99; plant mia 3/00; reloca under rock, green, OK 5/00; gre	ed, on good
3 & 5/01	en, gooa j
19.00 8 1.00 75 1.30 0 0 1.00 0 0 1.36 0 0 farther from reference exist the	
o arther from reference point that	48;
measured in one direction only green, good 5/99, 3 & 5/00, 3 &	798; 5/01
	<i>"</i> 01

PL#	STAKE	DIST	ANGLE	95DM	95			0055										
50.00		1.14		330101	FI/FR	96DM	96FL	96FR	97DM		1	98DN		98FR	99DM	99FL	99FR	NOTES
	0	1.14	-73						2.00	0) () Deac					Sec. 1	of 50-53, the closet to the reference
			12:0		1.30	1. 444			A		la come de					1.18.	Sec.	point; just spines left, COD unknown
51.00	8	1.16	75	Sec. Tes - 1		Andrea Straig		Contraction (0.00			and the second				3/98
			1.0	1.00		1.000	22407		1.30	. ()	(Dead				planter 1		behind 50.00; just spines left, COD
52.00	8 .	1.18	75		Turiter.	1993 B. 200			1.80	6		Dead					1.1	unknown 3/98
		3.5		No de la					1.00	ografija i		Deau	12.00				10.24	behind 51.00 & to the right of 53.00; just
53.00	8	1.18	76	1.1.1.1.1					.1.40	0		Dead						spines left, COD unknown 3/98
1000					Net at the	a filosofi			0.00			Deale				84.5 C (1)		behind 51.00 & 52.00, to the left of
						h an a							1. Sec. 7.					52:00; just spines left, COD unknown 3/98
54:00	8	1.13	82						2.30	2fr	r 0	Dead				5 10 10 10		fruit eaten 3/97; COD unknown 3/98
55:00	18,	1.27	.82				and the second	40.50	1:20	0			A DECISION OF A DECISIONO OF A DECISIONO OF A DECISIONO OF A DECISIONO OF A DECISIONO OF A DECISIONO OF A DECISIONO OF A DECISIONO OF A DECISIONO OF A DECISIONO OF A DECI	0	1.39	0		one measurement only 3/00; apical
1000																		meristem shifted to side, OK 3/99; dull
		- Alter						12.5										green, OK 5/99; looks dead, but/firmly
																	1.14	rooted 3 & 5/00; dead, uprooted, ~15cm
56.00	8	1.51	75	A THE OWNER		<u></u>			entra esta			1.11						downhill, COD unknown 3/01
		1.01	75						0.90	1	- 1	- mia			dead		5.50	mia 3/98 & 5/98; plant relocated, dry,
57.00	8	1.51	83	10.74 (2.74)							1.6010		BORNE					fluffy inside, COD unknown 3/99
	Ŭ	1.57	00		1				1.60	0	0	1.70	0	0	1.72	0	0	green, good, hunkered 3 & 5/99; popping
		1																out, green, good 3 & 5/00, 3 & 5/01
		1																
58 00	8	0.72	125	1	-	U. and the second second	in destant a	Station and										
		0.32	123						3:00	1+1fr	. 1	Dead						at base of three awn below small juniper;
59.00	8	2.16	155	and a second second				of the second second	0.40		Constant and				1.00	en se de		hollow, weells? 3/98 https://www.weells?
									3:40	4+11	3A	Dead						2 flowers partially eaten 3/97; hollow,
60.00	- 8	1.58	198	95 TOP # 2					4.30			1549 ÷	a sugar	1. 1. 10		1. 18. A.		weevils? 3/98
61.00	8	10 State 1 State 1 State	the second second second second second second second second second second second second second second second se	ing dolor with a t						5		Dead	100					hollow, weevils? 3/98
62.00		1.86						an hore in	2.10	2		Dead		a da ate		in the second		solid, COD unknown 3/98
									1.40		0	1.40	0	0	1.36	0	0	discovered 5/97; measured in one
						2 surface of the		Peter 1			a the second	The Second			10.000		7.92A	direction only 3/98; green, good 3 &
R Star						141-7 d												5/99, S/00; green, OK 5/00; pale green,
63.00	8	2.45	71						1.40		ō	1.60	0	0	1.84	1fr		OK 3/01; COD root rol 5/01
									İ					5		. "[discovered 5/97; green, good 3 & 5/99; a oose spine cluster, green, good 3 &
													ľ					5/00, 3 & 5/01
		Í												ľ		ļ		
											·····				<u> </u>		<u> </u>	

PL#	STAKE	DICT		0.00014	95		1				γ		Junci					
64:00		T	ANGLE		EL/FR	96DM	96FL	96FR	97DM	ļ	1	98DM		98FR	99DM	99FL	99FR	NOTES ·
04.00		2.21	- 67	2012 - 1 - 38	164,4140			1	1.40		. 0	0.90	- 0	0	mia		1. 12 Mar	discovered 5/97; dead? 5/98; gone
		21.4					and a star	al dates			Second					1	Sec. 1	without a trace 3 & 5/99, 3 & 5/00, 3 7
Challer of the second second							and the second			TP CAR								5/01
					·								·					
Refer	ence poir ID#9 R0	nt 9 is be	fore refe	erence po	ints 5 & 6	6, just a	s one t	urns int	o the la	rae clea	arina. re	bar in fi	ront of s	hin oake:				
1.00		32421A 5.79		<u> </u>	·									uni ouno,				
1.00	9	5.79	328															discovered 3/00; green, good 3 & 5/00; tag loose, replaced 3/01; loose spines in vicinity, plant mia 3 & 5/01
2.00	9	5.92	328									_						
	0	0.92	520															discovered 3/00; green, good 3 & 5/00; plant mia 3 & 5/01
3.00	9:	12,61	34						0.63.451 3.4340	use sug Récense				a anna anna anna anna anna anna anna a			100 AN . 194	discovered 3/00; green, igood 31& 5/00;
4.00	9	11.17	37															body solid, COD unknown 6/01 discovered 3/00; green, good 3 & 5/00, 3 & 5/01
5.00	9	10.47	41											(
		10.47	41															discovered 3/00; maroon, OK 3 & 5/00; scattered spine clusters, plant mia 3 & 5/01
6.00	9	12.71	21															
							-										9	discovered 3/00; olive, OK 3/00; green, good 5/00; purple, OK 3 & 5/01
7.00	9																	
7.00	9	11.94	18														3	discovered 3/00; green, good 3 & 5/00, 3/01; a few tannish tubercle tips, otherwise green, good 5/01
Ancistrocactus tobuschii Data for Junction

····	STAKE	DIST.									·							
8.00	9	12.34	ANGLE	95DM	95 EL/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
												-						discovered 3/00; green, OK 3/00; hunkering, green, OK 5/00; popped o blue-green, OK 3 & 5/01
6.00	, 9	4.75	12			rieunsi Nggarien			0!60		0	mia			mia			discovered 5/97; plant mia 3 & 5/98
7.00	9	4:77	- 12		and the set				0.60		0	mia			mia			3/99, 3 & 5/00
8.00	9	4.78	12						0.60		0	mia			mia		A CARLES	discovered 5/97; plant mia/3/& 5/98; 3/99, 3 & 5/00
9.00	9	7.03	347						3:00					(1) (中) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)				discovered/5/97; plant mia 3/& 5/98. 3/99; 3/& 5/00
									0.00		24	3.00	2fr	- 2	3.46	2fr		discovered, 5/97; maroon, OK 3/99; v red, OK 5/99, 3/00; reddish green, OK 5/00; eaten below soil surface, COD
0.00	9	7.07	345						1.90		0	2.20	1fr	1	2.26	0	0	herbivory 3/01 discovered 5/97; maroon, OK 3/99; ve red, OK 5/99; some loose spines in ar plant mia 3 & 5/00, 3 & 5/01
.00	9	7.00	345						1.60		0	1.70			1.86			
													Ŭ		1.00	U	5	discovered 5/97; maroon, OK 3 & 5/99 some loose spines in area, plant mia 3 5/00, 3 & 5/01
														. <u></u>				
ferenc	e point 1	10 was a	a dead ju	Iniper stu	imp by tr	ash dun	n. all r											
			/				<u>ip, aii p</u>	Mants M	rere swi	tcned to	D Hetere	ence po	int <u>3 3/(</u>	0				
ta take	n and rec 5-16/00	corded I	oy Jackie	Poole 3	/13/96, 5	/7/96. 3	/24/97	5/9/97	5/0/08	3/24/0	0 5/0/0	0						
	,	0,0,00,	0/10-10/	VI, 9/11/	01 1						9, 0/0/9			ert (WHC),			
ta take	n by Ger	a Janss	sen and r	ecorded	by Jacki		3/26/0	<u> </u>										v,,,

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PL#	STAKE	DIST.	ANGLE	99DM	99FL	99FR		NOTES
South (Dwl Past	ure						
51.00	2815	2.70	342	3.4	0			6/97; damaged on one 5/99, 3 & 5/00; puplish, n, good 4/01
52.00	2815	2.67	347	3.9	1+2fr	i	good 3/99; goo old fire scar be green, good 5/	6/97; loose spines nearby od 5/99; good, green 3/00; ecoming exposed at base, 00; chunk eaten out of over, OK 2/01; green, good
53.00	2815	1.77	5	mia			the second second second second second second second second second second second second second second second se	nable, discovered mia 99, 3 & 5/00, 2 & 4/01
54.00	.2815	- 1.22	85	- mia			discovered 4/1 3 & 5/00, 2 & 4	6/97; big 98; plant mia 99, //01
55.00	2815	- 0.67	85	mia		en de la composition la position de la composition la position de la composition de la composition de la composition de la composition la composition de la composition de la composition de la composition de la composition de la composition de la la composition de la composition de la composition de la composition de la composition de la composition de la c	discovered 4/1 99, 3 & 5/00, 2	6/97; little 98; plant mia & 4/01
56.00	2815	0.75	78	2.3	0	0		6/97; tiny 98; good 3 & een 3 & 5/00, 2 & 4/01
!								
57.00	.2815	1.04	53	, mia .			the second second second second second second second second second second second second second second second se	nable, discovered nia 99, 3 & 5/00, 2 & 4/01
58.00	2815	0.61	55	🖻 mia			discovered 4/1 & 5/00, 2 & 4/0	6/97; tiny 98; plant mia 3 1
59.00	2815	0.69	70	1.1	0	0	green, good 3	& 5/99, 3 & 5/00, 2 & 4/01
	0045	350141		STATUS ANTANANY D				
60.00	2815	3.14	184		l air de dia Chier de dige		Territory and the second	0; green, good 3 & 5/00; hollow, no exit holes, 2/01
61.00	2815	3.19	184			ARABER ALVERTING RESIDENT OF ALL	discovered 3/0	0; green ,good 3 & 5/00; hollow, no exit holes,
62.00	2815	1.30	85	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>		45 45 C	A server in a server a server server and the server of the server s	1; green, good 2 & 4/01
49.00	2821	0.32	180	3.8 3.8 100	.2 fr		maroonish, OK	3/97; good 3/99; 5/99; dead just spines on red for weevil study 3/00
e e e e e e e e e e e e e e e e e e e				- विकासके व			er qui constant state com	Riffering Friday and a state of the second

<u> </u>		·	. <u> </u>				Kerr WMA
				99DM	99FL	99FR	NOTES
49.10	2821	~8.5	314				discovered by Bill Armstrong 3/00; reddish, OK 3 & 5/00; tag mia, replaced 2/01; plant maroonish-green, OK 2 & 5/01
49.11	2821	8.66	314	· · ·		· · · · · · · · · · · · · · · · · · ·	not tagged, at 3 o'clock on 49.10, discovered 5/01; green, good 5/01
				:	······		·
49.12	2821	8.68	314				one measurement only, not tagged, at 5:30 o'clock on 49.10, discovered 5/01; green, good 5/01
49.13	2821	8.69	314				one measurement only, not tagged, at 6 o'clock on 49.10, discovered 5/01; green, good 5/01
49.14	2821	8.69	314				one measurement only, not tagged, at 6:30 o'clock on 49.10, discovered 5/01; green, good 5/01
49.15	2821	8.69	314				one measurement only, not tagged, at 7 o'clock on 49.10, discovered 5/01; green, good 5/01
		ł	i		!	į	
49.16 ¹	2821	8.66	314				one measurement only, not tagged, at 9 o'clock on 49.10, discovered 5/01; green, good 5/01
49.17 [†]	2821	8.65	314			• .	one measurement only, not tagged, at 10 o'clock on 49.10, left of 49.18, 49.20, discovered 5/01; green, good 5/01
l		:		l	:	:	
19.18	2821	8.65	314			ł	one measurement only, not tagged, at 10 o'clock on 49.10, right of 49.17 and behind 49.19, discovered 5/01; green, good 5/01

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PL# j	STAKE	DIST.	ANGLE	99DM	99FL	99FR	NOTES
49.19	2821	8.64	314			1	one measurement only, not tagged, at 11 o'clock on 49.10, right and in front of 49.17 & 49.18, discovered 5/01; green, good 5/01
49.20	2821	8.62	314				one measurement only, not tagged, at 12 o'clock on 49.10, discovered 5/01; green, good 5/01
49.21	2821	8.61	314				discovered 5/01; green, good 5/01
49.22	2821	8.56	314				discovered 5/01; green, good 5/01
19.00	2931	0.30	0	dead			discovered 3/1/92; blooming 98; just see spines left, COD unknown 99
20.00	2931	1:22	142	8:4	4.0fr	9	
darde Ngaa	2933	0.98		déad			discovered 3/14/97; blooming 98; just spines left; COD unknown 99
4.00	2933	13:69	1980	dead			discovered 3/13/97; just spines left, COD unknown 99
12.00	2933	3.98	21	6	1 1 fr		discovered 3/13/97; good, green 3 & 5/99, 3 & 5/00, 2 & 5/01
48.00	2933	11.48	282	4:6	8 fr		Big Mama discovered 4/23/97; a little reddish, good 3/99; looks dead, clump easily uprooted, most sterns look dead
s - se ado en Secondo en 1971 Secondo en 1971							or poor, collected for weevil study 3/00; dead, COD unknown 5/00
48.01	2933	11.48	282	4.1	6 fr	4+1A	looks dead, clump easily uprooted, most stems look dead or poor, collected for weevil study 3/00; dead, COD unknown 5/00
48.02	2933	11.43	282	5.5	11 6 1	2+1A	looks dead, clump easily uprooted, most stems look dead or poor, collected for weevil study 3/00; dead, COD unknown 5/00
48.03	2933	11.44	282	3.6	3 fr	3A	looks dead, clump easily uprooted, most stems look dead or poor, collected for weevil study 3/00; dead, COD unknown 5/00
48.04	2933	11.39	282	4.6	6 fr		reddish, poor, clump easily uprooted, most stems look dead or poor, collected for weevil study 3/00; dead, COD unknown

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2933 2933	11.43	282	4.3	7 fr	5+2A	looks dead, clump easily uprooted, most
2933.						stems look dead or poor, collected for weevil study 3/00; dead, COD unknown 5/00
nice States States States	11.41	282	2.5	0	0	reddish, poor, clump easily uprooted, most stems look dead or poor, collected for weevil study 3/00; dead, COD unknown
2933	11.47	- 282 ,	4.7	0	0	looks dead, clump easily uprooted, most stems look dead or poor, collected for weevil study 3/00; dead, COD unknown 5/00
2933	11.51	282	4	4 fr	4	green, OK 3/00; collected with rest of clump for weevil study 3/00; dead, COD unknown
2933	111.52	282	4.3	5117	3+2A	reddish, OK, clump easily uprooted, most stems look dead or poor, collected for weevil study 3/00; dead, COD unknown
2933	11.53	282	1.8	1 fr	0	green, good 3/00; reddish, OK 5/00; apex off center, plant green, OK 2 & 5/01
2933	11.46	-282	0.8	0	0	green, OK 3/00; collected with rest of clump for weevil study 3/00; dead, COD unknown
2933	11.61	282				discovered 3/00; green, good 3 & 5/00, 2/01; slightly reddish-green, OK 5/01
2933	11.63	282		 		discovered 3/00; green, good 3 & 5/00, 2 & 5/01
2933	11.54	282				discovered 3/00; green, good 3 & 5/00; just spines left, COD unknown 2/01
2933	11.40	282				discovered 3/00; OK, 3/00; orange, OK 5/00; plant mia 2 & 5/01
2933	11.37	282			İ	discovered 3/00; green, good 3/00; hunkered, OK 5/00; plant and tag mia 2 & 5/01
	2933 2933 2933 2933 2933 2933 2933	2933 11.51 2933 11.52 2933 11.53 2933 11.53 2933 11.61 . . 2933 11.63 . . 2933 11.63 . . 2933 11.63 . . <t< td=""><td>2933 11.51 282 2933 11.52 282 2933 11.53 282 2933 11.53 282 2933 11.61 282 2933 11.61 282 2933 11.63 282 2933 11.63 282 2933 11.63 282 2933 11.40 282</td><td>2933 11.51 282 4 2933 11.52 282 4/3 2933 11.53 282 1.8 2933 11.53 282 0.8 2933 11.61 282 0.8 2933 11.61 282 0.8 2933 11.63 282 0.8 2933 11.63 282 0.8 2933 11.63 282 0.8 2933 11.63 282 0.8 2933 11.63 282 0.8</td><td>2933 11:51 282 4 4 fr 2933 11:52 282 4:3 5117 2933 11:53 282 1.8 1 fr 2933 11:46 282 0.8 0 2933 11:61 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0</td><td>2933 11:51 282 4 4 fr 4 2933 11:52 282 4:3 5/17 3:+2A 2933 11:53 282 1.8 1 fr 0 2933 11:61 282 0.8 0 0 2933 11:61 282 0.8 0 0 2933 11:63 282 0.8 0 0 2933 11:64 282 0.8 0 0 2933 11:63 282 0.8 0 0 2933 11:63 282 0.8 0 0 2933 11:64 282 0.8 0 0 2933 11:54 282 0.8 0 0 2933 11:40 282 0.8 0 0 2933 11:37 282 0.8 0 0</td></t<>	2933 11.51 282 2933 11.52 282 2933 11.53 282 2933 11.53 282 2933 11.61 282 2933 11.61 282 2933 11.63 282 2933 11.63 282 2933 11.63 282 2933 11.40 282	2933 11.51 282 4 2933 11.52 282 4/3 2933 11.53 282 1.8 2933 11.53 282 0.8 2933 11.61 282 0.8 2933 11.61 282 0.8 2933 11.63 282 0.8 2933 11.63 282 0.8 2933 11.63 282 0.8 2933 11.63 282 0.8 2933 11.63 282 0.8	2933 11:51 282 4 4 fr 2933 11:52 282 4:3 5117 2933 11:53 282 1.8 1 fr 2933 11:46 282 0.8 0 2933 11:61 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0 2933 11:63 282 0.8 0	2933 11:51 282 4 4 fr 4 2933 11:52 282 4:3 5/17 3:+2A 2933 11:53 282 1.8 1 fr 0 2933 11:61 282 0.8 0 0 2933 11:61 282 0.8 0 0 2933 11:63 282 0.8 0 0 2933 11:64 282 0.8 0 0 2933 11:63 282 0.8 0 0 2933 11:63 282 0.8 0 0 2933 11:64 282 0.8 0 0 2933 11:54 282 0.8 0 0 2933 11:40 282 0.8 0 0 2933 11:37 282 0.8 0 0

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فقيقه وبروجي بربيات وروور والسب

PL#	STAKE	DIST.	ANGLE	99DM	99FL_	99FR	NOTES
48.17	2933	.11.44	282				left of 48.18 and 48.19, discovered 3/00; reddish, OK 3 & 5/00; just spines left, COD unknown 2/01
48.18	2933	11.44	-282				between 48:17 and 48:19, discovered 3/00; reddish; OK 3 & 5/00; just spines left; COD unknown 2/01
48.19	2933	11.44	282				right of 48.17 and 48.18, discovered 3/00; reddish, OK 3 & 5/00; just spines left, COD unknown 2/01
48.20	2933	11.67	282	2.1	1 fr+1A		green, good, lopsided 5/99, 3 & 5/00; Ismall hole in tubercle, plant green, OK 2/01; green, good 5/01
48.21	2933	11.42	282				discovered 3/00; one measurement only 3/00; green, OK, dislodged, replanted 3/00; mia 5/00; green, good 2 & 5/01
48.22	2933	11.49	282				left of 48.23, discovered 3/00; green, good 3 & 5/00, 2 & 5/01
48.23	2933	11.49	282	 			right of 48.22, discovered 3/00; green, good 3 & 5/00, 2 & 5/01
48.24	2933	11.51	282	- - - -	· · · · · · · · · · · · · · · · · · ·		not tagged, just behind 28.22 and 28.23 tag, discovered 5/00; green, good 5/00; plant mia 2/01; relocated 5/01, green, good 5/01
48.25	2933	11.54	282			 	discovered 2/01; green, good 2/01; tag loose, plant mia 5/01
48.26	2933	11.68	284	 !	 		discovered 2/01; green with some red tubercle tips, OK 2/01; green, good 5/01
48.27	2933	11.69	284		 		discovered 2/01; green, good 2 & 5/01

Construction of the second sec

PL# !	STAKE	DIST.	ANGLE	99DM	99FL	99FR NOTES
	2933			1.3		0 discovered under prickly pear 5/99; tag and plant mia 3 & 5/00, 2 & 5/01
						and plant mia 3 & $5/00$, 2 & $5/01$
!				ļ		1
		!		I		
				:		
61.00	2933	13.41	290	mia		discovered 5/28/97; perfect sp? 98; gone
					P. P. S. S.	without a trace 99; plant mia 99, 3 &
	4					5/00, 2 & 5/01
1.00	2934	0.61	0	A COMPANY OF		dead 98
	2934	15.00				discovered by Bill Armstrong 3/00;
						maroonish, OK 3/00; olive, OK 5/00; tag
						mia, replaced 2/01; purplish green, OK 2
	-			İ l		& 5/01
``						
		4 5 6	4	10	F 4	5 discovered 3/17/97; blooming 98; good,
18.00	2936	1.58	174	4.3	5 fr	green 3 & 5/99, 3 & 5/00, 2 & 5/01
				!!!		green 3 & 5/99, 3 & 5/00, 2 & 5/01
					l İ	
				1 ·	1	
Stake	2815 eau	als 28	37 on ma	ap, not n	narked	
i			· · · · · ·	Ţ ¹		
South	Owl Pas	ture - tu	irn left at	bottom	of hill, st	top by second hackberry
						anked by 2 persimmons
1.00	1	4.85	47			discovered by BA 8?/00; tagged, some
		1140 - 1140 - 1140 - 1140 - 1140 - 1140				tubercle damage, green, OK 2/01; dead,
		112.30				collected for weevil study 4/01; two
	ČI CONTRACTOR					seedlings replanted under rock in hole
						(1.01 & 1.02)
1.01			·····			green, good 4/01
-						
					:	
				:		
1.02						green, good 4/01
						· · ·
		I	1	ı .	:	
		1		1		
' '		 	! 	: ·		· · · · · · · · · · · · · · · · · · ·
2.00	1	5.07	56		ļ	discovered by BA 8?/00; tagged 2/01;
						green, good 2 & 4/01 (collected weevil
Í .				i i	1	on ground beside plant)
		•			·	
			l			<u></u>
I	Dwl Past				ANT - CONTRACTOR OF A	
29.00	2928	3.11	83	dead		discovered 3/17/97, non-blooming 98;
	paranter set station of the			机炉带并		hollow, weevils? 3/99
30.00	2928	3.14	3	6.9	12 fr	
						8.5/99, 3 & 5/00; many small exit holes;
1						COD weevils 2/01
45.00	2928	18.47	240	mia		discovered 4/23/97; sick/dying 98; mia
		utiliki anti				99,3% 5/00,2% 5/01
		 A 100 Aug 	,			

PL#	STAKE		ANGLE		99FL	99FR NOTES
33.00	2929	0.43	280	1.9	0	0 discovered 3/13/97; blooming 98; poor, only a few tubercles left 3/99; good, green 5/99; misshapen, green, one reddish tubercle, OK 3/00; green, good 5/00, 2 & 5/01
34.00	2932	5.91	260	mia		mia 99, 3 & 5/00, 2 & 5/01
35.00	2932	1.58	215	mia		discovered 3/17/97; identity questionable; sick/dying 98; mia 99, 3 & 5/00, 2 & 5/01
36.00	2932	1.77	214	mia		discovered 3/17/97; identity questionable; non-blooming 98; mia 99, 3 & 5/00, 2 & 5/01
37.00	2932	11.72	210	4.3	2	
38:00	2932	11.76	210	4	2 fř	
59	2932	17.37	.75	, mia		not habitat at these directions; discovered 5/28/97; truit with bl? 98; mia 99; 3'& 5/00; 2 & 5/01
60	.2932	17:37	73	mia		not habitat at these directions; discovered 5/28/97; tiny 98; mia 99, 3 & 5/00, 2 & 5/01
39:00	2935	0.61	180	mia		discovered 3/17/97; blooming 98; mia 99, 3 & 5/00, 2 & 5/01
40.00	2935	0.67	185	mia		discovered 3/17/97; blooming 98; mia 3 & 5/00, 2 & 5/01
	 awn Pa	sture	 	:		
	2824	0.00	0	dead		discovered 4/11/97; 1 we? 98; COD
Plot 8	Pasture					
43.00	2811	0.26	194	5.3	5 fr	3+1A discovered 4/16/97; green, good 3 & 5/99; brown and tan near base, green or top, very squishy, loosely rooted, poor, removed for weevil study 3/00; dead,
n galasta La siga			ात समर्थित सम इ.स. १९२१			COD unknown
44.00	2811	0.30	180 	4.4	2 fr	1+1A discovered 4/16/97; green, good 3 & 5/99; dead, weevil larvae inside stem, stem with reddish-brown liquid inside, removed for weevil study 3/00
44.10	2811	0.30) 202	4	0	weevil larvae inside stem, stem with reddish-brown viscous liquid inside,
11 T 1					ua ostalione	removed for weevil study 3/00

							Kerr WMA
PL#	STAKE	DIST.	ANGLE	99DM	99FL	99FR	NOTES
							the set of the set of
			opening	, south f	rom 19th	n large ten	ce post from gate (including gate fence po discovered by Bill Armstrong 3/00;
70.00	2593	5.35	293				green, good 3 & 5/00, 2 & 5/01
l		ļ	1				green, good 3 & 5/00, 2 & 5/01
I						<u></u>	
						-	
South	<u>Owl 2 (N</u>	<u>lax's Si</u>	te) - Site	discove	ered 3/01	; Plot add	led on 4/30/01; South Owl main road, at b
	turn rigt	nt, go 0.	<u>1 mi; tur</u>	n left, go	<u>o 0.1 mi,</u>	site on let	
1.00			116				reddish-green, OK 4/01
			:	. :			
	 1	1.71	ļ				
2.00	<u></u>	- <u>!</u>	116				reddish-green, OK 4/01
	I	1.60					
	<u> </u>	1.62	118			1	3.00 is in front of 4.00; green, OK 4/01
3.00	İ	į	110				
				i			
	:	1.70	·····			ļ	
4.00		:	118				4.00 is behind 3.00; green, OK 4/01
		1		; ;			1
		1.70		1			l
5.00			118				5.00 is in front of 6.00; red, OK 4/01
0.00				1			
		1.73		<u> </u>			6.00 is behind 5.00; green, OK 4/01
6.00			118				
		1.73		: 	· · · · · · · · · · · · · · · · · · ·		
7.00			116	÷			green, good 4/01
				i -	ļ	1	
	1	1.20	il	1			1
8.00			110	; ;		}	green good 4/01
0.00					1		
	1		.t				
	<u> </u>	1.95	114	<u> </u>			green, good 4/01
9.00			114	:	1		
		1					
	.	2.02		-	I	·	
10.00	:		112	· 1			green, good 4/01
					1		
		2.46	5				
11.00	:	1	114		<u> </u>]	green, good 4/01
		i	i	ļ		Ì	
	i I					1	
		2.69					green, good 4/01
12.00	l.		114				green, good wor
		1		I	:	i I	
		2.80)			: 	

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PL#	STAKE	DIST.	ANGLE	99DM	99FL	99FR	NOTES
13.00			104	I		1	green, good 4/01
-	i i	į .		1 1		!	:
		3.10		I			1
14.00	•	0.10	112				green, OK 4/01
14.00							
		0.00					
15.00		2.06	103			<u> </u>	green, OK 4/01
15.00	1	:	105				
				:			
		3.20				 	A second and a second OK 1/01
16.00	!	:	103				one measurement only, green, OK 4/01
	-			;		:	
		3.20				 	
17.00		1	103	Ţ			green, OK 4/01
		l :		1			
	ł	3.22					
18.00	1		103				one measurement only, green, good
	1	I '		1		1	4/01
	1						
		3.32		1			
19.00		3.23		1			one measurement only, green, OK 4/01
19.00		0.20	100		-	ł	
						ļ	
		:					
	, <u> </u>	·					areas acod 4/01
20.00		3.82	103.5		i 1		green, good 4/01
	:		I	1	i		1
~ ~	·	0.00	97				reddish-green, OK 4/01; dead plant
21.00		2.60	97	1	:	1	(COD weevils beside) 4/01
		:	i I	1			
				!			
22.00	;	2.50	117				green, good 4/01
00	1		1	i		i	
				l İ			
			1	1	ļ		
23.00):	1.46	118			1	green, good 4/01
	i	1		ļ	1	!	1
	1		i	:	1	ļ ·	
		i		I.			
24.00)	1.83	136		1		green, good 4/01
						1	
	:		!		1		
		•			1	i	
25.00		2.35	132	:		:	green, good 4/01
				:			1
	1	1		i	į	1	!

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					Ken wina
PL# STAKE	DIST.	ANGLE: 99DM	99FL	99FR	NOTES
26.00	2.65			t	green, good 4/01
		I		:	
			1	1	
27.00	1.77	155			three apical meristems, plant reddish-
27.00			1		olive, new spine growth, OK 4/01
	· ·	I	Ì		1
	1.64	149			green, good 4/01
28.00	1.04	143	1		
					1
	1.74	149			in front of 30 and 27, not tagged 4/01;
29.00	1.74	149		1	green, OK 4/01
	1	ļ	I	!	[g. co., c
			ļ		1
	4 74	149		. <u></u>	behind 29 and in front of 27, not tagged
30.00	1.74	149			4/01; green, OK 4/01
·			1		i
					:
		i	1		
31.00	1.75	149		1	left of 29 and 30 and in front of 27, not
	· · ·	:			tagged 4/01; green, OK 4/01
-					
· · · · · · · · · · · · · · · · · · ·					green, good 4/01
32.00	1.825	160		-	green, good 4/01
		-			
				·	green, good 4/01
33.00	1.83	158	1	!	green, good 4/01
			1		
i.					
					green, OK 4/01
34.00	1.87	160	ļ	ļ	green, ok 4/01
	T	÷	I	ļ	i
				1	,
	1.00	100			green, good 4/01
35.00	1.90	160	I	1.	green, good 40 t
		. :	I		
			•	:	
		100			green, OK 4/01
36.00	1.93	160	1	!	
				1	
1					
				: 	green, good 4/01
37.00	1.90	162			jyreen, good n or
				ļ	
		:			ļ

and the second sec

PL#	STAKE	DIST.	ANGLE	99DM	99FL	99FR	NOTES
38.00		1.91		:			green, good 4/01
1		1					
:				!		l	
		4 54	100				green, good 4/01
39.00		1.51	163				green, good 4/01
i						:	
40.00		1.99	163			• • • • • • • • •	green. OK 4/01
				!			
44.00		2.01	154		i		green, good 4/01
41.00		2.01	104	•			groon, good we t
			! !				
		1	i i		·	! !	
42.00		2.19	164				green, good 4/01
			:		:	1	
43.00		3.69	161				green, good 4/01
40.00							
			ł			ł	
			 		 		
44.00	!	2.38	163		•	1	green. good 4/01
						· · · · · · · · · · · · · · · · · · ·	
	:			akio Dr	2/11	100 5/5/0	99, 3/7-8/00, 5/2/00, 2/27/01, 4/30/01, 5/07/
Data ta	aken and	record	Jea by Ja			199, 010/8	
WHC	= Bill Cal	vert			i		

PL	#	STK #	DIST	ANGLE	96014			·	:	I 1	Kic	cistrocact kapoo Ca	verns St	NA - Butte	rflv		
	S	stake 4	.2 mi So 17A = G 25.93	PS13 BC	North gate 21722A	96FL ∋ & Sout	h road j	97DM ct, ~ 7(97FL 0 paces	97FR Northwest fr	98DM om_road,	98FL by pinyon	98FR -agarita-7	99DM Texas pers	99FL 9	99FR imp;	NOTES
			20.93	30									·	2.99	1+ 2fr	Í	green, OK, hunkering 4/99; green, good 2/00; some orange tubercles, OK 4/00; maroon, OK 2/01; maroonish-olive, poor 5/01
2.0	0 4	47A	29.71	46								·		1.75	1+1fr		green, OK, hunkered 4/99; green, good 2/00; some orangish tubercles, OK 4/00; olive, OK 2/01; green with eddish tubercle tips, OK 5/01
	0 4		28.25	45						-	· · · · · · · · · · · · · · · · · · ·			2.13		n	eddish, OK, hunkering 4/99; naroonish, OK 2 & 4/00; green, good /01; purplish-green, ∩K 5/01
3.1C	47	7A	28.37	45			[· ·	·					- ri 4	ght of 3.20 & 3.30; green, good 2 & /00, 2 & 5/01
3.20	47	A	28.36	45		·	· · · · · · · · · · · · · · · · · · ·				·	•			· . 	bi	etween 3.10 & 3.30; green, good 2 &
3.30	47.	Ă, 2	28.37	46									** *** * ****		· · .	le	/00, 2 & 5/01 ft of 3.10 & 3.20; green, good 2 & 00, 2 & 5/01
					.	[·····

PL # ST 4.00 4	K # DIS1	ANGI	E 96DA						А К	ncistroca ickapoo C	ctus tobu averns S	schii Dat NA - Butt	a for erfly		
	7A 24.2	0 55			90FH	970M	97FL	97FR	980M	98FL	98FR	99DM 1.99	99FL	99FR 1 disp	NOTES preddish, OK 4/99; dark green, good 2/00; orangish, OK 4/00; maroonish- brown, OK 2/01; olive, OK 5/01
5.00 47	A ~25.5	0 247										2.24			olive, OK, discovered 4/99; reddish, OK 2 & 4/00; green with afew red tubercle tips, OK 2/01; dull olive, OK 5/01
6.00 47)								· · · .				1.41		0	discovered 4/99;green, good 4/99; hunkered, OK 2 & 4/00, 2 & 5/01
7:00 47Ā 8.00 47Ā	~25.64	249 245										0.57 2.26		0 c	discovered 4/99; OK 4/99; under rock, maroonish, OK 2 & 4/00; body solid, COD unknown 2/01 discovered 4/99; green, good 4/99; lower pink, stigma green, plant dark
9.00 47Å	25.63	246	-											Ş	unkered, OK 2 & 4/00, 2 & 5/01
47.10 47A 47.11 47A	35.38 34.64	42 41	4.30	1+3 fr 1+8 fr	disp 5 disp 6		4 10		Dead					ki	lled by being dug up by unknown ssailant 2/98
····	• · ····· · · · · · · · · · · · · · · ·	1		·]										ki a:	lled by being dug up by unknown ssailant 2/98

	4.68 4 .69 4 .74 4	1					-	98DM 1.30	98FL 0	98FR mia	99DM 1.08	99FL 0	99FR (NOTES D seedling of 47.11, discovered 2/98; plant mia 5/98; green, good 4/99; green, good 2 & 4/00, 2/01
A 34.	.74 4	·····				1							·	green, good 2 & 4/00, 2 & 5/01
												····		green, good 2 & 4/00, 2 & 5/01
A 34.7	75 41						·		· · .		· ·		····	green, good 2 & 4/00, 2 & 5/01
34.7	73 42	· ····			-			· · · · · · · · · · · · · · · · · · ·						green, good 2 & 4/00, 2 & 5/01
in po de critor d						5	3+2A	4.60	3	disp	3.99	0	C	COD unknown, just spines left, tag
					:								s	dull green, OK 4/99; two stemmed, stem closest to stake, green, good 2 & 4/00, 2 & 5/01
33.37	7 41			+ -	. 1			·] : :	: · · · · <u></u>				gı	reen, good 2 & 4/00, 2 & 5/01
	34. 342 33.3	34.73 42 34.20 43	34.73 42 34.20 43 3.40 33.34 41 3.50	34.73 42 34.20 43 3.40 2.fr 33.34 41 3.50 1+3 fr	34.73 42 34.20 43 3.40 2 fr 23.33 41 3.50 1+3 fr disp	34.73 42 34.20 43 3.40 2.fr 2A Dead 33.34 41 3.50 1+3 fr disp 4.40	34.73 42 34.20 43 3.40 2 fr 2A Dead 33.34 41 3.50 1+3 fr disp 4.40 5	34.73 42 34.20 43 3.40 2.ft 2A Dead 33.34 41 3.50 1+3 fr disp 4.40 5 3+2A	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	34.73 42 34.20 43 3.40 $2 fr$ $2A$ $Dead$ 33.34 41 3.50 $1+3 fr$ $disp$ 4.40 5 $3+2A$ 4.60 3	34.73 42 34.20 43 3.40 2 fr 2A Dead 33.34 41 3.50 1+3 fr disp 4.40 5 3+2A 4.60 3 disp	34.73 42 34.20 43 3.40 2 fr 2A Dead 33.34 41 3.50 1+3 fr disp 4.40 5 3+2A 4.60 3 disp 3.99	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	34.73 42 34.20 43 3.40 2 ft 2A Dead 33.34 41 3.50 1+3 fr disp 3.40 5 3+2A 4.60 3 disp 3.99 0 3A c 33.37 41

PL # 47.14	STK 47A	# DIST 33.61	ANGLE 43	96DM 3.10		96FR 9 disp	7DM 4.20	97FL 6	97FR 2+2A	к 98DM		averns SN	schii Dat NA - Buti 99DM 3.34	erfly 99FL	99FR 1	NOTES reddish at base, OK 4/99, 4/00; dark green, good 2/00; green with some red tubercle tips, OK 2/01; dull green, OK 5/01
47.15	47A	33.27	41		·	1	.90	0	0	2.00	Ō	ō	2.49	0	0	green, good 4/99; green, good 2 & 4/00, 2 & 5/01
		-15.25	~64	2.20	1 fr 2 fr		.10 .70	3B 2	0	Dead 3.10	4	ЗА	2.49	2+1A	2+1A	dist. measured over juniper; tag mia, replaced 2/97; just spines, COD unknown 2/98 measured over agarita; maroonish, OK, hunkering 4/99; green, good 2/00; dark green, OK 4/00; maroonish- green, OK 2/01; purple, poor 5/01
47.30 47.31 Stake 47E	17A		~244 ~244 of from Noi 14; R021	6:40 rth gate & 719A	6 fr South re	6 Dea 0.4 0.4	io	0 es West of	mia ' road, ro	mia cky oper	ning by sma	all lotebust	mia p; park b	y agarita;	b m s	neasured from edge of juniper; COD inknown; top;spines lifted off; root lack & solid; no insect exit holes heasured from edge of juniper; eedling of 47:30

PL	#	STK #	DIS	T ANG	LE 96D	M 96	FL 96	FR 971		51	0750	<u> </u>	скароо	actus tobu Caverns S	ischii Dat NA - Butt	a for terfly		
		478	7.7	73 89							97FR	98DM	98FL	98FR	99DM 3.49	99FL	1disp po go ma	NOTES few orange tubercle tips 4/99; pping out of crustose lichen, green, od 2 & 4/00; maroonish, OK 2/01; aroon with red tubercle tips at base, K 5/01
	00	478 478	12.5												1.77	2	uni 1disp gre	een, OK, hunkering 4/99; green, od 2 & 4/00; just spines left, COD nown 2/01 en, good 4/99; green, good 2 & 0; slightly maroonish-green, OK 2 /01
3.0		7B	12.77													· · · ·	at 5 one OK	o'clock on 3.00, discovered 5/01; measurement only 5/01; green, 5/01
4.00 5.00			2.53	192 69											2.11	1+1fr	0 4/0	n, good 4/99; tag and plant mia 2 00, 2 & 5/01
47.40	471	B	4.80	81	3.30	5 fr		4.20	5		2+3A	3.10	0		0.79		5/01	overed 4/99; green, good 4/99, 2 0, 2/01; hunkered, green, OK
						· .						3.10		0	Dead		looks	very small but produced at least d 5/96; tag mia, retagged 2/96; dead but firmly rooted 2 & 5/98; v chambers, COD weevils 2/99

	TK # DIST	ANGLE	96DM	0651		<u> </u>		A K	incistro ickapo	ocacti o Cav	us tobus verns SN	chii Data A - Butte	a for erfly	
47.41 4	7B 3.4	0 79	3.80	6 fr	96FR 97DM st disp 4.10 disp 2.10	97FL 4	<u>97FR</u> 1+3/	98DM	98F	1	98FR 0	99DM 1.79	99FL	99FRNOTES2 fruit with a few seeds left within 10 cm of plant, small ants walking by5/96; COD unknown 2/982 orangish, hunkering, OK 4/99; popping out, dull green, OK 2 & 4/00; green with a few tan tubercle tips, OK 2/01; maroonish-green, OK 5/01
47.430 47 47.431 47	the second second second second second second second second second second second second second second second se		2.70 0.90	0	0 2.70 0 mia	2	TA	3.30 mia		3	2+1A	Dead 0.63	mia	Just spines - COD unknown 2/99 0 measured in one direction only 4/99, 2/00, 2/01; green, good, relocated 4/99; plant mia 2/00; relocated, green, good 4/00; hunkered, OK 2/01; popped out, green, good 5/01
47.432 471	3 2.56	37	1.20	Ō	0 1.00	0	0	1.30		0	0	1.24	0	0 measured in one direction only 2/98, 2/99, 2/00, 2/01; green, good 4/99, 2 & 4/00, 2 & 5/01
47.433 47E	3 2.55	37	0.90	Ο	0 0.70	0	Ō	1.60	 I	Ō	0	0.89	0	0 measured in one direction only 2/98, 2/99, 2/00, 2/01; green, good 4/99, 2 & 4/00, 2 & 5/01
47.44 47B	2.30	14	2.50	2 fr	2 2.10	0	ō	2.00	2	2	mia	1.73	0	0 plant shriveled but fleshy, fruit with holes 5/96; tag moved 2/97; retagged 5/97; relocated 2/99; green, good 4/99, 2 & 4/00; olive, OK 5/01

PL # STK # DIST	ANGLE 96DM 96	L 96FR 97DM 97FL	KIC	cistrocactus tobuschii Data kapoo Caverns SNA - Butte	for erfly	
47.441 47B 2.35 47.450 47B 2.44	14	3 fr disp 3.50 0	97FR 98DM mia mia 0 3.30	<u>98FL</u> <u>98FR</u> <u>99DM</u> mia 3 3 3.28	99FL 99FR	NOTES This plant has no roots, may have washed here during flood 2/97, mia 5/97, 2 & 5/98, 2 & 4/99 p under prickly pear; four seedlings at base 5/97; 3 seedlings in 2/98 & 5/98; tubercle tips red, OK 4/99; green, good 2/00; maroonish, OK 4/00, 2 & 5/01
47.451 47B 2.41	35 0.90	0 0 0.90 0	0 1.00	0 0 1.00	Ö Ö	green, good 4/99; green, good 2 & 4/00, 2/01; hunkered, green, OK 5/01
47.452 47B -2.41	35	1.20 0	0 1.40	0 0 1.20	ō ō	green, good 4/99, 2 & 4/00, 2/01; hunkering, green, OK 5/01
47.453 47B 2.43	35			0.84	0 0	green, good 4/99, 2 & 4/00, 2/01; green, OK 5/01
	37 35				2	green, good, hunkered 2 & 4/00; filled with orange mush, COD fily larvae 2/01 eft of 47.456, discovered 2/01; not agged, green, good 2/01, mia 5/01

PL # 47.456	STK # 47B	DIST 2.41	ANGLE 35	96DM	96FL	96FR	97DM	97FL	97F	R	Ai Ki 98DM	ncistroca ckapoo (98FL	ctus to Caverns 986	s SN	chii Dat A - Butt 99DM	erfly	99FR	NOTES
	 			-														behind 47.451, discovered 2/01; not tagged, green, good 2 & 5/01
47.46	47B	3.40	57								2.00			2A	2.92	1+2fr	4+1disp	beside rock, discovered 5/98; green, hunkering, OK 4/99; green, good 2 & 4/00; squishy, shrunken, spines gray, poor 2/01; olive, OK 5/01
47.470 47.471	47B 47B	4.65 4.83	65 65												2.10 1.22	2	0	dull green, hunkering, OK 4/99; only spines left, COD unknown 2/00 green, good, hunkered 4/99, 2 & 4/00, 2 & 5/01
47.48	47 B	5.09	85												1:55			green, OK, hunkering 2 & 4/99; green, good 2 & 4/00; galleries, chambers, exit holes, COD weevils 2/01
Data takei Data takei Data taker Data taker Data taker	ו by Da by Ja	ive Stuar ckie Poo	t and reco	orded by	Jackie I	Poole 5/	6/97	1/23/99, 8	4/28/00), 2/10	6/01, 5/(01/01		· · · ·				

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Daniel's Site

PL #	STK#	DIST	ANGLE	98DM	98FL	98FR	99DM	99FL	99FR NOTES
Stake	l is ~1(05m at	~85 deg	rees fro	m the	east co	mer of a	trough of	ff of Hunt Road 8 past the cowbird trap, through the fence; GPS7 = R021816A
1.00	1			:		3		1+4fr	green, OK 4/99, 2/00; rock flipped on top, removed, green, good 4/00; maroon, OK 2/01; pale olive, OK 5/01
	• • • • • • • • • • • • • • • • • • •	3.06	247	0.60	nd	0	1.12	mia	0 discovered 2/98; tagged 5/98; relocated, between 1.00 and 1.02, measured in one direction only 4/99; olive green, OK 2/00; green, good 4/00; green, OK 2/01; green, good 5/01
1.02	1	3.07	247	0.90	nd	0	1.14	0	0 discovered 2/98; tagged 5/98; olive green, OK 2/00; green, good 4/00; olive, OK 2/01; green, OK 5/01
2.00	1	3.20	242						discovered 2/01; green, good 2/ & 5/01
3.00	1	3.58	242						discovered 2/01; green, good 2/ & 5/01
4.00	1	3.72	237					· · · · · · · · · · · · · · · · · · ·	discovered 2/01; green, good 2/ & 5/01
		· ·							
Data tak	en and	record	ded by Ja	ackie Pc	ole 5/:	5/98, 4/	21/99, 2/	/9/00, 4/2	26/00, 2/16/01, 5/2/01
	en by .	Jackie	Poole &	recorde	a by Li	nda He	dges 2/8	3/99	

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Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - JD-0 Site

				Rickapoo Caverns SNA - JD-0 Site			
PL# S	TK# DIS	<u>F</u> ANGL	<u>E 99D</u>	M NOTES			
<u>0.4 mi Noi</u>	th/Northea	ast of bu	nkhouse	on main road North, West side of road, South	of Whiskey Bo	ttle Site	
	JK IOI SIIIA	ii naggei	a persim	mon ~2m off road; plot set up in 9/99			
Rebar is c	ouble flag	ged by a	persim	mon			
1.00	1.46					·	
			1	grass clump, green, good 2/01; edge of			
: •	1			ismall dua holo, plant groop, good 4/01			
:		1		small dug hole, plant green, good 4/01			
		•					
		1		1			
<u>·</u>							
2.00	1.78	346	0.43	OK?, may not be A. tobuschii 9/99; base		· ·	
	1			of grass clump, OK 2/00; green, good			
		1		4/00; edge of grass clump, green, good 2			
		1	1	& 4/01			
1	1		.				
	1					1	
I			ļ		1	1	
3.00	1.90	351	1.09	green, good, almost buried 9/99; green,			
				good, popping out 2 & 4/00; bluish-green,	1		
				good 2/01; groom ment 4/01			
				good 2/01; green, good 4/01			
		i			1		
			I			1	
			j	-			
4.00	2.01	10	0.96	OK, almost buried 9/99; green, good,	· · · · · · · · · · · · · · · · · · ·		
				popping out 2 & 4/00; green, good 2 &	1	1	
1		İ	1	4/01		ļ	
		:	!		i	i	
		1			-		
					i		
5.00	1.92	16	3.23	green, good 9/99; flowers yellow, plant			•
				green, good 2 & 4/00, 2 & 4/01	1		
				5 , good - d' 1,00, 2 d 4,01			
			1				
			·		:		
6.00	2.09	22	0.86	OK?, almost buried 9/99; dull green, OK,	· · · · · · · · · · · · · · · · · · ·		•
i				edge of armadillo hole 2 & 4/00; green,			
			1	OK 2 & 4/01			
			i	:			
			i.				
7.00	2.26	21	0.96	green, good, almost buried 9/99; green,			
				good, popping out 2 & 4/00; green, good	1		
				2 & 4/01		•	
					T		
				1		1	
						1	
	_				Ì		
.00	2.94	22	1.77	green, good, edge of agarita 9/99, 2 &			
				4/00, 2 & 4/01	I		
		:				i	
	Ι			·			
		1					
	_		1.07	green, good 9/99, 2/00; olive, OK 4/00;			
.00	2.17	28	1.27				
.00	2.17	28	1.27	areen. good 2 & 4/01	l	i.	
.00	2.17	28		green, good 2 & 4/01			
00	2.17	28		green, good 2 & 4/01			
00	2.17	28		green, good 2 & 4/01			

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - JD-0 Site

			-	• • • • • • • • • •		
	DIST	ANGLE	99DM	NOTES		
10.00	1.66	29	0.43	OK?, A. tobuschii? 9/99; green, good,	· · · · · · · · · · · · · · · · · · ·	
	i	;		pebble on top 2 & 4/00; green, OK 2 & 4/01	1	
		· ·				
11.00	1.72	76	1.70	green, good 9/99, 2 & 4/00, 2 & 5/01	·	

	-		!		
12	.00	,2.00	66	2.35	green, good 9/99, 2 & 4/00, totally sunken, only spines at surface, may be dead 2/01; dead, COD unknown 5/01
13.	00 ' -	1.92	64	0.54	OK, almost buried 9/99; good, green, popping out 2/00; hunkered, olive, OK 4/00; green, good 2 & 4/01
:					

14.00	1.83	65	1.51	green, good 9/99, 2 & 4/00; plant mia 2 & 4/01		·
15.00	1.69	44	0.37	green, good 9/99; OK, dull green 2/00; green, good 4/00; pale green, OK 2 & 4/01		!

16.00	1.76	56	1.94	orangish-green, OK 9/99; dull green, OK 2/00; reddish, OK 4/00; plant mia 2 & 4/01	
17.00	2.44	36	1.37	green, good 9/99, 2 & 4/00; slightly maroonish-green, OK 2/01; green, good 5/01	
18.00	2.36	42	1.82	green, good 9/99; flowers pinkish, green, good 2/00; olive, OK 4/00; green, good 2 & 5/01	
19.00	2.90	71	1.34	green, good, hunkered 9/99, 2 & 4/00;	

groon, good, namero	u 0/00, z a 4/00,
olive, OK 2/01; green	aged 5/01

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - JD-0 Site

. הוא	OTIZ		1	r'	Rickapoo Caverns SNA - JD-0 Site	
PL#			ANGLE			
20.00		3.00	67	2.56	hooded during weevil study in summer 99; green, good 9/99, 2 & 4/00; olive, OK 2 & 5/01	і : ,
21.00	<u> </u>	3.16	69	1.97	green, OK, hunkered 9/99, 2 & 4/00; green, good 2 & 5/01	· · · · · · · · · · · · · · · · · · ·
22.00		4 5 9	01			
22.00	•	4.58	31	5.37	green, OK, few orange tubercles 9/99; hooded during weevil study in summer 99; purplish green, OK 2 & 4/00, 2/01; olive, OK 5/01	
23.00		4.75	36	1.31	OK?, only spines showing, hunkered 9/99; purplish green, OK, out 2 & 4/00, 2/01; green, good 5/01	
24.00		4.86	31	0.76	green, OK, almost buried 9/99, 2 & 4/00, 2/01; coming out, green, OK 5/01	
5.00		4.70	30	0.85	green, good, base of grass clump 9/99, 2 & 4/00, 2/01; plant mia 5/01	

Data collected by Jackie Poole 9/15/99, 9/20/99, 2/8/00 with Craig Scofield, 4/28/00, 2/09/01, 5/01/01

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Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - JD-1 Site

DI //				Histingee Caveriis SIA		.e			
PL#			E 99DN	NOTES					
		1 U.5 MI S	South of	Green Cave, through an opening on the E	ast side c	of road just	before cre	ek crossina	I
Joub	ie nagg	cu rebai	r - ~50n	(~00 paces) @ 145 dedrees from road to	crook?	27m(74n)	aces) from	creek to fe	nce:
1.00	00111	<u>00 pac</u>		15 degrees from lence crossing; plot estal	olished 9/	15/99			
1.00	/	9	i i .9	9 green, with some orange tubercle tips,					
an ya y			N-P, Toyak	OK 9/99; poor, purplish 2/00; looks dead		alestick-s			
1	an nai ist. An si grad	al an an States National States	n an teachadh Tuachtachtach	4/00; COD weevils (galleries) 2/01			ang da da ang ang ang ang ang ang ang ang ang an		
			i saan	. vente a main a province and a second second second and the second second second second second second second s					
2.00	1 84	14	2.30	green, OK 9/99, 2/00; looks like just					
· ·				spines left 4/00; dead; just spines left,	Rochense Gener			digi -	ĺ
				COD unknown 2/01					
3.00	2.17	17	2:36	olive green, OK 9/99, 2/00; looks dead					
				4/00; just spines left, COD unknown		a an an an an an an an an an an an an an			
				2/01				en la la la la la la la la la la la la la	
3.01	2.17	17		seedling of 3.00, ~1cm from pin flag;					
			1	green, OK 2/01; buried by gravel, only					
				spines visible, poor 5/01					
				· · · · · · · · · · · · · · · · · · ·					
	· · ·					:			
4 0 0			_						
4.00	2.19	17	2.00	green, good 9/99; one measurement					
ĺ	;			only 2/00; dull green, OK 2/00; plant mia			1		
i	1			4/00, 2 & 5/01					
I	:		:	· .		1			
	i								
- 00	- 1 00		<u> </u>			-		1	1
5.00	1.33	207	1.94	one measurement only 2/00; green,					
			· ·	good, hunkered 9/99, 2/00; hunkered,			1	:	
				olive, OK 4/00; covered by Selaginella,		1			
				green, OK 2 & 5/01		:			
			1			1	1		
	1		. I						
						[i	
5.00	1.34	207	0.94	green, OK, hunkered 9/99; green,					
	1			hunkered, good 2/00; hunkered, green,	:	1		1	
I	:			OK 4/00; popped out, green, good 2 &				:	
-	-	:		5/01					
:	ł	1	ĺ				1		
i	!	i.	İ		1	l			
00					. 1		1	:	
.00	1.36	204	2.42	green, some tubercle tips tan, OK 9/99;		ha tang dagi			
.].		Garrena		collected by Bill Calvert, dead, killed by	. ha generation and			l F	
		s Xing		veevils	15 Design of				
.00	1.61	212	2.17	reen, OK, hunkered 9/99; gray spines,	Charles 13 2				
			۲	ed body, poor 4/00; body solid, COD					
<u> </u>	800 100 100 100 100 100 100 100			inknown 2/01	SPREAR PROPERTY				1
00	9.90	238	2.20 c	reen, good 9/99; poor, squishy, at edge	estroneticania. El postanar	ensemeltugenetyru gestigenet av dater	lagester bounds all is Mileitebe ale nër i sa	<u>Ban na sa</u>	<u> </u>
) C	f rock 2/00; looks dead 4/00; body				en de la composition Specifica de la composition de la composition de la composition de la composition de la composition de la compo	na Ngamburuna a
			S	olid, COD unknown 2/01	43.26-64.65.65				State of the state of the
	10.38	239		a name a second second second second second second second second second second second second second second seco	National and an and a second sec			or oppositely and a	
00		ປວອ	ა. თ ა S	unken in center, some red tubercles,					
00	10.00				and the second second second second second second second second second second second second second second second				
00	10.00		P	oor 2/00; new spine growth, olive, OK		YO .			
00	10.00		4	oor 2/00; new spine growth, olive, OK /00; top green, base yellowish-olive, oK /01; galleries, COD weevils 5/01					

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - JD-1 Site

0 10.71 239	MINOTES		 	
	allocovered over, green, OK 5/01			
	i			
<u>+</u>				
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		· · · · · · · · · · · · · · · · · · ·	 	

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - JD-2 Site

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PL# STK# DIST ANGLE 99DM	1 NOTES
Site is located in NW area of park near	dead pinyon on hillton
Stake is ~8m @ 200 degrees from dead	d pinvon
1.00 3.04 63 3.0	2 yellowish green, CK 9/99; hollow;
and the second second second second second second second second second second second second second second second	killed by weevils. Dead 2/00
2.00 2.73 63 3.1	1 orangish, OK 9/99, hollow, killed by
	weevils, Dead 2/00
······································	
Data collected by Jackie Poole 9/20/99,	2/8/00

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - JD-3 Site

and the second second second second second second second second second second second second second second second

	STK#	DIST	ANGLE	99DN	NOTES			······································
Site is (J.6 mi No	orth of r	esidence	; walk a	along fence from where road crosses c	reek, at a fe	ence drainage	crossing with
	10010101	nunge p	iiiyuna lu	iu basi ;	SILIdii Orainade With hog hanel & junioe	rcì thoraig	المغم محم	11. A
				z uraina	198. INE SIAKE IS ~25m (0) 1017 degrade -	from the ele	الاست مستعلا	
1.00	JD-3	1.67	314	2 71	or or brace, just before it is the large, old 3 OK, yellowish, squishy 9/99; OK,	l, split pinyc	on; plot set up	9/20/99
1			014	. 2.70	orangish-green 2/00; maroonish, OK	i		
i		:		i	4/00, 2/01; dull olive-green, OK 4/01			
ļ		· ·			and the green, on 4/01	:	1	
:				:		1		
0.001		:						
2.00	JD-3	2.96	280	5.08	totally orangish, poor 9/99; very poor,			······
					totally orange 2 & 4/00; dry solid,			
	12 diama	n an sa s			tannish-orange, looks dead, collected			
					2/01			
	and the second second second second second second second second second second second second second second second							
		A Construction of the local distance of the	Alternation of					
3.00	JD-3	3.68	233		good, green 2/00; yellow-green, OK			
					4/00; body intact; COD unknown 2/01			
	arwwygr Lids Jer	ister (p2.53) [] []	1.11 mai 117 137			i dati negati	n san san sa	
- · - - · · · - ·						1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -		
ata coll	ected by	Jackie	Poole 9/	20/99,	2/8/00, 4/26/00, 2/19/01, 4/25/01		· · · · · · · · · · · · · · · · · · ·	
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Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Kelly Bryan Memorial Site

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		·				Recupoo Caverns SNA - Kelly Bryan Memorial Site	
PL# STK	(# DIST	ANGLE	99DM	99FL	99FR	NOTES	
Stake is ~90m	at 320 degre	es from a	a rock c	aim at	, <u> </u>	NOTES posed, large rock outcrop on the North side of the main road 0.3 mi North and then West of main	
gate; GPS19 =	R021821A				<u>ob ov</u> h	Josed, large rock outcrop on the North side of the main road 0.3 mi North and then West of main	·
1.00	~77.55	~3	2 42	1.04			
	1.00	-0	2.42	1+31	1+1A	green, good 4/99; olive green, good	
						2/00; maroonish, OK 4/00, 2 & 4/01	
		1					
2.00	17.96	2				discovered 2/01; maroonish-green,	
			1	1		OK 2/01: dark grage OK was	• ••
	Í	[OK 2/01; dark green, OK 4/01	
					[
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		- I.					
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ata collected b	v lackie Por		0	<u>-</u>	I		
		në ∕:/ <u>10/</u> 9		Linda	ledges	s, 4/99, 2/9/00 with Bill Calvert, 4/28/00, 2/09/01, 4/25/01	
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Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Linda's Site

	PL#	DIST	ANGLE			99FR	NOTES
							ate, south side of road
			n road to				
	1.00	15.62	290	2.25	1+1fr) Girtusioga	0 maroonish, OK 4/99; hooded during
							weevil study in summer 99;
			Maria da Arriga. Antista da Arrigana				maroonish with whitish speckles, OK 2/00; reddish-green, OK 4/00; dry,
							solid, COD unknown 2/01
ŀ	2.00	15.50	290	4.12	1+2fr	2 disr	hooded during weevil study in
						2 0.05	summer 99; very dark green, good
	İ						4/99 & 2/00; ants swarming fruit,
	İ						plant green, good 4/00 ; slightly
		-		Í			maroonish-green, good 2 & 5/01
				:			
	:	I	;	;			
	3.00	15.40	290	4.11	3+2fr	2.24	rod OK 4/00; marganish OK 0.8
ļ	0.00	10.40	200	-4.11	υτzπ	6727	red, OK 4/99; maroonish, OK 2 &4/00; side nibbled, maroonish, OK
							2/01; green, OK 5/01
		ļ			ļ		
			-				[
-	1.00	15.00					
	4.00	15.92	300	3.97	1	1A	maroonish, OK 4/99, 2 & 4/00, 2/01;
			i		i		blue-green, good 5/01
[1	:		1			:
	5.00	15.85	300	2.48	1	1A	green, good 4/99, 2/00; reddish,
	į			i	i		green, OK 4/00, 2/01; maroonish-
			ļ				green, OK 5/01
	Í	ļ	Í				
			1	!	1	1	
-	6.00	15.84	300	1.89		1.4	dull groop, OK 4/00, 0/00, as delice
	0.00	10.04	000	1.05	1		dull green, OK 4/99, 2/00; reddish, OK 4/00; onve, OK 2 & 5/01
						ĺ	
	I	I	:		i		
	7.00	15.80	300	2.49	0		green, good 4/99, 2 & 4/00;
	:						maroonish-green, OK 2/01; green,
	i						good 5/01
		Ì			l		
						i.	
	8.00	5.51¦	96	4.80	2+5fr		maroonish, OK 4/99; reddish
		:					tubercles, overall maroonish, OK
							2/00; dark green, OK 4/00; green
							with some tan tubercles, OK 2/01; duli green, OK 5/01
		:			1) [
	<u> </u>			-		<u> </u>	

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Linda's Site

PL#	DIST	ANGLE	99DM	99FL	99FR	NOTES
9.00	6.94	120	2.06	2+1fr		3 green, OK, hunkered 4/99; maroonish, OK, hunkered 2/00; dark green, OK 4/00; dark olive, good 2/01; dark purple, OK 5/01
10.00	11.90	87	2.76	3+1fr	2+ 2 disp	Phooded during weevil study in summer 99; green, good 4/99; maroonish, good 2/00; green, good 4/00; maroonish-green, OK 2/01; small chunk eaten out of side, reddish-green, OK 5/01
11.00	11.35	104	3.03	4		green, OK, hunkering 4/99; maroonish, good 2/00; hunkering, green, OK 4/00; green with maroonish tubercle tips, OK 2 & 5/01
12.00	14.66	121	2.36	2+2fr	disp	hooded during weevil study in summer 99; reddish, OK 4/99; maroonish, OK 4/00, 2 & 5/01
13.00	18.45	105	4.56	3+5fr	t	dull green, OK 4/99, 2/00; yellowish, OK 4/00; green with some tan ubercle tips, OK 2/01; green, good 5/01
14.00	18.63	123	2.82	2+1fr	2+ 1 r disp ₁ 4	eddish, OK 4/99, 2/00; green, good /00; olive, OK 2/01; blue-green,
15.00	15.52	124	2.25	0.16	g	ood 5/01
	10.02	124	2.35	3+1fr	st 4/	ooded during weevil study in ummer 99; green, OK, hunkering /99; green, good 2 & 4/00, 2/01; ull green, OK 5/01
	!		:	I	:	

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Linda's Site

	PL	#	DIST	ANGL	EI 99DM	99FL	99FR	NOTES
	16.	00	55.65	5 111	3.78	4+2fr		5 hooded during weevil study in
				ļ	÷			summer 99; green, good 4/99; fruit
				1				red 4/00; nibbled on a few tubercles,
		1			i			green with tan tubercle tips, OK
	İ					'		2/01; greer, good 5/01
	1							
				i				
	170	ก่	75 50	~116	0.70		MANULA NOT	
			-70.00		3.76	5	4+1/	maroonish, OK 4/99; olive green,
				in all the second second				good 2/& 4/00; maroonish, OK 2/01;
								very squishy, maroonish, poor 5/01;
								dead, COD maggots (fly larvae) 5/01
	17,0)1 ~	75.53	~116				lefted 17 00 allo
			195mm					left of 17-02; discovered 2/00; green,
		iene en 1990 gan						good 2 & 4/00; green, OK 2/01; dead, COD fly larvae 5/01
	17:0	2 ~	75.53	~116			Martin (Martin) Andreas (Martin)	right of 17:01, discovered 4/00;
					1999 (See	1.15		green, good 4/00; green, OK 2/01;
	Chernalis Statisticalis							just spines left, COD unknown 5/01
Ì	18.0	0~	77.70	~269	2.31	2	2	
						ا ـــــة إ	2	right of 23.00; green, OK, hunkering 4/99; green, good, popping out 2/00;
								olive green, OK 4/00, 2/01; green,
			1					good 5/01
		:	1					5
		:						
	10.00	<u>.</u>	77.70	~268	1.001			
	13.00	, ~,	1.70	~200	1.80		0	discovered 4/99; green, good 4/99,
		1	l					2/00; covered with litter, green, good
		1		i	ļ		ĺ	4/00; plant mia 2 & 5/01
				1	i i	:	i	
		•	i	i				
10.00	20.00)	1.65	266	3.63		0	booded,during!weevil study in
		14.3						summer 99; green, good 9/99;
	The First M		ANGLAS A	ad shares	Name I			naroonish, most spines gray, very
	er Process				i (je fanse) vin Stanistation			ew new spines, poor 2/00; new
				ale ale ale			i en sus de s	pine growth, maroonish, OK 4/00;
l		f '' i ·			er og som med sigt	an sa na s	a na ana ang ang ang ang ang ang ang ang	oody hollow, Moneilema?, dead 2/01
	00.01			His Philippine	R. SPHINE			
· .	20.01		1.63	266				ght of 20.02; discovered 4/00;
						autor a		reen, good 4/00, 2/01; COD
	00.00						201 CONTRACTOR 103	inknown 5/01
	20.02	11	1.63	266	ł	į	h	eft of 20.01; discovered 4/00; green,
					1	ļ	ç	ood 4/00; plant mia 2 & 5/01
	:			i	ŀ	I	I	
				:				
			ļ		I	!		
2	21.00	11	.80	263	2.24		0 d	scovered summer 99; green, good
:		درد. او ایران دربیمیری					9	/99, 2 & 4/00, 2/01; shrunken,
· · .								angish, poor 5/01, dead COD
							<u> </u>	eevils 5/01

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Línda's Site

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PL#		ANGLE			99FR	NOTES
22.00	11.56	<u>,</u> 267⊨				discovered 4/00; green, good 4/00; just spines left, COD unknown 2/01
23.00	~77.70	~269		<u>, , , , , , , , , , , , , , , , , , , </u>	 	left of 18.00; discovered 4/00; green, good 4/00, 2 & 5/01
		;	:			
	:		••			· · · · · · · · · · · · · · · · · · ·
				i		
Data coll	ected b	y Jackie	Poole 2/	/17/99 w	ith Linda	Hedges, 4/23/99, 9/15/99, 2/9/00 with

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - NE Corner Site

PL#	DIST		00014		0000	
10.4 mi	loth of			BALL	99FH	NOTES
		main gat	e on FN	<u>л 674,</u>	at Nort	h boundary fence on west side of road, 150 m South/Southwest of fence corner; GPS16 = R021718A
	(7 0-					
1.00	47.05	149	2.41	1	1	green, good 4/99, 2 & 4/00, 2 & 4/01
200	25.69	33	0.55			
2.00	25.69	33	2.55	1+1fr	1	loose spine cluster, otherwise green, good 4/99;
					1	green, good 2 & 4/00, 2 & 4/01
		[
					1	
3.00	~25.7	~30			······	discovered 2/01; lopsided, green, OK 2 7 4/01
						Lief, iopsided, gleen, OK 2 / 4/01
		·······				
·						
		_				
Data tak	en by J	lackie Poo	ole 2/17	7/99 wi	th Linda	a Hedges, 4/23/99, 2/15/00, 4/28/00, 2/09/01, 4/26/01
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Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - North Gate Site

- new whet

	- HUL	1819A	2 0001	M 99FL	199FR	NOTES
1.00	29.13		3.59	9	1	rendlish OK 1/00- OK 2/00
						reddish, OK 4/99; OK 2/00; reddish, poor, collected by Bill Calvert 4/00; dead, COD unknown
2.00	4.25	57	4.46	3+2fr		green, good 4/99; green, good 2 & 4/00; green, good but with half of plant eaten on one side, appears to be scarred over, probably mammal herbivory 2/01; apex now at ground level, plant green, good 4/01
2.01	3.99	54	 			discovered 2/01; green, good 2 & 4/01
2.02	4.04	57				discovered 4/01; green, OK 4/01
3.00	4.04	80	2.21	: 	<u> </u> 9	green, OK, hunkered 4/99; popping out 2/00; grayish-green, poor sunken in center, OK 4/00; olive green, OK 2/01; dull green, OK 4/01
4.00	28.55	78	4.21	3+1fr	g	reen, good 4/99; grayish-green, OK 2/00; body reen, tubercles orange, OK 4/00; green, some ubercles purplish, good 2/01; maroonish, OK 4/01
5.00 6	\$2.26 	88	5.09	7	disp g	reen, good 2 & 4/00, 2 & 4/01
5.01 6	2.29	88	1.25		0 gr gc	een, good, discovered 4/99; at six o'clock; green, ood 2 & 4/00, 2 & 4/01
.02 62	2.25	88		ı 	at	two o'clock; green, good 2 & 4/00, 2 & 4/01
.03 62	2.28	88			at	five o'clock; green, good 2 & 4/00, 2 & 4/01
04 62	2.27	88			at	4 o'clock, discovered 4/01; green, OK 4/01

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Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - North Gate Site

ata ata	collecter	by Jaci	cie Poole	2/22/0	104 D	edges 2/18/99)/00 with Craig S	Cofield 4/25/0	0 2/07/01 4/25	01
		Judor		i	, <u>, , , , , , , , , , , , , , , , , , </u>	line with orally c	10011610, 4/20/0	0, 2/07/01, 4/20	/01
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Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Quail Transect

Stake 41 is a flagged piece of rebar at the East end of the quail transect; 1.2 mi North of lodge on main road N, then ~1 mile South of main road; GPS10 = R021522A GPS10 = R02152A GPS10 = R02152A GPS10 = R02152A GPS10 = R02152A GPS10 = R02152A GPS10 = R02152A GPS10 = R02152A GPS10 = R02152A GPS10 = R02152A GPS10 = R02152A GPS10 = R02152A GPS10 = R0215A GPS10 = R0215A GPS10 = R0215A GPS10 = R0215A GPS10 = R0215A GPS10 = R0215A GPS10 = R0215A	PL#	STK #	DIST	ANGLE	96DM	96FL	96FB	97DM	97FI	97FR	98DM		98FR		0051	0050
41.10 41 26.75 257 1.00 0 1.10 0 0 1.50 0 0 1.26 0 by dead parent (dead in 1996, CC unknown) 3/96; really hunkered of 2/99; green, good 4/99; dark gree OK, hunkered 2 & 4/00; hunkered 2 & 4/00; hunkered 2 & 4/00; hunkered 2 & 4/00; hunkered 2 & 4/00; hunkered 1 & 1.00 1.00 41 -29 264	Stake 4	41 is a	flagged	piece of	rebar al	t the Ea	ist end o	of the ou	ail trans	oct: 1 2	mi North	of loda	<u>- 90FH</u>		<u>99FL</u>	99FR NOTES
41.10 41 26.75 257 1.00 0 0 1.10 0 0 1.50 0 0 1.26 0 by dead parent (dead in 1996, CC unknown) 3/96; really hunkered do 2/99; green, good 4/99; dark green OK, hunkered 2 & 4/00; hunkered 2 & 4/00; hunkered 2 & 4/00; hunkered 2 & 4/00; hunkered 2 & 4/00; hunkered 2 & 4/00; hunkered 2 & 5/01 1.00 41 -29 264	- T	GPS1	10 = R02	21522A				 		eoi, 1.2		i or loug	e on ma	un road r	v, then ~	1 mile South of main road;
maroonish-brown, OK 2 & 5/01	41.10				1.00	0	0	1.10	0	0	1.50	0	0	1.26	0	0 by dead parent (dead in 1996, COD unknown) 3/96; really hunkered down 2/99; green, good 4/99; dark green, OK, hunkered 2 & 4/00; hunkered, green, OK 2 & 5/01
Data taken an recorded by Jackie Poole 3/3/96. 5/8/96. 2/12/97. 5/5/98. 2/15/98. 2/15/99. 4/21/99. 2/16/01. 5/02/01	1.00	41	~29	264											·	maroonish-brown, OK 2 & 5/01
Data taken an recorded by Jackie Poole 3/3/96, 5/8/96, 2/12/97, 5/5/97, 2/18/97, 5/5/98, 2/15/99, 4/21/99, 2/16/01, 5/02/01								· · · ·								· · · · · · · · · · · · · · · · · · ·
	∑ata ta	ken ar	recorde	ed by Jac	kie Poo	le 3/3/9	96, 5/8/9	6, 2/12/9	97, 5/5/9	7, 2/18/9	97, 5/5/9	98, 2/15/	99, 4/2	1/99, 2/16	5/01, 5/02	2/01
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PL # ST# DIST ANGLE 93DM 93FL 93FR 94DM 94FL 94FR 95DM 95FL 95FR 96DM 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 99DM 99FL 99FR	R NOTES
2 1A, 3.21 2fr 2	2 tubercle & spine cluster loose, scarred
	over 5/97; good 2/98 & 4/99; alomost
	Uprooted on edge of hole, green, good 2/00; dead, removed for weevil study bu
	no evidence of weevils 4/00
5.00 1 13.45 10 4.50 3 3 160 F C 4.00 9 0 Dead	hollow, maybe weevils 2/96
5.01 1 13.58 10 Dead	holes in stem caused by weevils? 5/97
nia mia mia mia mia mia mia mia mia mia m	discovered 2/97; mia 98, 99; lots of
6 00 1 14 44 12 1 20 2	rooting in area 2/00; plant mia 2 & 4/00.
	8.4/01
	3 green, good 4/99; green, good, almost covered by Aristida purpurea 2/00; olive,
	OK 4/00, 2 & 4/01
	in shade of pricklypear; pricklypear dead
	2/98; tag mia, replaced, probably lost in
	rooting nearby 2/99; dark green, good 4/99, 2/00; a few yellowish tubercles, Cr
	4/00; dead, COD weevils 2/L1
2.50 2 1+1A 3.50 5 4A 3.36 3+1fr 1+2A K	loose spine clusters 2/97; good 2/98; neg
	To serious rooting but unharmed 2/99
	dark green, good, fruit yellow, flabby 4/9
	green, good 2/00; orangish, OK 4/00; green, good 2 & 4/01
	plant has two tags; green, good 4/99, 2.8
4	4/00, 2/01; dead, COD fly maggots 5/01
9.00 1 12.98 15 3.30 2 1 3.10 0 0 3.10 3 2 Dead	
	pup from damaged stem 2/94; hollow,
10.00 1 14.00 15 5.60 1 1 6.50 8 8 6.70 10 0 5.30 10 1 disp Dead	maybe weevils 2/96
	COD unknown, stem hollow, weevils suspected 2/97
	seedling of 10.00; measured in one
	direction only 2/98; green, good 4/99 2 &
	4/00, 2/01; purplish-green, OK 4/01
10.03 1 14.19 23 1.00 0 0 ta	tag loose, plant OK 4/99; COD unknown
	2/00
	hooded during weevil study in summer 99 green, good 4/99, 2 & 4/00, 2 & 4/01
gr	groom, good 4799, 2 & 4700, 2 & 4701

		1.															Cavern			y s 51	е							
	PL #	ST	"# D	IST /	NGLE	93D1	/ 93FL	93FR	94DM	194FL	94FR	95DM	95EI	9555					ыт.					1				
	10.10) 1	1	5.10	34	T			-		1	2.60	2	2017	2.7	0 905	L 96F	H 97L			97FR			98FR	99DM	99FL	99FR	NOTES
		1													2.1	0	4 4 dis	sp 3.	20	2	2	3.20	2	2	3.31	3	2	around tree; hole dug right beside 5/98;
		1											1		}	1					l							green, squishy, OK, new spine growth
				i			1	l i				1			1					ĺ								2/99; hooded during weevil study in
								1		1											l							summer 99; green, good 2/00; green.
	10.11	1	-16	6.35	~39	1		+ F		+·· ··	· · ·	- · ·					1 .											squishy, OK 4/00; green, good 2 & 4/01
																	i										1	discovered 4/00; reddish, OK 4/00, 2/01;
	10.20	1	18	8.30	43			11112-111			- tast - changes					_	_											green, good, OK 4/01
												3.00	0	0	2.7()	1	0 3.	50	2	1+1A	3.20	3	3	Dead			
																								or Black				thru pine; one seedling by end of tag,
																												Seven seedlings at plant base 5/97; one seedling (10.21) by end of tag & 3
-												-0.01.2								28-17			in dia 1					seedlings (10.21, 10.23, one dead 2/99)
																												by plant base 5/98; parent somewhat
	10.21		10	3.25	40	<u></u>																						hollow, maybe weevils 2/99
i	10.21	ſ	1 10	5.20	43							-			iningen singe		- 1	<u>نے تحصید ا</u> منیک	<u> 11. 11</u>	<u>0.620</u> 008						<u></u>		
		!																				[0.71	0	0	hunkered, dull green, OK 2 & 4/00; green,
	10.22						[-																	Ì	ĺ		UK, covered by plantago 2/01; green,
i	10.22	1	18	.32	43		İ		Ī		-	· · · · ·				-+			·				·			·		good 4/01
					i		ļí													ĺ	1		i		1.27	0	0	eftmost of 10.23; green, good 2/00;
											[hunkered, OK 4/00; green, good 2 & 4/01
	10.23	1	18	.32	43		•			··· -	-	·		—			- ·				1							
		1											ĺ									i			1.21	ō	0	ight of 10.22; green, good 2/00;
		[1					1					[1	nunkered, OK 4/00; green, good 2 & 4/01
1	0.24	1	18.	.41	43						·														,			
																i									1.75	0	olt	ag mia, replaced, green, good 4/99;
																									ļ			nooded during weevil study in summer 99;
1	0.25	1	18.	41	43			· · ·	·- · -								ĺ										C	green, good 2 & 4/00, 2 & 4/01
			10.		-+0												1				· ·			·· ·	1.85	à	I	
	Í			Ì	ĺ				Í	ļ			1												1.00	U	Ur	ight of 10.24, green, good 4/99; hooded
1	0.26	1	10	20				· · _ .																				during weevil study in summer 99; green,
'	0.20		18.	30	43					Í	Ì			··-·-		· _					· · 4			·				good 2 & 4/00, 2 & 4/01
	:	[1	ľ	ĺ				ł															0.50		00	liscovered 4/99; green, good, hunkered 2
				i			i		ľ				I										1					4/00; green, almost spineless, poor
-1	0 0 7		40			!	-										ļ		İ									2/01; normal spines, plant green, OK 4/01
1	0.27	1	18.:	38: -	43	I								· · ·					- ·		1						4	· · · · · · · · · · · · · · · · · · ·
					:									!			1								0.55		0 a	liscovered 4/99; very hunkered, green,
					1					ļ		Í		ļ						1							ļg	ood 2/00; very hunkered. OK 4/00_2/01
1(0.28	1	18.3	33 4	43		-		•	t.		-		·· •					1			•					c	oming out, green, good 4/01
					i.									•					:	/ 1	:			÷	0.41	.	0 d	iscovered 4/99; plant mia 2 & 4/00, 2 &
									. 1			:	• •			-		.i.									4	/01

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	Restaped Caverns SNA - Ray \$ 5	site
PL # ST# DIST ANGLE 93DM 93FL 10.30 1 16.15 58	93FR 94DM 94FL 94FR 95DM 95FL 95FR 96DM 96FL 96FR 97DM 97FL 3.70 3 1 3.20 4 2 disp 4.70 3	3 3+1A 3.90 3 1+1A 3.34 1 0 thru pine; 1 seedlings 2/95; 3 seedlings 5/95; 1 seedlings 2 & 5/96; 3 seedlings 5/98 & 2/99; buried in grass 2/99; 2 seedlings, buried in grass, plant green.
10.31 1 16.18 58		0001.73001.73001.73001.73001.73001.73001.73001.730001.73 </td
10.41 1 -15.38 ~65		5 5.40 10 7 5.21 3+5fr 2+1A redo tag (recorded as 11.40); measured around pinyon; discovered 5/97; several flowers partially eaten 2/99; green, good 4/99; hooded during weevil study in summer 99; maroonish, good 2/00; dull green, good 4/00; dead, no weevils, COD unknown 2/01
11.00 1 16.17 65 4.10 0	0 4.70 2 2 5.20 2 0 3.70 3 3 6.00 4	1A 3.30 0 0 3.99 0 0 redo tag (recorded as 11.40); measured around pinyon; discovered 5/97; rock on top, removed 2/99; hooded during weevil study in summer 99; green, good 4/99, 2 & 4/00; looks trampled, dead, just spines, COD unknown, not weevils 2/01 5 6.00 6 disp? 5.16 2+3fr 4 in prickly pear; flowers partially pear;
11.01 1 16.85 66		2/99; green, good 4/99, 2/00; partially covered by ant mound, green, OK 4/00; coming out of ant mound, green, good, tiny flower buds 2/01; green, good 4/01
11.100 1 16.83 68 4.40 2 11.101 1 16.66 ~76 11.102 1 17.00 ~74	2 4.30 2 2 2.20 1 1 1.70 3 1+1 2.60 3 disp	0.81 0 discovered 4/99; just spines left; COD unknown 2/00 2+1A 2.20 0 0 2.27 0 0 12 seedlings 3/93; green, good 4/99; green, OK 2 & 4/00, 2 & 4/01
11.102 1 17.00 ~74 11.11 1 16.83 68 0.40 0	0 0.40 0 0 1.60 0 0 1.50 1 disp 1.60 0	discovered 2/01; buried in grass, green, good 2 & 4/01 0 dead dead, COD unknown 2/98

		Rickapoo Caverns SNA - R		
PL # ST# DIST ANGLE 93DM 93FL 93FR 11.12 1 16.83 68 100 0	3 94DM 94FL 94FR 95DM 95FL 95FR	96DM 96EL 96EB 97DM	97FL 97FR 98DM 98FL 98FR 99DM 99FL 99FR	
1112 1 16.83 68 100 0	0 1.00 0 0 1.30 0 0	1.70 1 1 disp 2.10	97FL 97FR 98DM 98FL 98FR 99DM 99FL 99FR	NOTES
11.13 1 16.83 68 2.00 0			· 같은 모양에 해야 비야할님은 알았을 것 같아요. 같이 많는 것 [5	d spots 2/98 & 5/98; hollow, maybe
	0 2.40 1 0 3.10 1 1	3.50 2 2 3.50		evils 2/99
1.30 0 (0 1.30 0 0 2.00 1 0	1.40 0 0 1.20		ad, COD unknown 2/98
11.15 1 16.83 68 0.50 0	0 0 50 0 0 0 0 0 0			easured in one direction only 2/98; plant a 2 & 4/00, 2/01
	0 0.50 0 0 0.80 0 0	mia mia 0 0.70		
11.16 1 16.83 68 1.10 0 6				easured in one direction only 2/98; een, good 2 & 4/00; plant mia 2/01
	0 1.10 0 0 1.00 0 0	1.10 0 0 1.00		
				easured in one direction only 2/98; een, good 2 & 4/00; hunkered, green,
11.17 1 16.83 68 1.00 0 0				2/01; popping out, green, good 4/01
	0 1.10 0 0 0.80 0 0	0.60 0 0 0.50		
				easured in one direction only 2/98; ocated 4/99; green, OK 2 & 4/00, 2 &
11.20 1 16.83 68 3.00 0 0	0 3.00 1 1 Dead na na		4/0	1
	V S.00 I I Dead na na		3s	eedlings 3/93; dead 2/95, killed by pin
	0 0.50 0 0 mia mia mia	mia		a construction of the second sec
<u>11 23 1 16 83 68 0.50 0 6</u>			pro	b. killed by pin, 2/95
11.24 1 16.83 68	<u>10</u>	mia nd 0 0 mia	pro	b. killed by cin, 2/95
			mia mia sdli	n on top of 11.20 tag, replanted &
11.30 1 16.71 68 250 0 0			Wal	ered 2/96; uprooted, looks dead 5/96
11.30 1 16.71 68 2.50 0 0	0 3.60 3 nd 4.10 5 3	3.90 6 5 5.60		98, 99, & 00
11.31 1 16.83 68 0.50 0 0				D unknown, 2 seedlings 2/98;
		mia mia		dlings mia 2 & 4/99
		mia mia		95, 96, 97
		mia mia		95, 96, 97
11.34 1 16.83 68 0.50 0 0 11.36 1 16.83 68	0.60 0 0 mia mia mia	mia		95, 96, 97
		0.40 0 mia mia		95, 96, 97
11.37 1 16.83 68				dling by tag, replanted & watered;
11.38 1 16.83 68		0.30 0 mia mia		nt & tag mia 2/97, 2/99 & 4/99
		0.40	pidi	nt & tag mia 2/97, 2/99 & 4/99
			- 「近日」「「「「日」」「「日」」「「「「「「「「」」」」「「「」」」」「「」」」「「」」」」「「」」」」「「」」」」	o tag (recorded as 11.18); measured in direction only 2/98; plant & tag mia 2
11.39 1 16.83 68			& 4/	99, 2 & 4/00, 2 & 4/01
		0.90		tag (recorded as 11.19); discovered
				, measured in one direction only 5/98
			pian pian	t & tag mia 2 & 4/99, 2 & 4/00, 2 &
in f.	e e a companya de la companya de la companya de la companya de la companya de la companya de la companya de la		4/01	
				· · · · · · · · · · · · · · · · · · ·

	Di #	PL# ST# DIST ANGLE 93DM 93FL 93FR 94DM 94FL 94FR 95DM 95FL 95FR 96DM 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 99DM 99FL 99FR 99FR 99FR 99FL 99FR														-1												
: •	11.4	017 1			LE 931	DM 93	FL	93FR	94DN	И <u>, 94FL</u>	94FF	95DN	1 95FL	95FF	96DN	1 96Fl	96Ff	- 	M 97F	I a	7FB	98DM	000	0000		005	1	
÷	1 1 1 (10.0) 00											3 9 9			0.6	50 0		0	mia	90FL	98FH			99FR	
																									mia			redo tag (recorded as 11:20); discovered
	11.50	1 <u>16800</u> 1	17.15	78			한, 한 한																					5/97; plant & tag mia 2/99, 2 & 4/00, 2 & 4/01
			17.10	/ /0													fr 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19 1				12922-01	2.00	<u></u>	1A	in	1.04	안 가 나는 것 같이 가 있는	
	11.60	1	17.42	78	·			·												ĺ		2.00			2.07	+2	1 2+1A	discovered 2/98; green, good 4/99, 2 &
			17.42	1 10						:	1									-	-	··			2.43			4/00, 2 & 4/01, 2 & 4/01
																						1			2.40			OK, purplish, discovered 4/99; hooded
		Ì								1																		during weevil study in summer 99; dull green, good 2/00; dull green, OK 4/00, 2 &
	11.70		17.55	78		新加口 <u>新新</u> 研究	1 44 91															ł						4/01
				/0																				1.17817	2.91	d de la compaña		
																									2.31		U	discovered 4/99; green, good 4/99; stigma
																					1987 - 1914 2018							pink, flowers dusky yellow, green, good,
1	11.80	1 1	18.04	75?					indi Tangaran a																			2/00; dull green, OK 4/00; dead, COD unknown, not weevils 2/01
	11.00	'	10.04	751								ļ						indiain a com				96-0-40		<u>a isi i</u> gaa	2.40	pictoria) a		
	11.90	1	17.92	76?			·						ļ 			l 									2.40		0	discovered 4/99; green, good 2 & 4/00, 2 & 4/01
																				1		···			1.11			discovered 4/99; measured in one
											1																U U	direction only, under rock, greer, good
		1								!																		4/99, 2 & 4/00; either 2 plants or one plant
																												with 2 heads, green, good 2/01; only 1
																												plant with one head, green, good 4/01
	12.00	1	11.60	65	4.7	0	4	4	2.90		0	4.10				 												,
:		1							2.00		0	4.10	2	2	4.30	5	4	l 5.1(D	4 3+	-1A	5.80	8	8	5.42	2+2fr	2+2A	under yucca; great 2/98 & 5/98;
																												something partially ate yucca, Tobusch
			ļ																								·	lowers partially eaten 2/99; green, good
																			i i		ľ						įI	rooting in area 4/99; green, good 2 & 4/00-
			1		İ																		1				i l	ag mia, replaced, green, good 2/01;
									ļ		1														ľ		1	uprooted, much rooting by vuccas.
	2.10	1	10.15	71	+ - ·		· .	· ·	·		·			- 1		-											۱ j	eplanted, green, good 4/01
												1						1.80)		0	2.20	1	1	2.01	2	1A d	liscovered 5/97; measured in one
						Ì							ļ	ť						Ì			Ì	ĺ		l	c	direction only 5/98; digging in area, green,
						1			ļ	ļ				-	ĺ										1		<u>ا</u> ک	1000 4/99; green, good 2 & 4/00, 2/01
1	2.20	1	10.30	71		2.					·			· - · · · · · .].			<u> </u>			ļ				.			k	pale dull green, OK 4/01
•																		1.60			0	2.00	2	2A	1.82	0		liscovered 5/97; digging in area, green,
		ļ																									c	good 4/99; hooded during weevil study in
								· · · · · ·				"															S S	ummer 99; dark green, good 2/00; one
																		. 1									s	ide yellowish, OK 4/00; dead, COD
					i	1					· · · · · • •			·						1							, k	ossibly weevils 2/01
																								r	·	I	f.,	

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																				3 JHA											
F	'L#	ST#	DIST	ANG	LE 930	SM 93	BFL	93FR	194	DM (94FI				000	51.6.55			· · ·	— ı —		·									
	13.00	1	9.57	65	2	10			0 2	70		3466	95DN	951	- 951-	-⊣ 96L)W S	6FL	96FF	<u>7</u> 97D	M 97	7FL	97FR	98DI	4 98	8FL	98FR	99DM	99FI	QOFE	NOTEO
÷ .										10	Ų	4.0	3.00			1 3.	00	nd		0 De	ad										AI NOTES
	4.00	1	9.64	65		70				<u>1965 - 5</u>						x Sea o				4 K. S. S.											2/96 looks dead, gray spines; COD
·	4.01	4		1112 C 128		70	0	(0 3.	30	1		3.20		1	0 De	ad		<u>,</u>		1										Unknown
	4.01		9.72	69										ji kat			60	0		0 m						<u>- 6 x</u>	4-63.2 ¹ .5.117				dead 2/96
																					lia			mi	a			. mia		Dead	d tag & plant mia 2/98; tag found, plant mia
																							an Dina. An An								5/98; tag says 14.10; plant found stem &
	5.00	1	6.81	66	5.4	40	5	- tê	5 5	80	5	<u> </u>	5.00			-	~														root solid, COD unknown 4/99
										ā k	10.1		0.00			/ 4.	90	5	5 dis	p 6.	0	5	5	6.1	0	71	,disp	5.25	7fr	1+5/	A swarming piss ants; hooded during weevil
1.5		10 di													2 .382441238 2						Cashi Cashi										1 Study in summer 00, bod 7/00
					5																									dien	1 study in summer 99, bad 7/99; dead, COD
				90 80 40																										Dear	Unknown, maybe weevils, plant partially
			1997 B																- 11日日 日日日日 単一日日日								CR LSM 1			Cat	removed by weevil researcher, 3 small
1	5.01	1	6.90	73				<u> </u>																				3.444 M			plants (15.01-15.03) at cage 9/99
i '	0.01	' [0.90	73														·····		<u></u>	<u></u>	<u>() () () - () - () - () - (</u>	<u> 880 - 5 7,8 19</u>		<u>i let</u> i						
																															seedling of 15, behind 15.02 & 15.03,
															1							l									discovered 2/00; green, good, shrouded 2
(1)	5.02	1	6.88	73			1			- +-				· ·												1					& 4/00; green, good 4/01
						1																i					[·-			··	
		ļ				-									l ì	l		1				[seedling of 15.00, between 15.01 & 15.03,
1	5.03	1	6.87	73		+ .			ļ	·																					discovered 2/00; dull green, OK, shrouded
	.00	• •	0.07	73					1					••••				1.										·		· · ·	2 & 4/00; green, OK 4/01
										ĺ																				1	seedling of 15.00, left of 15.04 & in front of
															Í					1											15.02, discovered 2/00; green good
15	5.04	1	6.87	73										···-··			<u> </u>				_		[[shrouded 2 & 4/00; green, good 2 & 4/01
							-									1		1		1					T –						Seedling of 15.00 right of 15.00 p is for
		Ì																				1									seedling of 15.00, right of 15.03 & in front
			i													ĺ							í					1	1		of 15.01 & 15.02, discovered 4/00; green,
10	.00																				1		Í								good, shrouded 4/00; green, OK 2 & 4/01
ΤÇ	.00	1 j	8.67	66	0.9	oj	0	0	1.0	0	0	0	1.40	0	0	1.0	in t	0	0	1.3	<u> </u>	_									
			1								ļ			-	J	1.0		Ο.	0	1.3	0	0	0	1.50		0	0	1.41	0	0	measured in one direction only 2/98;
		ļ														ĺ							1								green, good 4/99; dull green, OK,
		ĺ]													1	1	accidently sat on 2/00; dull green, few
					1	1			1							Ì				l.					Ì				İ		spines 4/00; grayish, few spines, root
		i							1														1						1	!	exposed, poor 2/01; looks dead, hard and
10	10	, 1	0.70	0.0		ł		-	-	•															[i		firmly rooted 4/01
10	10		8.70	68			ĺ									!	÷.	· ·		!			. 1	1.90		📙 .					
										2	1													1.90			1	1.88	0	0	in hole in rock at edge of pinyon,
]	:										1		Ì								discovered 5/98; poor 2/99; vellow green
			1		1																										OK 4/99, 2 & 4/00; slightly purplish-green,
			. !		!	i	-			Ŀ,							1														OK 2/01; dull green, OK 4/01
																					· -	I		· ··	L		1				

	# ST 5.20 1	T# DIST 1 9.22		E 93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR S	96DM	96FL	96FR	97DM	97FL	97FR	98DM 1.20	98FL	98FR 0	99DM 1.76	99FL 2f	99FF	NOTES nestled in Selaginella, discovered 5/98; nestled in Selaginella 2/99; dark olive green, OK 4/99; hooded during weevil study in summer 99; dark green, good, popping out 2/00; maroonish 4/00; purplish-green, good 2 & 4/01
	.00 1 .10 1	7.80		4.30		Ö	3.90	2	2	4:20	2		3.10	2	2 disp	4.90 0.79		3 3 1 1 0	5.00 0.70	6 mia	<mark>, disp</mark>		3fr 0	res disp	green, good 2/00; purplish-green, good 2 & 4/01 , apex asymmetrical 2/97; maroon, OK t 4/99; dead, COD unknown 2/00 2 discovered 5/97; mia 2/98; relocated,
17.		8.05	75 68		2	2	3.60	2	0	3:5 0			3.70			3.00	nc		3:30	2	disp?	mia			between rocks, by flag 5/98; green, good 4/99, 2/00, 4/01 under rock; discovered 2/97; but not recorded or tagged until 5/97; measured in one direction only 2/98; gone without a trace 2 & 4/99, 2 & 4/00, 2 & 4/01
18.	0 1	8.40	68	0.40	0		0.40							3	disp	4.40	3		4:50	4	disp?	3.76	4	2A+2 disp	93 ripe fruit reddish; 1 seedling 3/93; seedling mia 95; 1 flower bud eaten 2/96; looks stepped on or flower partially eaten 2/99; OK, dull olive green 4/99; hooded during weevil study in summer 99; dark green, good 2/00; purplish orange, OK 4/00; dead, COD weevils 2/01
19.0 19.1 19.2	0 1	7.75	68 68	4.10 0.40	3	3	3.60 0.40	0 1 0	0	mia 3 30 mia	mia 0 mia	0	mia 2:10 mia	Ö	0	mia Dead									mia 95, 96, 97 4 seedlings 3/93; looks dead, but still firmly rooted 2/96; COD unknown, stem solid, tag removed 2/97
19.3 19.4	0 1	7.75	68 68 68	0.30 0.40 0.30	0 0 0	0	0.40 0.40 0.50	0 0 0	0 0 0	mia mia mia	mia mia mia	mia	mia mia mia			mia mia mia									mia 95, 96, 97 mia 95, 96, 97 mia 95, 96, 97 mia 95, 96, 97

7 7												.0000	avenia	SNA - N	lay S SI	te							
PL # ST# DIST 20.00 1 9.05		E 93DM 1.60		· · · · · · · · · · ·	94DM 0 1.60	1 94FL) 0	94FR 0 0	95DM 1.50	95FL 0	95FR 0	96DM 1.7(1 96FL 0 0				97FR 1+1A	98DM 2.60	98FL 1	98FF	R 99DN 1 2.1	1 99FL		A hunkered down in Selaginella & lichens
21.00 1 9.35		2.00	0 0	0) nd	nd	1	2.70	3		2.70	0 3	ЗА	4.20	4	3+1Ā	4.80	4	disp?	2 3.69	4fi	r 24	2/99; popping out, dull green, OK 4/99; green, good 2 & 4/00; pale yellowish- green, OK 2/01; apex shifted toward ground, dull olive, OK 4/01 A by rock 3/93; measured in one direction only 2/98; olive 2/99; olive, OK 4/99; green with a few yellow tubercle tips, good 2 & 4/00; yellowish-green, OK 2 & 4/01
21.10 1 9.29 21.20 1 9.30 21.30 1 9.86	72							2.70		0	1.70		1 disp	3.30 4 2.80 1.10	3+2fr 2		3.50	2	2	Déad 3.24	2fr		between rocks; looks dead, gray spines, but firmly rooted 5/98; fairly solid but small chambers, killed by weevils 2/99 green, good 4/99; only spines left, COD unknown 2/00
21.40 1 9.88	72													1.10	0	0		0	0		1fr		very nestled in, measured in one direction only 2/98; very nestled in, tag chewed, replaced 5/98; nunkered down in Selaginella 2/99; popping out, green, good 4/99, 2 & 4/00; plant mia 2 & 4/01
22.00 1 8.50	68	2.60			2.70	2	2	2.50	2	0	2.40	0	0	3.10	2		1.60		0				very nestled in, measured in one direction only 2/98; very nestled in 5/98 & 2/99; popping out, green, good 4/99, 2 & 4/00; dead, COD unknown, no weevil galleries 2/01
23.00 1 8.47 24.00 1 12.42	69	3.00		1	3.00	2		3.00 2.40	2	0	3.60	3	disp 3, disp		3	4 4+1A	3.60 3.60 3.60	2	2 disp? 2	2.96 2.77 3.15	2fr 1+2fr 1	1 0;rem oved	squished? 3/93; measured in one direction only 2/98; hunkered down in Selaginella 2 & 4/99, 2/00; green, good 2/00; hunkered, OK 4/00; hunkered, green, good 2 & 4/01 green, good 4/99, 2 & 4/00, 2 & 4/01 1 flower eaten 2/95; flowers partially eaten 2/99; OK, dull green 4/99; hooded during weevil survey in summer 99; very poor, removed by weevil researcher 9/99; killed by weevils
																					· · · · · · · · · · · · · · · · · · ·		

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					E 93DN 3.30	4 93FL) 1	93FF	94DI	M 94FL 0 3	94FR 3	95 <u>DM</u> 2.00	95FL 3	95FR 9	96DM 2.40	96FL	96FR 2 2,disp	97DM 3.20	97FL 3+2	97FR 3+2	98DM 3.80	98FL 1+1fr	98FR 0	L2.23	99FL L 1fr R 2fr	L 1 damaged 2/94: 2 seedlings 2/04: 2
	.11		4.94	82													0.90	0	0	0.80	Ō	0	0.60	0	0 seedling or pup of 24.10; measured in one direction only 2/98; green, good 4/99, 2 & 4/00; purplish-green, OK 2/01; green, good 4/01
	13 1	1 14	.96	82		-											1.10	0	Ō	1.00	0	ō	0.90	0	0 seedling or pup of 24.10; measured in one direction only 2/98; green, good 4/99, 2 & 4/00; purplish-green, OK 2/01; green, good 4/01
24.1;	31 1		.96	82			- -										1.30	0	0	1.70	0	0	1.97	2fr	2 seedling or pup of 24.10; measured in one direction only 2/98; maroonish, OK 4/99; green, OK 2 & 4/00; green, OK 2/01; green, good 4/01
24.1	÷	14		82			····							-			0.70	0	0	1.10	0	0	1.17	Ö	discovered 2/01; green, OK 2 & 4/01 0 seedling or pup of 24.10; measured in one direction only 2/98, 2/00; green, good 2 & 4/00, 2 & 4/01
		-													:		0.90	0	0	1.50	0	0	1.30	0	0 seedling or pup of 24.10; measured in one direction only 2/98, 2/00; green, good 2 & 4/00, 2 & 4/01

	:.			I.— ~													SNA - H									
PL 1 24.	# [8 .16	ST# 1	DIST 14.97	ANGI 82	LE 93DN	193FL	93FR	94DN	1 94FL	94FR	95DM	1 95FL	95FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM 0.82	99FL	99FR	NOTES
	17	:	14.98									 				: : : : :		·					0.55			between the 2 heads of 24.10 & between 24.15 and 24.12, 24.13 is left; discovered 4/99; green, good 2 & 4/00; hunkered, just spines showing 2 & 4/01 between 24.10L and 24.11, discovered 4/99; one measurement only 2/00; green, OK 2 & 4/00; hunkered, green, OK 2 &
24.1 24.1			14.97 14.98							·	·							·					0.99		0	4/01 right of 24.17, in front of 24.10, discovered 4/99; one measurement only 2/00; OK 2 & 4/00; green, good 2 & 4/01
24.19	11	1	4.99	82																		· · · _ ·	0.85		0	behind 24.18, right of 24.10 left, discovered 4/99; one measurement only 4/99, 2/00, 2/01; OK 2 & 4/00; green, OK 2 & 4/01
- 24.2	0 1	1	4.92	84																			0.90	·		behind 24/19, right of 24.10 left; discovered 4/99; green, good 2 & 4/00; one measurement only, green, OK 2/01; green, good 4/01
24.30	0 1	1	4.98	84												1.	2.50	2	1+1A	2.80	2	ō	2.81	1+1fr	1+1A	green, good 4/99, 2 & 4/00, 2 & 4/01
24.3 ⁻	1 1	1	4.88	87													0.90	0	<u></u> 0	0.3?	0	Ō	1.29	0	0	green, good 4/99, 2 & 4/00; purplish green, OK 2 & 4/01
24.4(0 1	i	4.97	82												_			 				ŝ			by upper left edge of 24.3 tag, discovered 4/01; green, OK 4/01
25.00			7.29	70	2.40	 1		3.30	1		3.50	2	- 1	3.50	2 2	2,disp	4.00	3	2+1A	3.60	2 d	lisp?	1.60 2.81	Īfr		right of 24.10 cluster, discovered 4/99; green, good 2 & 4/00, 2 & 4/01 /ery orange 2/98; green, good 2/99 & 4/99; dark green, a few maroon tubercles, DK 2 & 4/00; purplish-green, OK 2/01;
. 20.00			(.12)	72	0.90	0		1.10	0	0	3.40			2.90	0	0	3.40	2		3.60	2 d	isp?	3.00		0 s s s	green, good 4/01 seedling by tag; seedling mia 2/96; seedling refound & tagged (26.1); flowers partially eaten 2/99; olive, OK 4/99; inking into ground, olive, OK 2/00; tepped on, green, good 4/00; dead, COD inknown 2/01

	- Hay's Sile	
PL # ST# DIST ANGLE 93DM 93FL 93FR 94DM 94FL 94F 26.01 1 7.29 70	R 95DM 95FL 95FR 96DM 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 99DM 99FL 99FR	NOTES
26.10 1 ~7.10 72		discovered 2/01; under dead body of parent, dull green, OK 2/01; just spines showing, OK 4/01
27.00 1 7.47 72 4.00 3 3 4.10 2		neasured in one direction only, tagged 2/98; green, good 4/99, 2 & 4/00; olive, DK 2 & 4/01
28.00 1 7.47 72 2.30 1 1 2.50 0	0 2.50 0 Dead	nly spines left
29.00 1 7.91 70 1.00 1 1.00 0	2.00 1 2.60 2 2 disp 4 10 5 3 2 3 4 70 5 3 4 70 5 4 70 5 4 70 5 7 7 7 7 7 7 7 7 7	sdln 3/93; 4 sdln 2/94; 2 seedlings 2 & /95; all seedlings mia 2/96
29.10 1 7.60 82		ght green, OK 4/99; reddish green, OK 2 4/00, 2/01; hunkered, OK 4/01
30.00 1 8.42 75 5.20 4 4 5.50 2	2.89 1+2fr 2 u 9 1 4.80 5 0 4.60 2 0 4.60 2 0 0 4.60 W	nder rock, flowers partially eaten 2/99; reen, good 4/99, 2 & 4/00; dead COD reevils 2/01
	1 1 <td>seedlings 3/93; 0 seedlings 2/95;short owers 2/95; visited by honeybee 2/96; oper tubercles have spine clusters moved 2/97; buried in grass 2/99; stink Ugs, green, good 4/99; green, good 2 & '00; purplish-green, OK 2/01; feels ollow and squishy, filled with maggots</td>	seedlings 3/93; 0 seedlings 2/95;short owers 2/95; visited by honeybee 2/96; oper tubercles have spine clusters moved 2/97; buried in grass 2/99; stink Ugs, green, good 4/99; green, good 2 & '00; purplish-green, OK 2/01; feels ollow and squishy, filled with maggots
31.00 1 6.40 74 1.90 0 0 2.10 0	0 2.50 1 0 2.10 nd 0 2.00 0 0 2.00 0 0 0 0 0 0 0 0 0 0 0 0	01
32.00 1 8.63 76 2.40 1 1 2.40 1		g & plant mia 2/98, 5/98, 4/99, 2 & 4/00
32.10 1 8.65 93	mia mia mia mia kata kata kata kata kata kata kata ka	ts of rooting in vicinity, nail found, plant tag mia 5/97, 2/98, 5/98 & 2/99
32.11 1 8.67 93		scovered 5/97; hunkered down in elaginella 2/99; popping out, green, good 99; pulling back in Selaginella, aroonish, OK, shrouded 2/00; shroud ose and removed, plant green, good 00; olive, OK 2 & 4/01
		edling of 32.1, discovered 2/01; not gged, olive, OK 2 & 4/01

<u> </u>		·																SINA - P									
PL # ST 33.00 1	<u> [# D</u>	IST /	ANGL	E 93DN	4 93FI	L 9:	3FR	94DM	94FL	94FF	8 95D	M 95F	1 95F	ER Q	ēрія			07044			1	1	1	,			
33.00 1	1 11).62	80	2.70	0	1	1	2.60	1	5	0 2.0	0	1	2	2 00	90FL	1A, 1	97DM	97FL	97FR	98DM	98FL	98FR		1 99FL		
34.00 1 35.00 1		.60	<mark>90</mark> 82	2.10	- 1	0	0	2 00 1.70	1251 S.F.)) <u>1:2</u>) 1.2	0	0	O	mia 1.10	0		2:90 mia 1.70	0		mia	0		2.5	6 2f r	disp AA1	 0. reddish 2 & 5/97; green 2/98; hunkered down in Selaginella 2/99; maroon, OK 1 4/99; hooded during weevil study in 6 summer 99; bad 7/99; looks dead, removed by weevil researcher 9/99; dead, COD maybe weevils plant & tag mia; tag relocated 5/98 0 hunkered down in Selaginella; popping out 2/97; back out, tag moved, replaced 5/97; measured in one direction only 2/98; really hunkered down 2/99; popping out_duli
35.10 1 35.20 1	10	.98 30	83																		-						green, OK 4/99; green, good, popping out, 2 & 4/00; OK 2/01; green, OK 5/01 green, good, popping out of Selaginella 2 & 4/00; tag mia, replaced, purplish-green, OK 2/01; tag loose, replaced, small chunk eaten out of one side, scarred over, dull purplish-green, OK 4/01 discovered 2/01; hunkered, green, OK 2 &
35.30 1 35.40 1	11.	·	83 83		·	+ 		· ·	· ·		 		+							·				1			4/01 discovered 4/01; green, good 4/01
35.50 1	11.	62	83					· · · ·				<u> </u>								1					·		discovered 4/01; green, good 4/01
36.00 1	11.	50	82	1.70	0		0	1.70	0	0	1.80	0 0		0 2	2.20	<u> </u>		0.70							┝· ·· ├		discovered 4/01; green, good 4/01
37.00 1	11.1	5	82	1.80	0			1.90	0	0								2.70	1	1	3.10	1	1	2.86			hunkered down in Selaginella 2/99; popping out, dull green, OK 4/99; green, good, popping out 2 & 4/00; dead, COD weevils/galleries 2/01
											1.90	O		0 1	.60	0	0	2.40	0	0	2.90	2	1	2.52	1fr	1	maroon, OK 4/99; olive, OK 2/00; ants swarming fruit, plant maroonish, OK 4/00; dull gray-green, OK-poor 2/01; active weevil feeding, removed for weevil study 5/01

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PL# S	T# DIST	ANGLE	93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL 9	5ED					T. 1	I	· · p ·	·····					
37.10	1 10.98	3 92							000101				190FL	<u> 96⊢R</u>	<u>97DM</u>	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
															2.80			2.60		1A	2.23	0	0	discovered 5/97; spines gray, body olive;
																								oad 2/99; gray spines, olive body, OK 4/99
																								& 2/00; new spine growth, dull green, OK
														100.0 100.0										1/00: dead, dry and sources in the Con-
37.20	1 11.01	95		<u>出来 清秋清</u> 緒																				4/00; dead, dry and powdery inside, COD unknown 2/01
					i I		, I								1.	<u></u>		And And And And And And And And And And	<u></u>	22101170				
38.00	1 10.32	82	4.50	2	2	3.80	2	red in a	3.10	Ö	Ö	3.00	0		1 10.000	R. S. Strategy							0	discovered 2/01; green, OK 2 & 4/01
												5.00	U	U	4.20	í () 1+1A	4.60	- 4	- 1	4.17	0	0	green, good 4/99; buried in grass, all and
								Chaine 2										1990						accidently trampled, green, good 2/00; dull
									10000				ndr grøn							144 年				Ireen, OK 4/00; dead, headless weevil on
														Classification of the second s							100		Ĩ	putside of cactus, nothing inside, collected
38.10 1	11.56	110		180-0615	ALC:																		f in the second s	or weevil research 2/01
	11.00					14 (S. 41)									2.30	2		2:70		disp?	0.44			
							요 연 · 연· 동문 · 동													uisp /	2.44	11r	1 disp g	reen with a few orange tubercle tips, OK
																							4	/99; hooded during weevil study in
																							S	ummer 99; spines gray, body dull dark
																							S S	reen, some tubercles gold, digging
												Citic de la								100			þ	eside, shrouded 2/00; shroud missing
38.20 1	11.75	108						Start Print of													W) 77		d	ead, COD unknown 4/00
															1.70	0	0	1.80	0	0	1.35	0	Ön	neasured in one direction only 2/98; not
				(Tanka) ali									小市開始			이 시 전에					4400 8			ooking good, spines gray, body dark
				A Stored & Robel													1. 1. 1. 1. 1.						- la	reen 2/99; OK, dark green, new spines
																							9 4	/99; dark green, OK, pulling into soil 2 &
								10 D I									Ger Hall States						4	/00; shrouded 2/00; shroud missing 4/00;
の調査を行った。						ipil: ac						10											े ी	unkered marconich OK prod
38.30 1																								unkered, maroonish, OK 2/01; collected, r weevil study 5/01
30.30	11.86	106					•			······································		- <u></u>	<u>en 19-aden</u>	120.2	2.10	0	0	0.40						
														[2.10	0	U	2.40	0	0	2.18	1fr	1A g	reen, good 4/99, 2 & 4/00; rock on top,
								1						ĺ		ĺ				İ			re	emoved 2/00; dark blue-green, good 2 &
38.40 1	11.72	106												j				i.					4,	/01
					I				[1	1.50	0	0	1.10	0	0	1.38			
			1						ł		ł	i i		1		_			Ŭ	0	1.00	U	Um	easured in one direction only 2/98;
j														н		1						İ		unkered down in dirt 2/99; hunkered in
			ļ							ĺ										ł			a	rt, green, good 4/99, 2 & 4/00, 2 & 4/01
38.50 1	11.99	105		1				···					· · ·		·			· ,						
	Í			ļ					!		ľ	1				Ì	Ì						di	scovered 4/00; green, good 4/00; dark
														i i		i						1	gr	een, good 2/01; reddish-green, OK 4/01
38.60 1	11.43	104	· .				ţ			ļ.				:		ļ	ĺ				ł		-	
38.70 1		4		-									ĺ		· •	- !					÷.			
00.70 1	12.00	102		ļ.						ŀ	:	1	· .		· +	· · · ·	••••	· · - ·	ļ				01	scovered 2/01; green, good 2/01
						i													:				.di	scovered 2/01; between two rocks,
			· ·	* • •		. I.,	-	·		İ			-	···· .	i.								gr	een, good 2 & 4/01

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PL #	ST	# DIST	ANGL	= 93DN	1 93FL	93FR	94DM	94FI	94FI	7 95DM 1 330	9551		OCDM					I								
39.00	· 1	10.05	84	4.30) 0		4.20			1 3.30) 0	Dead	90FL	96+1	H 97D	M 97F	L 97	FR 98	3DM	98FL	98FF	99DM	99FL		
39. 10	1	10.05	84	0.40) 0	ſ	0.60	C)	0 0.80	0	0				0 1.3	20	0	0 1	1 20						2 seedlings 3/93; 7 seedlings 2/94; dead, tag removed, grub hole & hollow stem 2/96
39.20		10.05	84	0.40	0	Ō	0.50	0		0.40	ō	Ō								1.30	0	0	1.15	mia		measured in one direction only 2/98; plant & tag mia 2/99; relocated, retagged, green, good 4/99; tag and plant mia 2/00; relocated, hunkered, green, OK 4/00; covered by vegetation, green, OK 2 & 4/01
39.30	2.1	10.05	84	0.40	0	0				0.40						0 0.4		0	0 De	ead						may be dead, looks gray 5/97; dead, COD unknown 2/98
39.40		10.05	84	0.40	0	0					0			mia		0 0.4	0	0	0 De	ead						mia in 2/96; relocated & measured in 5/96; maybe dead, looks gray 5/97; dead, COD unknown 2/98
										0,40	0	0	0.50	0		0 mi				mia			mia			accidentally removed when parent, removed, replanted & watered; plant & tag mia 2/97, 2 & 5/98; plant mia, tag
39.50	1	10.05	84							0.20	0	mia	0.50	mia	(0 mii	a		r	nia			mia			elocated 2/99; plant & tag mia 4/99 ag missing; mia 2/96; relocated &
39.60	1 1	10.05	84																							measured 5/96; plant & tag mia 2/97, 2/99 § 4/99
39.70	1	10.05	84								····					0.40		0		.50	0	mia	mia		r 	may be dead, looks gray 5/97; mia 5/98; plant & tag mia 2 & 4/99, 2 & 4/00, 4/01
39.80	1	10.13	84													0.40) 	0	0 0.	.40	0	0	mia		r r	nay be dead, looks gray 5/97; plant & tag nia 2 & 4/99, 2 & 4/00, 4/01
40.00	1	18.89	78	2.40	0	0	2.70	1	· 1	3.00	1		2.90	2	2	2 3.20		0	0 3	.20	2					discovered 4/01; one measurement only, green, OK 4/01
40.10	1	17.35	83				·								_				0 3.	.20	2	2	3.36	Ō	C	preen, good 4/99, 2 & 4/00; green, good, one tiny flower bud? 2/01; green, good /01
· · · ·													3.20	4	3,disp	4.70		5 3+2	A 4.	50	2	2	3.72	2+1fr	2 v d	isited by honeybee; green, good 4/99; ark green, good 2 & 4/00; dead, COD /eevils (galleries & exit holes) 2/01

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																JUNA - P	nay s Si	le						
PL #	ST#	I DIST	ANGL	E 93D1	M 93FL	93FR	94DN	1 94FI	94FF			LOFER				97DM								
40.20	1	17.30	0 85					1011		92010	1 92-5	. 95FH	1 96DV	л 96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FF	99DM	99FL 9	9FB NOTEC
40.30		17.93						-											4.60	·	disp	4.49	7+2fr	 9 discovered 2/98; 2 flowers partially eaten 2/99; green, good 4/99; two apical meristems, but still appears to be one stem, green, great 2/00; one fruit partially eaten, green, good 4/00; green, OK 2 & 4/01
40.31		17.91							·			 										1.26		0 discovered 4/99; under rock; green, good 4/99, 2 & 4/00; dull green, OK 2/01; green, good 4/01
40.40	1	17.96	80?				-		 	i 		·	·	·					 					discovered 2/01; dull green, OK 2/01; new spine growth on side, green, OK 4/01
40.50	ī	18.85	83						 		 				 				·			1.79		0 discovered 4/99; green, good, 4/99, 2 & 4/00, 2 & 4/01
40.60	1	18.85	84			 		-	,) 	. 		· · · · · · ·	ļ . —											discovered 2/00; green, good 2 & 4/00; dark green, OK 2/01; green, good 4/01
40.70	ī	18.87	84	+ -		 	ļ · · ·	<u>;</u>	·			<u> </u>	ļ											discovered 2/00; green, loose, good 2 & 4/00; green, good 2 & 4/01
41.00		40.00																						discovered 2/00; green, loose, good 2 & 4/00; tag mia, replaced, green, one brown tubercle, OK 2/01; pale green, good 4/01
41.00		18.62	78 78 78	5.60 0.50		3 0	5.20 nd								3		2	2	4.30	0		Dead		8 seedlings 3/93; 10 seedlings 4/94; some seedlings 2/95; 1 seedling 2/96 & 2/97 (41.04); not looking good, 4 new seedlings 2/98; looks dead, one seedling dead 5/98; hard, dry, COD unknown 2/99
41.02 1		18.58	78	0.50		0		nd	nd	mia mia	mia mia	mia mia	0.50 1.10		0		0	0	1.30	0		Dead		couldn't distinguish to recensus 2/94; hard, dry, solid, COD unknown 2/99
41.03 1		8.58	78			- - -							1. FU	mia	0	0.50	0	0	0.90	0		0.55	0	0 couldn't distinguish to recensus 2/94: mia 2/96; relocated & measured 5/96; measured in one direction only 2/98; hunkered 4/99; plant mia 2 & 4/00, 2 & 4/01
ļ		i		.		··· ··· ·		[,		i						0.40	0	0	0.80	0	0	Dead		measured in one direction only 2/98; hard, dry & solid, COD unknown 2/99

	От и				:							_									SINA - I									
PL # 41.04	51#	DIST	ANG	LE 9	3DM	93F	L (93FR	94	DM	94FL	94F	95D	мľ	95FL	95FR	96D	A 96	SFI	96EB	97DM	0751	0755		1	····	-1	· r - ·		
41.04		18.62	2 78														11.043				0.70	9/6	97FH		I 98⊢L	98FF	1 99DN	1 99F	L 99FF	NOTES
41.05		18.65																								U C) Deac			too many seedlings in the area to tell which one was 41.04 2/98; hard, dry, solid, COD unknown 2/99
41.06	1	18.65	78									.					 			· · · · ·		- - - - 		1.10					0 0	behind 41.06; measured in one direction only 2/98, 2/00; tagged 2/98; green, good 2 & 4/00, 2 & 4/01
41. 0 7	1	18.56	78						-		·	f 									 			1.20		0 0	0.77		0 C	in front of 41.05; measured in one direction only, tagged 2/98; green, OK 2 & 4/00, 2 & 4/01
41.08	1	18.60	78						 																· · · · · · · · · · · · · · · · · · ·		0.39		0	discovered 4/99; measured in one direction only, OK 4/99; plant mia 2 & 4/00, 2 & 4/01
41.10	1	18.53	78									-									0.80	ō								originally tagged as 41.07; discovered 4/01; green, OK 4/01
42.00	1	18.45	82	1	.40		-	0	1.3	30	0	Č	1.1	0	0	 	1.10					 				0	0.74		0 0	measured in one direction only 2/98; green, good 4/99, 2 & 4/00; under grass, green, OK 2 & 4/01
43.00	1	18.50	89	- 1	.00	0	 	0											0	0		0	0	1.80	C	0	1.75	• • • • • • • • • • • • • • • • • • •		very in the ground 2/96; measured in one direction only 2/98; green, good 4/99, 2 & 4/00, 2 & 5/01
44.00	1	18.50	90		.70	 0		0			0				0	0	1.40		0	0		0	Ō	1.50	0	0	2.09	(wedged under rock, measured in one direction only & 2/98; green, good 4/99, 2 & 4/00, 5/01
45.00		18.32	86		.90	0		0			्				0	0	1.90		1 1	,disp	2.90	2	1+1A	3.60	1	disp	3.44	·	1	green, good 4/99, 2 & 4/00; yellowish- green, OK 2/01; green, good 5/01
			1799. - 14									0	2.30	J	2	2	2.40		2	1+1 disp	3.20	2	3	3,40	3	disp	3.09	2+1f		hole in stem; no hole 2/96; dull green, OK
45.10	1 2	20.47	95	: .													1.30		2	2A	3.20	1		2.90			0.77			4/99; collected, killed by weevil 2000
45.11	1 2	21.06	97													· · · · ·								2:30			2.77			orangish, OK 4/99, 2/00; olive, OK 4/00; dead, COD weevils (exit holes) 2/01
45.20	1 2	21.33	93		•			- 25								! 	2.90		3	AL	4.60	E	4+1A	1.00					1	discovered 2/01; green, OK 2/01; green, good 5/01
····													- - - - - -									5	4+14	4.60	5	5	4.04	2+4fr		flowers partially eaten 2/99; green, good 4/99; green with maroonish tubercle tips, good 2/00; green, good 4/00; dead, COD weevils (galleries & exit holes) 2/01
																				1	and the	!	ł	l	I	ļ	!	x.		(galieries & exit noies) 2/01

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																				•			0.071	i ita j	301	10										
	PL #	ST#	# DIS	ST A	NGL	E 93D	M 93	FL !	93FR	94[DM :	94FL	94	R	95DM	95FL	95F	R 9	SDM		i la	6ED			··· ··· ·	Lan				- _т		Ŧ'·			·	
÷	45.21	10.1	21.	.33	95						1									301	L 9		970	VI 9	I/FL	971	-H §	98DM	_98F	L 9	8FR	99D	M 9	9FL	99F	R NOTES
· · · · · · · · · · · · · · · · · · ·	45.30				94		and a state of the																		U		U	1.50		0	0		52	0		0 measured in one direction only 2/98; green, good 4/99; hooded during weevil study in summer 99; hood missing 9/99; dull green, OK 2/00; purplish, OK 4/00; just spines left, COD unknown 2/01
	45 21																		3.00		5		5.1		6	4+2	2A	5.70		9	4	4.8	84 1	+5fr	3 dis Dea	p tag says 41.30; buds pinkish, lower d tubercles orangish 5/97; retagged 98; spines dull gray, poor, flowers partially eaten 2/99; olive, OK 4/99; dead, killed by
	45.31	4	21.	88	94								_							Lating and an					de alle - 19	ំ ដុំពុំ ស្រុ				<u>88</u> - 4	出土道					weevil 6/99
	45.32	1	21.8	89	94													1.6 1223														0.7	7			0 discovered 4/99; measured in one direction only 4/99; OK 4/99; yellow-green, OK 2 & 4/00, 2 & 5/01
یر در د در د																																0.7	5			0 discovered 4/99; measured in one direction only 4/99; OK 4/99; yellow-green, OK 2 & 4/00; barely visible, poor 2/01; dead, just spines left, COD unknown 5/01
1	15.33	1	21.9	00	94			a i									<u></u>																			
	15.34		21.9		94																											0.5				D discovered 4/99; measured in one direction only 4/99, 2/00; OK 4/99; yellow- green; OK 2 & 4/00; barely visible, poor 2/01; dead, just spines left, COD unknown 5/01
4	5.35	1	21.7	0	97					1			·	_																		1.38	3		(discovered 4/99; green, good 4/99; yellow- green, OK 2/00; olive, OK 4/00; yellowish- green, OK 2 & 5/01
4	5.36	1	21.7	1	97									•• •							l 					·								· · · ·	·	left of 45.36, discovered 2/01; green, OK 2/01; green, good 5/01
4	5.40	1	18.1	5	92												····	- - -	.50			0	2.40	 	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	(pearse	0.000			_						right of 45.35, discovered 2/01; green, under rock, OK 2 & 5/01
					· · ·												41 41						2:4U		2		2	2.60		2	2	2.34	1+	-1fr	Deac	discovered 5/96; flowers partially eaten 2/99; dark green, OK 4/99; dead, killed by weevil 6/99

	··		1																						
<u>PL</u> #	ST	# DIST	ANGL	E 93DN	M 93FI	93FF	3 941		FLOAD			I and		Т. Т.	т …= .							FR 99DM			
45.50) 1	17.67	92					7101 34	1 541	FH 95D	W 95FL	95FF	1 96DN	1 96FI	_ 96FI	R 97DN	V 97F	L 97F	R 98D	M 98F	80 1				
													1.4	0		0 2.2	n sta	Billion -	0 2.7	70		u aanw	99FL	99FH	NOTES
									Sacs deur								¥.		U 2.1	/U	0	2.65	1f	r 1	discovered 5/96; measured in one
																									direction only 2/98; under/rock 2/99;
																									Groop good 4/00 hereit is
													1												green, good 4/99; hooded during weevil
																							11 - <u>1</u> 80.		study in summer 99; dull green, OK 2 &
																			. A 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10		i i dana				4/00; dead, COD weevils (chambers, exit
45.51	1	17.92	93			it when	یت خد اخ	<u></u>											ALL TON				1 - Cars 		holes) 2/01
1					1															ion linergi - vir	04441,3**8993	STREAMENT OF L	<u> </u>	1993 (199 <u>8</u>)	
:		· ·					-				i														discovered 2/01; in grass, lanky, green,
45.52	! 1	18.03	93			-	-			· · · · ·	·	₽	· • • • • • • • • • • • • • • • • • • •										1		OK 2/01; green, good 5/01
1	ĺ						:			1															
45 50	1 :										i												I		discovered 2/01; in grass, green, good 2 &
45.53		18.11	94						+	· ·	· · · · · · · · · · · · · · · · · · ·	+		- .								Ì		f	5/01
45.60	1	22.20									:		1						1			·		· ·	
		22.20	96													3.10	5			22 2231				[discovered 5/01; green, good 5/01
																0.11		2	2 3.8	0	3	3 3.41	1+2fr	1+1A	one small seedling by tag 2/97; seedling
								12. Al 8.	NE CARAC				101.201.01										na truictí Níte a	Dead	mia 2/99; olive green, OK, spines gray
45.70	1	20.65	95				김 고 💐		16.																Aloo as a full ti
		20.00	90				:								+		<u>i</u>	<u> </u>			- distant				4/99; dead, killed by weevil 6/99
					[i.												3.7	U	4 dis	sp 3.32	4	0	discovered 2/98; all flowers partially eaten
i i							i.																		2/99; dull dark green, OK 4/99; green,
	;					1			1		i										ļ				good 2.8. 4/00 July 10, 0K 4/99; green,
í							:										Í								good 2 & 4/00, dark purplish-green, OK
45.00			·	L															1						2/01; dull, dark green, OK 5/01
45.80	1	20.58	95								· ·			4	<u>+</u> -			·							
	1			1			ļ												2.30	0	1	1 1.88	1	dien2	discovered 0/00. (
							1										Ì				1		'	usp:	discovered 2/98; flowers partially eaten
	700 m l													1	ĺ				:						2/99; green, good 2 & 4/00; olive-green,
45.90	1	20.59	95						42 1983 5			r - Litter be	in Constantin						1					' (OK 2/01; dull green, OK 5/01
										분이 가슴 15분기 분위 - 이상									2.50	j 👬 👘	1	0 1.92			
45.01	an e P																							ush (discovered 2/98; dead, COD unknown
45.91	1	20.55	96				i I						<u>. 92 Min 548</u>	<u> </u>		<u></u>			(注) 課題						2/00
							:											ĺ	1.20) (0	0 1.15	0	دا ــــهند ۱ ∩	discovered 2/09; in an al
							:			[Ĭ	Ŭ,	discovered 2/98; in rock crevice, right of
							!										Ì							į.	ag, one measurement only 2/98, 2/99,
		_					1					1					l l		1					1	2/00, 2/01; green, good 4/99, 2 & 4/00, 2
45.92	1	20.55	96				· · ·				·	·	- ·	·· _			l			1			'	į	§ 5/01
1		Í	.	1			i												1.40)	<u>.</u>	0 0.96	· · · · · · · · · · · · · · · · · · ·	- 1	
}			1		1			ĺ		İ	1										- -	0.30	U	0	discovered 2/98; in rock crevice, right of
-						:		1				1										1		j i	ag, one measurement only 2/98 2/99
				İ																				2	2/00, 2/01; green, good 4/99, 2 & 4/00, 2
46.00			· +·													1									§ 5/01
		į	(Í										L		·· ·- ·			·						
46.10	1	1.96	101					+		4	·		·					i						t	ag but no plant 2/00, 2/01
		•			1					1			ļ	ĺ						•	ļ		·	,	
ļ					ļ				:	:		i								1	:	1 1	1	· C	liscovered 4/00; green, good 4/00; tag
				;				i	1			I	1								:		I.	r	nia, replaced, slightly reddish-green OK
					ļ							1												2	2/01; slightly purplish-green, OK 5/01
																•						1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -			

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														•			••••	iuy 3 01								
	PL #	ST#	DIST	ANGLE	93DM	93FL	93FR	94DI	V 94FI									97FL	1 ···							
	47.00	1	14.20	90	3.50	1	- 19 (mail 1997)	1 32			2.70	JUL	93FR	96DM	96FL	<u>96FR</u>	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
	- 			. Anda							2.70	U	U	3.60	2		Deau					200			REAR INT	between rocks, only measured in one
:							19								3 23 14 14	disp				2,25						direction; COD unknown, stem hollow, no
	47 20	1	37.80	00	<u> </u>										1											incetton, COD unknown, stem nollow, no
	77.20		37.00	92							3.30	5	3	2.80	nd	1A	4.40	1	4A	3.20					A Street and a street of a	insects but maybe weevils 2/97
														ļ				- T	40	3.20	3	2+1A	2.84	1+2fr	2	very maroon, looks bad 5/97; maroon,
														ĺ												OK, behind juniper 2/98, 2 & 4/99; totally
								1						!												maroon, poor 2/00; purplish, OK 4/00;
1	48.00	.	8.93	102	2.20	ō		2 20											:							dark olive 2/01; pale green, OK 5/01
			0.00	IVL	۲.20	l V	C.) 2.2(J 0) (2.00		0	2.20	4	1 disp	2.80	2	2	2.80	2	2	2.30	16-		
1																						4	2.50		uispr	green, good 4/99, 2/00; stepped on?,
_	10.40			(augasii))				1												555						purplish, OK 4/00; dead, COD weevils
	48.10	1	7.52	123										1.80		0	0.00									(galleries, chambers, exit holes) 2/01
					y He Maria											U	2.00	0	0	2.30	0	0	2.19	0	Dead	discovered 5/96; hunkered, OK 4/99;
																				N.	in the second					hooded during weevil study in summer 99;
4	18.11	1	8.53	113	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		<u></u>		<u>3 612-118 - 17 -</u>	4884																dead, COD unknown 9/99
	1			_								1	ļ						j			<u>ر ، موالانت</u>	1.22	<u>1990-11 - 1991-1</u>	Lat and a services	
i		ł																	ļ							discovered 9/99; green, good, hunkered
	8.12		0.00									[1							ľ				1.	9/99, 2 & 4/00; tag mia, replaced 4/00,
-	0.12		8.60	113		1								•		+				· · · ··· +-				i		2/01; hunkered, dark green, OK 2 & 5/01
			-		1							Í			1								2.11			discovered 9/99; green, good, hunkered
														1				1								9/99, 2 & 4/00; tag mia replaced.
														:	1											hunkered, green, OK 2/01; ants
		İ						ĺ					ŀ	:							ĺ					swarming, partly covered with ant dirt,
	8.13		0.05	110	-					I					ļ				i			Í			9	green, OK 5/01
	0.13		8.65	113					!		Ì				·	+										
																	Ì	1	i			.	1.98			left of 48.14, 48.15, 48.16 and in front of
													1		1										4	48.17, discovered 9/99; green, a few
																			ł						0	orange tubercles, OK, hunkered 9/99
					ſ	Í					1													1	c	dark green, OK 2 & 4/00; tag mia
	Í	ĺ			ļ								[:						ł	1	Í		r	replaced, reddish, hunkered, ants
		ľ				1								:											5	swarming, poor 2/01; very hunkered,
													1			ĺ									c	green with some red tubercle tips, poor
	B.14	-							Í										1			1	l		e	5/01
4	5.14		8.65	113							İ			•	:				·							
					ļ						1							4	i			1	1.22	;	r	ight of 48.13 & left of 48.15 & 48.16 & in
													1					ĺ			1				1	ront of 48.17, green, OK 9/99, 2 & 4/00
	ĺ		ļ		l	i	I											ļ							l t	ag mia, replaced, ants swarming.
					ļ		ľ		1														i		F	nunkered, poor 2/01; very hunkered,
	1	l				!	ł]		[g	reen, poor 5/01
																1	····		·	:	1				L.	

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		· · ·	r =																		-										
PL # 48.15 48.16	,	# DIST 8.65		DM §	93FL	93F	R S	94DM	1 94FI	L 94F	FR 9	5DM	95FI	951	R 9	6DM	96F	L 96	FR	97DM	97FL	97F	R 98	DM	98FL	98F	R 99D 1.5	M 99	9FL		NOTES right of 48.13 & 48.14, left of 48.16 & in front of 48.17; green, good 9/99, 2 & 4/00; tag mia, replaced, ants swarming, dark green, OK 2/01' almost covered with ant dirt, green, OK 5/01
48.17		8.67	113																								1.8				right of 48.13, 48.14 & 48.15, & in front of 48.17; green, good 9/99, 2 & 4/00; tag mia, replaced, hunkered, poor 2/01; looked dead but not infested, COD researchers 5/01
		8.81	115	-	-																. .						2.4	4			behind 48.13 - 48.16, dull green, a few orange tubercles, OK 9/99; dark purplish green, OK 2/00; green, good 4/00; ants building mound on plant, plant green, OK 2/01; partly covered with ant dirt, green, OK 5/01
48.18 48.19		8.58 8.59																									1.8	3			discovered 5/01; green, OK 5/01 discovered 9/99; green, good 9/99, 2 & 4/00; dead, COD unknown 2/01 discovered 4/00; olive, OK 4/00; tag mia, replaced 2 & 5/01; hunkered, poor 2/01;
48.20 48.21	1. 1.	9.73 9.06	124 120																				2.	40	2	2A	2.4	2	2	2	hunkered, green, OK 5/01 discovered 2/98; green; good 4/99; green; good, hunkering 2 & 4/00; dead, stem hollow, COD unknown 2/01
48.211		9.20	119																								1.38	3			discovered 9/99; green, good, under rock 9/99, 2 & 4/00; tag mia, replaced, plant dark green, OK, ants swarming 2/01; dead, galleries and chambers, COD weevils 5/01
48.212	1 1	9.15	119																											2	hunkered, OK 2 & 4/00; tag mia, replaced 4/00, 2/01; olive, hunkered, OK 2/01; dead, COD weevils in root 5/01
														satinge - 1 1 					· [0.] 3.			······································								¦r	discovered 4/00; green, good 4/00; tag nia, replaced, olive, hunkered, OK 2/01; dead, COD unknown 5/01

— , , 13		· ,		,														ay 5 5									
PL # 5 48.213	<u>ST#</u> [DIST	ANGLE	93DN	1 93FL	93FI	R 94DI	4 94FI	L 94FF	R 95DM	95FL	95FF		OGEL		דה חי	.	070	- 		T	·····			- · ·		
48.213	1	9.14	119												- 301	n 9 7		97FL	978	7 98DM	<u>4 98</u>	SFL ↓	98FR	99DM	99FL	99FR	
																이 같다. 21 전 11 전 12 전 12 전 12 전 12 전 12 전 12 전											in front of 48.213, discovered 2/01;
10 01 1													81) SS														hunkered, olive, OK 2/01; dead, COD
48.214		8.80	118													<u>- 문</u> (1913) 11 - 11 - 11 - 11 - 11 - 11 - 11 - 11											unknown 5/01
																											discovered 2/01; dark olive; poor 2/01;
																											dead, galleries, chambers, puparia, COD
48.215	1	7.64	117					·			<u> </u>	2 <u>98</u>					š., 12										weevils 5/01
			·														:								1		discovered 2/01; hunkered, dark green,
48.216	1	7.87	117					· ·					<u> </u>	·	+-·		- !.										OK 2 & 5/01
																											discovered 2/01; olive, OK 2/01; green,
48.217	1	7.66	119			+		·· · · ·		<u> </u>	<u> </u>														ļ		good 5/01
																			1		-+	· — ·				···- ·· <u>-</u> ··	discovered 2/01, between the
																							ĺ				discovered 2/01; between small rocks,
48.22		7.63	110				· 📙 .																		1		light green, OK 2/01; very hunkered, poor 5/01
		/.00	10														- 1		+ ·		·	.		0.86			
								ļ					•											0.00	ł		discovered summer 99; hunkered 9/99, 2
40.00									İ							ļ											& 4/00; tag mia, replaced 4/00; hunkered,
48.23	1	7.65	112															di si inve									olive, OK 2 & 5/01
																							n I Xee 1997 Al Pante 1994	0.71			measured in one direction only, right of
																											48.24 & 48.25, discovered summer 99
																											hunkered 9/99, 2 & 4/00; tag eaten
															1.2.2.25				5000								replaced 4/00, 2/01; hunkered olive OK
48.24 1	7	7.66	112																								2/01; dead, gallery, COD weevils 5/01
												aras	1 and the second											0.65			discovered summer 99; between 48.23 &
																55 - 1479. A - 1			e despiù Alexandre								48.25, hunkered 9/99, 2 & 4/00; tag eaten
							11750																				replaced 4/00, 2/01; hunkered, olive, OK
																											2/01; possible puparia, COD weevils?
48.25 1	7	7.65	112		1				<u>e Chielen d</u>	anti ang Sila i	<u> 37</u>			31 (32) 		19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -											5/01
j			1									ĺ												0.89		(discovered summer 99; left of 48.23 &
			1								i		i.				1								•		48.24, hunkered 9/99; hunkered, green,
											-	ĺ						F		1						ļ	good 2 & 4/00; tag eaten, replaced 4/00,
48.26 1	7	.69	112					1. 729.	-																		2/01; hunkered, olive, OK 2 & 5/01
																								0.55			liscovered in summer 99; measured in
																					1				14		one direction only, hunkered 9/99;
			- 14 - F																								nunkered, OK 2/00; green, OK 4/00; tag
												1			•							:					oose, replaced 4/00; hunkered, olive, OK
									e ant le s													· .				2	2/01; dead, COD unknown 5/01
													·	1		· 1	<u>Ľ</u>			I		- J					

			- 1												JNA - I	-								
PL # ST# 48.27 1	DIST	ANGLE	93DN	1 93FL	93FR	94DM	94FL	94FF	95DM	95FL	95FF	96DN	/ 96FL	96FR	97DM	97FI	97FI	98DM				005	nater	F
																			JOFL	901	1.61	AALT	99FR	NOTES discovered summer 99; green, good 9/99; hunkered, OK 2/00; green, OK 4/00; tag loose, replaced, plant yellowish-green, OK 2/01; dead, weevil larva inside, COD
48.28 1	7.94	111																			1.45			weevils 5/01 discovered summer 99; green, good 9/99, 2 & 4/00; tag loose, replaced 4/00;
48.29 1	8.23	112																						hunkered, olive, half red, OK 4/01; dead, hollow, COD weevils 5/01 discovered 4/00; hunkered, OK 4/00;
48:30 1	10.23	124																2.90	3	disp	2.81	3+2f r		hunkered, olive, OK 2 & 5/01 discovered 2/98; measured in one direction only 2/98 & 2/99; hooded during weevil study in summer 99; dull green, OK 4/99, 2/00; olive, OK 4/00; tag loose, replaced, ants swarming, gray spines, green body, OK 2/01; COD weevils 5/01; one seedling replanted in hole 5/01
		124																			126		0	discovered 4/99; green, good 4/99; hooded during weevil study in summer 99; covered by loose prickly pear pad, removed, green, good 2/00; olive-OK
		122 125																						4/00, 2/01; dead, COD weevils 5/01 discovered 4/00; green, good 4/00; tag mia, replaced, plant olive, OK 2 & 5/01
48.50 1 1	10.52	130																1.90	3	disp		ffr		measured in one direction only, discovered 2/98; hunkered down in Selaginella 2 & 4/99; solid, dry, COD unknown 2/00
48,60 1 1	0.49	128									and the second second second second second second second second second second second second second second second				-			2.40	1	0	ļ	1fr	1	discovered 2/98; dull green, OK 4/99; reddish green, OK 2/00; ants swarming, plant green, good 4/00, 2 & 5/01
				•																- n	1.01	0	19	nunkered in Selaginella 2/99; popping out, green, good 4/99, 2 & 4/00; slimy orange nside, dead, COD unknown 2/01

																			hay s S									
PL # 5	T# DIS 1 10.6	TANC	LE 931	<u>DM 93</u>	FL 93	FR 9	4DM	94FL	94FF	195D	M 95	FI 95	FB	9601/		065			075	10		<u></u> r-		·				
48.70	1 10.6	84 13	1										HICE I			- 901	<u> </u>		9/FL	97	H 981	DM	98FL	98FF	99DM	99FL	99FR	NOTES
48.80	1 10.3																								0.89		0	green, good, tag mia, replaced 4/99; hunkered 2 & 4/00; ants swarming, hunkered, maroonish, poor 2/01; dead, COD weevils 5/01
48.81	1 10.1	1 12	.													-									1.26	(hunkered in Selaginella 2/99; green & good 4/99; green, good, hunkered 2 & 4/00; tag mia, replaced 2/01; plant hunkered, green, OK 2 & 5/01
48.90	1 10.3	5 12	∋	+	-	· · · +	- · ·	<u></u>																				discovered 2/01; green, good 2 & 5/01
48.91	1 5.1	1 146																							1.34	0		hunkered in Selaginella 2/99; popping out, OK, green, good 4/99; hunkered, OK 2 & 4/00, 2/01; hunkered, green, OK 5/01
49.00	1 25.0							- 2034			i a secon	9.44	7800 8.1	16 T. H. L.		-										,-		discovered 2/01; pale olive, OK 2 & 5/01
49.10	25.00																	5.30	8			60	6	all disp.	4.82	1+5fr	6 10 - 1 - 1	tag eaten, retagged 5/97; hooded during weevil study summer 1999; green, good 4/99, 2 & 4/00; dead, COD weevils (galleries) 2/01
49.20 1	25.10	122																1.40	0) -1.(80	0	0	1.99	1		measured in one direction only 2/98; flowers partially eaten 2/99; green; good 4/99, 2 & 4/00; dead, COD Moneilema?; one large chamber 2/01
49.30 1	22.06	119																							1.70			discovered 4/99; hunkered, green, good 2 & 4/00; dead, COD Moneilema?, one arge chamber 2/01
49.40 1	22.10	118			·						 														0.83	7	1	discovered summer 99; looks dead, but irmly rooted 9/99; green, new spiine growth, OK 2 & 4/00; tag mia, replaced 4/00, 2 & 5/01; olive, OK 2 & 5/01
49.50 1	22.24	118													·										2.07		s c s 4 r g	Slightly orangish, discovered 7/99; slightly orangish,OK 9/99; maroonish, OK, shrouded 2/00; shroud loose, removed 1/00; plant green, good 4/00; tag mia, eplaced 2 & 5/01; pale green, OK 2/01; green, OK 5/01
				-		; : .						·	· · · · · · · · · · · ·									1	i		1.56		2	liscovered 9/99; army green, OK 9/99, /00; green, good 4/00; pale olive, OK /01; green, good 5/01

		OT.	Thin		. ·	· · 1		· · · · · · · · · · ·																	5 31										
Bertoster terterterterterte	PL # 49.6	_ S∏ 0 1	DIST 22.1	7 ANC	LE 93 5	DM	93FL	931	FR	94DN	1 94	FL 9)4FR	95C	DM s	95FL	95F	R 9(6DM	96F	L	96FR	97D	M 9	7FL	97FR	98D	M	98FL	98FF	R 99DI	/ 99F		99FR	NOTES
un V a mpasi (₁₆ 14.	49.7		22.2	ľ					- -	· ·_	I		-		-	· · · · ·					·]										discovered 4/00; hunkered, OK 4/00; plant and tag mia 2 & 5/01
an an an an an an an an an an an an an a	49.8	0 1	22.40	5 11	8		· _							 												-									discovered 2/01; olive, OK 2/01; tag mia, replaced, pale green, good 5/01
	49.9	0 1	22.1	9 11	В		· -													 															discovered 2/01; edge of grass clump, green, good 2/01; tag mia, replaced, plant green, good 5/01
	49.91	1	22.30	0 11	B										-	· ·			·· -· .	 		·· ·· <u>-</u>													discovered 5/01; hunkered in Selaginella, green, OK 5/01
	50.10		25.75	5 12)																e. dia		2.3		' 										discovered 5/01; red at base, green above, OK 5/01
	50.20	1	25.81	120)																Links Street at					0	3.4	10	3	2	4.52	2 3+4	lfr I		in seed ring; measured in one direction only 2/98 &2/99; green, good 4/99; very poor, removed by WC, no evidence of weevils 2/00
	50.30	1	25.87	119				<u></u>			 			 - -								1 - -	1.6		0	0		_	2	1	2 80	1+2	fr	10	in seed ring; measured in one direction only 2/98 & 2/99; green, good 4/99, 2 & 4/00, 2 & 5/01
nya ny ansata na ara-ta na ara-ta ny	50.40		26.01	118														1 4 102		Yana yan			0.70		0	0	1.0	0	0	Ō	0.93		0	ļ	n seed ring; measured in one direction only 2/98; green, good 4/99; dull green, OK 2/00; green, good 4/00, 2 & 5/01
and the second second second second second second second second second second second second second second second	50.41	Ļ	24.32																												2.81			30	discovered 4/99; very poor, removed by WC, seven seedlings, dead, maybe veevils 2/00
	50.42 50.50	.	24.36									-	-				····								;			-		· ···	.=				discovered 5/01; green, good 5/01
	50.51		26.10 26.12				,													- <u>_</u>											2.51				discovered 5/01; green, good 5/01 eft of 50.60 & 50.61; discovered 4/99; dark green, OK 2/00; maroonish, OK 4/00; dive, OK, several seedlings behind it 2/01; dark olive, OK 5/01
														·	!											:					1.15			d h	eft of 50.60 & 50.61, behind 50.52; liscovered 4/99; dark green, OK 2/00; lunkered, OK 4/00; green, OK 2/01; lreen, OK 5/01

																					Ray's Si								20 0. 00
	PL # 50.52	ST 2 1	# DI 26	ST	ANGLE 118	930	93 M	BFL	93FF	3 94	ŧDМ	94FL	94FF	95DM	95FL	95FF	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FF	99DM	99FL		
:	50.53	3	26	.10	118	+			·		- +	·									; 								at 7 o'clock on 50.50, in front of 50.51, discovered 5/01; one measurement only 5/01; OK 5/01
	50.54	1	26.	.10	118				· - · ·						·	 								· · · · · · · · · · · · · · · · · · ·				1	at 8 o'clock on 50.50, left and above 50.51 & 50.52, discovered 5/01; one measurement only 5/01; OK 5/01
•	50.55	1	26.	.11	118		-+ .		- · -				· ··				· .										-		left of 50.53, in front of 50.54, discovered 5/01; OK 5/01
	50.56	1	26.	.10	118					- 1	-		·	4- • •••••			,				······			.					behind 50.54 and left of 50.51 & 50.52, discovered 5/01
	50.57	1	26.	08	118													·		 								5	at 9 o'clock on 50.50, discovered 5/01; OK 5/01
	50.60	-	26.	12	118																		Managara	11 Bar - 2013				<u> </u>	at 11 o'clock on 50.50, discovered 5/01; green, OK 5/01
	50.61		26	10	118																					2.45		Ş	ight of 50.50 & 50.51; discovered 4/99; getting squeezed, dark green, OK 2 & 1/00; just spines left, COD unknown 2/01
	50.70		20.		118																					1.78		C	ight of 50.50 & 50.51; discovered 4/99; lark green, OK 2/00; green, good 4/00; ust spines left; COD unknown 2/01
	50.80	1	26.3	34	118	÷				.			· ·· ·												. <u></u>	1.77		0 0	liscovered 4/99; green, good 2 & 4/00, 2 k 4/01
	51.00	. 1	26.0)2	107			-2	2	 	2	-		0.50												1.99		s 4	liscovered 4/99; hooded during weevil tudy in summer 99; olive green, OK 2 & /00; tag chewed, replaced, plant olive, DK 2 & 5/01
	51.01		26.0 [°]		107				£			?	?	3.50	3	0	3.50	4	2 disp		5	4+1A	4.30	3	disp	3.74	0	2 p s 2	seedlings 5/95; 4 seedlings at base /96; 3 seedlings 2/97 (51.01-51.03); oor, spines dull gray, body olive 2/99; pines dull gray, body olive, OK 4/99, /00; reddish, OK 4/00; olive, OK 2/01; abby, maroon, poor 5/01
		:															· .			0.90	0	Ū,	0.80	0	0	0.79	0	0 m 2/ in	easured in one direction only 2/98 & /99; OK 4/99; hooded during weevil study summer 99; dull green, OK 2 & 4/00; reen, OK 2/01; green, good 5/01

	<u> </u>		p = ··· =		······													iay 5 01	ie.							
	PL # 51.02	ST#	DIST	ANG	E 93D	M 93Fl	L 93FF	7 94D	M 94F	L 94FF	95DM	95FL	95FR	96DM	96FL	96FR	97DM	97FI	07EB						1	
	31.02	I	26.02	107	^				İ					+ 1			0.60	0	0	0.70	90FL		0.97	99FL 0	99FR	NOTES
;				İ															-	5	~	1 .	0.31	U	di	etween 51.01 & 51.04, measured in one irection only 2/98; OK 4/99, 2 & 4/00;
-	51 02	4	00.00													ſ										reen, OK 2 & 5/01
	51.03		26.02	107													0.50	0	0	mia			-			
	F4 04																						mia		m	ıla 98, 99, 00
:	51.04	1	26.02	107	'		i i i i i i i i i i i i i i i i i i i				and the state of t		<u>- 10 - 10 - 10 - 10 - 10</u>	<u>1800-000-000-000-000-000-000-000-000-000</u>	2		0.70	0	0	0.90	0	0	0.00			
:																ļ	_			0.00	Ų		0.89	0	0 06	ehind 51.01 & 51.02, measured in one
[51.05	-	26.02	107	00.4857.57	-																			4/	rection only 2/98 & 2/99; OK 4/99, 2 & /00; green, OK 2 & 5/01
	51.05		20.02	107													0.30	0	0	mia			mia	1.27.1		
	51.06	1	26.02	107				<u>.</u>			<u>ie vie ni</u>	<u>197</u> 7. <u>198</u> 9											IIIIa			ia 98, 99, 00
	ľ	ľ												!		:	0.40	0	0	0.40	0	0	mia		be	etween & left of 51.02 & 51.04,
								Ì	ſ																m	easured in one direction only 2/98 mia
	51.07	1	26.02	107												· · ·	· · · · +				·	···				99, 2 & 4/00; green, OK 2 & 5/01
																Í							i		be	etween and right of 51.01 & 51.02,
-										1			I												dis	scovered 5/01; one measurement only,
5	51.10	1	26.23	107						·	0.50	ō	0	mia		· .				- ;					-	een, OK 5/01
							1						Ű	ma			0.80	0	0	1.30	0	0	1.24	0	05	seedlings 5/95; tag & plant mia 2/96;
																								1	ne	eds tag 2/97; tag moved & replaced
																									5/5	97; measured in one direction only 2/98; K 2 & 4/00; hunkered, OK 2 & 5/01
 				··																		F				(2 & 4/00, Hunkered, OK 2 & 5/01
5	1.20	1	26.86	108				-		•	+ F			0.90	0		1.30			1.80					· _	
																Ŭ	1.00	U	0	1.60	0	0	1.47	0	0 me	easured in one direction only 2/98 &
																									2/5	99; hunkered down 2/99 & 4/99;
5	1.30	1	26.25	108	•							_								ļ					oliv	pping out, OK 2/00; green, good 4/00; ve, OK 2 & 5/01
		· ·		100										0.80	0	0	1.20	0	- <u>0</u>	1.30	ō	-0	1.28	0		
																ļ						Ĭ			din	g mia, retagged 5/97; measured in one ection only 2/98; tag mia, replaced,
Í		ļ	1									1									•				gre	een, good 4/99, 2 & 4/00; olive, OK 2 &
5	1.40	1 2	26.13	107		·		-			· · ·	-	!												5/0	11
			:										ĺ				0.90	0	0	1.00	0	0	1.00	0	0 ne	stled in, measured in one direction only
										:	į i									:		1			,2/9	38; nestled in 2/99; OK 4/99, 2 & 4/00
5	1.50	1 2	26.13	107	1		•	İ	† · · ·		1 1		· · · ·		····-		0.90	· - · · .	0	0.00					hur	nkered, green, OK 2 & 5/01
		;			I								I			:	0.30		U	0.80	0	0	0.76	0	0 dis	covered 5/97; measured in one
		:						! 						1	1							İ			alfe are	ection only 2/98; OK 4/99, 2 & 4/00; een, OK 2 & 5/01
														:			l							. !	gre	
																										,

.

	PL #	ст.				11121									•			ay 50							
	51.60	1	26.15	107	= 93DV	v 93⊢	L 93F	R 940	DM 94FI	94FR	95DM	95FL	95FR	96DM	96FL	96FR	97DM	97FI	97FB	98DM	98FL		00004		
	01.00	•	20.15	107											· · · ·	· ····	0.60		0	mia	301-L	JOLU	0.52		
	51.70	-		-	ļ	-	i :					: I			:					111104			0.52	mia	0 discovered 5/97; relocated, OK 4/99, 2 &
I	51.70	I	26.22	108		ĺ					1		· · ·	+	•• ••		0.60		0	0.70			·		4/00; green, OK 2 & 5/01
1				!											1		0.00			0.70	0	0	0.79	mia	0 discovered 5/97; nestled in, measured in
															1							!			one direction only 2/98; OK 4/99; poor.
	51.80	- <u>-</u>	25.94	108	÷		· _	·			•1				j i									ſ	grayish, hard, maybe dead 2/00; green,
1	01.00	,	23.94	100											-		1.10		0	1.30	0	0	1.49		OK 4/00, 2 & 5/01
:												1								1.00	U	0	1.49	0	0 discovered 5/97; measured in one
1			ĺ																		-				direction only 2/98; hooded during weevil
!							ĺ					1													study in summer 99; green, good 4/99, 2/00; plant mia 4/00 & 2/01; purplish-
1 1	51.81	1	25.99	108					·	I					İ. İ										green, OK 5/01
			_0.00	,00													0.90		0	mia	···· · 4	·	mia	·	
1		ľ									i												ma		discovered 5/97; poor, hard, maybe dead
			ļ							l í														1	2/00; green, OK 4/00; almost covered by gravel, green, OK 2/01; hunkered, green,
	51.82	1	26.02	108				·	+	╄													İ	1	OK 5/01
					1												1.20		Ō	1.60	0	0	1.38		0 discovered 5/97; OK 4/99, 2 & 4/00;
	51.83	1	26.03	108																				-	green, OK 2 & 5/01
			20.00	100										1			1.20		0	1.20		0	1.37		
	51.90	-				 						ĺ			1							Ĭ	1.07	0	0 discovered 5/97; OK 4/99, 2 & 4/00; green, OK 2 & 5/01
	51.90		26.59	106										i			2.40			0.00					
													l				2.40		'	2.30	1	0	2.47	0	0 discovered 5/97; tag mia, replaced,
											(i I		i						[slightly trampled 2/99; hunkered, poor
	0.00	<u></u>									ļ	1		-											maroonish 4/99, 2/00; new spine growth,
5	2.00		42.30	124	4.80	2		2 4.6	0 2		5.10	9	1+4	4.30	3	0	4.90	P							olive, OK 4/00, 2 & 5/01
															Ŭ,	Ū	4.50	5	5	4.90	3	3	4.09	0	1A 2 seedlings 3/93; flowers eaten 2/95; 7
																									seedlings; 4 scars 5/95; brownish green 2
																									seedlings at base 2/98; 3 seedlings at
			- 1																						base 5/98; getting maroonish 1 seedling
																									at base 2/99; getting maroonish, 2
			ļ			÷																		1	seedlings at base 4/99; removed by JMP, larvae inside 2/00; six seedlings (2
																									uprooted), placed rock in hole 2/00; all
5	2.10	1 4	12.30	124	0.30		-	0.60														:			mia 4/00, parent dead, killed by weevil
	1				0.00	U _i	(0.60	ט וי	0	mia		na	0.60	0	0	0.50	Ō	0	0.80	0	· · · · ·	0.59	0	
		ĺ		1				ĺ		-			1				-				i .		1	Ŭ	0 seedling 1" from 52.00 3/93; still there 2/94; measured in one direction only 2/98
			:		i i											; ; ;			l		'				& 2/99; green, good 4/99; hunkered, OK 2
	!											:													& 4/00; green, good 2 & 5/01
								1	· . · ·			-				•		.	- 4-				I.		

	- J	<u> </u>														-	ite							
PL# S	1# DI 1 42	ST A	NGLE 93DN	1 93FL 9	93FR	94DI	M 94F	L 94FF	₹ 95DM	95FL	95FR	96DM	1 96FL	96FR	97DM	97FL	9766							
52.20		8"	124	·								0.60	0 0	Ő				mia	98FL	90FR	mia	99FL		
52.20	1111111111111	o ast							2.00	0	C	1.80) 1	0	3.00		2 2		State States	3	2.93	Ofr	2 dian	seedling in rock crack below 52.10
		52																				OIL	z usp	OK, maroonish 4/99; hooded during weevil study in summer 99; looks dead,
																								maybe weevils, removed by weevil
52.30	1 42.	46	128									1.60												researcher 9/99
52.40	1 42.	26	124	· ·		Í			+ ··· ·					0	2.20	(1	1.90	2	2	1.98	1fr	0	green, good 4/99, 2 & 4/00, 2 & 5/01
1												1.60) 1	1	1.60	1	1	1.80	1	disp	1.45	ō	0	measured in one direction only 2/98 &
	· _																						- 1	2/99; green, good 4/99, 2 & 4/00; green
52.50	1 42.	37	124			· ·				<u>+-</u>			-	·						L				OK 2 & 5/01
	- +		····]												:	1		discovered 2/00; green, good 2 & 4/00;
53.00	1 48.	55	133									+ ·	-	·				+		· •				plant mia 2 & 5/01
54.00																					I			discovered 2/01; purplish, OK 2/01; green, OK 5/01
54.00 1	48.	38	133		l							·	ļ 4	· · · ·	•••••••••••••••••••••••••••••••••••••••						İ		. 1	
54.01 1		45									i										ļ			discovered 2/01; dark blue-green, OK 2/01; green, good 5/01
	48	45	133					i					1				-							
55.00 1	52.	75	134							-						Nyl - 131	r	MARGING AVEN			i			discovered 5/01; green, OK 5/01
																								discovered 2/01; split onpen, green, poor
56.00 1	_ 52.5		135			נעיט וערש בעשרייי	Le dubling her og s	···	<u></u>		indriften v.						e electric come aca							2/01; dead, COD unknown 5/01
57.00 1	52.6	3 5	135																	Sector Sector	<u>.</u>	-		discovered 2/01; olive, OK 2 & 5/01
58.00 1	52.6																							discovered 2/01; hunkered, green, OK
			135							-		<u> </u>					<u> </u>				2			2/01; COD unknown 5/01
59.00 1	52.7	'0 ⁻	35												Ben - Idea			1000	Service States					discovered 2/01; olive, OK 2 & 5/01
60.00 1	52.7	2	35																					liscovered 2/01; COD maggots 5/01
																						- 1935aŭ () 1936a		discovered 2/01; olive, OK 2/01; dead,
61.00 1	52.6	i0 1	35			e e e como de contra da	f	· ·																COD maggots 5/01
62.00 1	50 7	7 4				_																		discovered 2/01; under rock, olive, OK 2 &
62.00 1	52.7		36				 																	
	1 .		36														ł			• •	ļ	•		liscovered 2/01; olive, OK 2 & 5/01
63.00 1	52.6	5 1 	36		i I			.				·	-						ł		:	ļ		liscovered 2/01; green, OK 2 & 5/01
64.00 1	48.1	0 +	24										i			ļ	:				;	•	C	liscovered 2/01; dark green, OK 2 & 5/01
01.00	τ 0.1.	<u> </u>	04		•				:							1		-		ł		:	d	iscovered 2/01: huntered
			i.			-							_			1							5	liscovered 2/01; hunkered, green, OK 2 &
																				I			÷	

PL#	S	Ţ#[C	IST	ANGLI	E 93D	M 93I	FL 9:	3FR	94DM	94FL	94FF		1 95EL	055	B 061				07014		172	·1	r [.]	···	R 99DM			
65.0	0	1 4	8.00	134										0.01	11 301		OFL	90FH	97.DIM	97FL	97FR	98DM	98FL	98F	R 99DM	99FL	99FR	NOTES
66.0	0 -	1 4	7.96	134						.																	:	wedged between two rocks, discovered 2/01; green, good 2 & 5/01
67.00				134						.				 					·		 							discovered 2/01; reddish-green, OK 2 & 5/01
68.00) D 1	1 4	7.89	134									ļ 	 														between rocks, discovered 2/01; olive, OK 2 & 5/01
69.00		1 4	7.80	134							- · ·	+	 															discovered 2/01; dull green, some reddish tubercle tips, OK 2 & 5/01
70.00	$\frac{1}{1}$	4	7.80	134				• • •																		+ · <u>-</u>	; <u> </u>	discovered 2/01; purplish, OK 2/01; olive, OK 5/01
71.00			7.78	134						· ·			L	 								T		· ·		· · · · · · · · · · · · · · · · · · ·		discovered 2/01; green, good 2 & 5/01
72.00			.87	134				4			-										Ì						··	discovered 2/01; dark olive, OK 2 & 5/01
73.00	· ·		.80	134						·· · ·											+· ··		··					discovered 2/01; green, OK 2 & 5/01
74.00	[.83	134	Ì			.	· ··															+··· _				discovered 5/01; green, OK 5/01
75.00	Ĺ _	1.	.65	134			1.	.			· · ·					-								+		· · · ·		discovered 5/01; green, OK 5/01
76.00			.55	134 134																						•••••••••••••••••••••••••••••••••••••••		discovered 5/01; in grass clump; green,
77.00	- L	· • • • • • • •		135		·						·	 										····	÷				discovered 5/01; green, OK 5/01
78.00	·		.08	135			·					ļ			.		_	[discovered 5/01; green, OK 5/01
79.00	1	· · • • • • • •		136	- ··· ·		- !		·												·						••••	discovered 5/01; green, good 5/01
80.00	1	18	.33	136																							:	wedged between three rocks, discovered 5/01; one measurement only, green, good 5/01
	•			130						- · · ·											- · · · · · · · ·	· _ · _					··	discovered 5/01; green, OK 5/01
		1.	·· ·					·	.	· · ·	— · · ·												• • •=			·	· · ·	
Stake 2	= G	P\$2;	R02	1620A				.		· · · · •																		· · · · · · · · · · · · · · · · · · ·
1.00	2	-53	30	172		·		• -			··· -	·			· ·													
2.00	2	~53.	31	172						- .																	[[eft of 2.00, discovered 5/01; green, good
3.00												4			:					:						• •	r E	ight of 1.00, discovered 5/01; green, good //01
0.00	-	-00.	ייי	172					1			:					,		· .i.							•	C	liscovered 5/01; olive, OK 5/01

	<u> </u>	OT I			-		1		r									iay 3 01								
	PL #) 2		ANGLE 298	93DM 2.50	93FL	93FR	94DM	94FL	. 94FR	95DM	95FL	95FF	96DN	1 96FL	96FR	97DM	97FL	97FR	98DM	98FI	ORFE	R 99DN	1 99FL		· · · · · · · · · · · · · · · · · · ·
	00.0		2.00	290	2.50	0		2.60	1	1	1.90	0	•	0 2.3	0 0				1	2.70			2.4		·	NOTES
								1																	OK green cover	ew spines 5/96; looks ed by soil & litter from
								1		1			1												heavy rains 2/97	uncovered 2/98; OK
																-									5/98 & 2/99; greer	n, good 4/99; shrouded
													ĺ												2/00; shroud miss	ing 4/00; olive, OK 2 &
-	54.00	12	1.97	316	3.00	2		0.00	C Heart Da	1.10 mm		ļ.,	 												4/01	
				010	0.00	4	۷	2.80		0	3.00	3		3 3.40	0 2	2 disp	4.10	. 2	2	3.80	2	2 dist	3.35	2fr	Dead ants swarming fru	+ 5/00-20-2
				2.541. 																	s Serve e Étile				looked dead snin	es dull gray, squishy, but
																									partially green with	n roots, replanted 2/99;
								가지 않는 것 11 분위												an Basal					removed for weev	il study, killed by weevils
	55.00	2	3.12	340	3.50	3	3	3.60	9		0.00														4/99	
	56.00	2	4.31	338	2.80		<u> </u>		200 (d) (d) (d) (d) (d) (d) (d) (d) (d) (d)	2	<u> 1887 - Jone do</u>			299 C. Had	<u>910 6 (100)</u>										looks bad 5/95; ho	llow, just spines 2/96
İ				000	2.00			2.70			2.40	1	1 scar	2.60) 1	1A	3.30	2	2	3.60	2	2	3.56	1fr	1 1 scar 5/95: fruit v	ellowish, soft, plant OK,
									-									i							a few orange tube	rcles 4/99; hooded
								I															[during weevil stud	y in summer 99: dull
					Í																				green, OK 2 & 4/0	0; dull green, OK, sort
	56.01	2	4.40	341									-	· · · · · ·										[[of collapsed on on	e side 2 & 4/01
								ł															[coming up at edge	of tag, discovered
							:					[1											2/01; not tagged, c	reen, good 2/01; green,
	56.10	2	4.36	337		†		· - 1					· · · · · ·	· · · · - ·	+										OK 4/01	
			1																			Ì	1.42		discovered summe	er 99; olive green, OK,
1.																	-			Ì					squishy, tagged 9/	8/99; dull green, OK
ļ	57.00	2	4.25	340	1.30	0	0	1.30	0	ō	1.30		- ö	1.40	+										2/00; green, good	4/00, 2 & 4/01
									Ū		1.00	0	U	1.40	U	0	2.30	1	1A	3.00	1	1	2.30	Ō	0 very hunkered dow	n 2/99; comina out
							:																		green, good 4/99, 2	2 & 4/00; dull green, OK
	57.10	2	4.10	346			;			··				2.60	$\left - \right $		0.50							-	slightly hunkered 2	& 4/01
 				,			:							2.60	3	disp	3.50	3	3	3.50	2	disp	4.01	2+1fr	3 green, good 4/99, 2	2 & 4/00: green with
[57.20	2	3.24	350			• • •	-						· · ·				[I	one reddish tuberc	le tip, OK 2 & 4/01
									ļ						1	ſ	ĺ									ddish, OK 4/00, 2/01;
: •	60.00	2	7.96	344	1.40	- 0	0	1 50						·			}								olive, OK 4/01	
					110	0	0	1.50	U	0	1.80	1	1	1.90	0	1 disp	2.80	1	1A	3.10	- 1	1	2.93	1+ 1 fr	3 tag loose, retagged	2/99: groop good
				į					i .		l		ĺ												4/99; maroonish C	K 2 & 4/00; tag mia,
																									replaced, plant hun	kered, green, OK 2/01;
		!		.	I				:			ļ													popping out, green	good 4/01

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PL #	ST#	DIST	ANGLE	93DM	93FL	93FR	94DM	94FL	94FF	95D	M 95FL	95FR	96DN	1 96FL	96FR	97DM	975	0760						· · · · · · · · · · · · · · · · · · ·	
60.10 60.11			346													0.80		0	1.30	98FL 0	98FR	99DM 1.39	99FL () 99FF D (NOTES discovered 5/97; measured in one direction only 2/98; tag loose, replaced 2/99; green, good 4/99; hunkered, green, good 2 & 4/00; tag loose, replaced, yellowish-green, OK 2/01; green, good 4/01
60.20		9.15			- -	·							·	: : : :				· · · · ·							coming up ~1cm down slope from tag 60.10, discovered 2/01; not tagged, green, OK 2 & 4/01
60.30	2	10.91	340											-								1.80			discovered summer 99; green, good, tagged 9/8/99; reddish green, OK 2/00; green, good 4/00; reddish-green, good 2 & 4/01
60.40		10.95						·										-				1.52		1	discovered summer 99; hunkered 9/99; hunkered, green, good 2 & 4/00; popping out, dull green, OK 2/01; hole eaten in center, scarred over, dull dark green, poor 4/01
60.41	_	10.96	337						91 a 1													1.08			discovered summer 99; left of 60.41; hunkered 9/99; popping out, green, good 2 & 4/00, 2 & 4/01
60.50			337											 	· ·			-	-			1.28			discovered summer 99; right of 60.40, hunkered 9/99; popping out, green, good 2 & 4/00, 2/01; center eaten, scarred over, hard, tan, very poor 4/01
60.51	2	11.10	337		· - · -				i	•				 	·			·	~~~~			1.14	, ,		left of 60.51 & 60.52, discovered summer 99; hunkered 9/99; popping out, green, good 2 & 4/00, 2/01; hunkered, green, OK 4/01
60.52	2 1	1.09	337											· · · · · · · · · · · · · · · · · · ·								1.05			right of 60.50 & 60.52, discovered 9/99; hunkered 9/99; popping out, green, good 2 & 4/00, 2/01; hunkered, green, OK 4/01
					-		-	-						·			- L.								between 60.50 & 60.51, discovered 2/00; green, OK 2 & 4/00, 2 & 4/01

PL #	ST#	† DIST	ANGLE	E 93DM 93FL	93FR	94DM	94FL	94FR {	95DM 9	95FL 9	5FR 9	6DM 9	96FI [96FR	97014	0751		00014	000		_ 72 . 3		T · I	· · ·
60.600 60.601				· ·			· · · · ·									<u></u>	9/rn	90014	98FL	98FH	0.73	99FL		NOTES right of 60.604 & 60.50, discovered 9/99; nunkered 9/99; hunkered, green, good 2 & 1/00; purple-green, hunkered, OK 2/01; green, OK 4/01; tag mia, replaced 2 & 1/01
60.602	2	11.08	337																		0.75		r 7 2	behind 60.612; discovered 9/99; neasured in one direction only 9/99; nunkered 9/99; hunkered, green, good 2 & /00; purplish-green, hunkered, OK 2/01; nopping out, green, good 4/01; tag mia, eplaced 2 & 4/01
60.603	2	11.08	337																		1.26		n 4 e ta	ght of 60.603; discovered 9/99; neasured in one direction only 9/99; unkered 9/99; hunkered, green, good 2 & /00; purplish-green, OK 2/01; mostly aten to soil survace, only 2 tubercles left, an color very poor 4/01; tag mia, replaced & 4/01
		11.06																			1.38		9 p e tu	off of 60.602, discovered 9/99; hunkered /99; hunkered, green, good 2 & 4/00; opping out, green, good 2/01; mostly aten to soil level, only 2 tan colored ubercles left, very poor 4/01; tag mia, eplaced 2 & 4/01
60.605			337																		1.10		6 9, 9 9 9 9	2 o'clock, left of 60.600 and in front of 0.605, 60.602 & 60.603; discovered '99; hunkered 9/99; hunkered, green, ood 2 & 4/00; popping out, purplish- reen, good 2/01; eaten to soil level, maining body gold, very poor 4/01; tag ia, replaced 2 & 4/01
							_		·												0.83	.	di go	0 o'clock between 60.604 & 60.606; scovered 9/99; hunkered 9/99; green, ood 2 & 4/00; plant mia 2 & 4/01; tag ia, replaced 2 & 4/01

		· -1														•	-										
PL 60.€	# S 106	ST# [2 1	DIST 11.08	ANGL 337	E 93DN	M 93FL	. 93FF	94D	M 94	FL 94	IFR 95	5DM 9	95FL	95FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
60.€	07	2 1	11.11	337							,					· · · · · · · · · · · · · · · · · · ·			· ·					0.53			9 o'clock behind 60.605, left of 60.603, discovered 9/99; hunkered 9/99; hunkered, green, good 2 & 4/00; tag mia, replaced 2 & 4/01; popping out, green, good 2 & 4/01
60.6	08	2 1	1.12	337		, ,						•						· ···- ···						0.91			behind 60.606 & 60.603, in front of 60.608; discovered 9/99; hunkered 9/99; dull green, hunkered, OK 2 & 4/00, 2/01; tag mia, replaced 2 & 4/01; popping out, green, good 4/01
				337	j ,																			0.65			left of 60.609 and right of 60.610; discovered 9/99; hunkered 9/99; green, good 2 & 4/00; reddish-green, OK 2/01; tag mia, replaced 2 & 4/01; green, good 4/01
60.61	0 2	2 1	1.12	337	 																			0.62			right of 60.608 and behind 60.607, discover∈d 9/9€; hunkered 9/99; green, good 2 & 4/00; tag mia, replaced 2 & 4/01; green, OK, hunkered 2/01; green, good 4/01
60.61				337						-														0.37			left of 60.608, discovered 9/99; measured in one direction only 9/99; hunkered 9/99; behind 60.607 and left of 60.611; hunkered, green, good 2/00; green, good 4/00; tag mia, replaced 2 & 4/01; reddish- green, OK, hunkered 2/01; hunkered, green, good 4/01
60.61								· · ·															· · · ·	0.86		r ç t	right of 60.610 and behind 60.601, discovered 9/99; hunkered 9/99; green, good, hunkered 2 & 4/00; tag mia, replaced 2 & 4/01; olive green, OK 2/01; green, good 4/01 behind 60.600, right of 60.602, in front of 60.601, discovered 2/00; green, good 2 & 4/00; tag mia, replaced 2 & 4/01; purplish-
			I		i	-							- 1.		. :	1					!]				ç	reen, OK, hunkered 2 & 4/01

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		lor.	DIOT				=-		· . — ·-	·		-														
ł	613 0.613	2	11.12	337	= 93DM	93FL	93FR	94DM	94FL	94FF	95DM	95FL	95FR	96DM	96FL	96FI	R 97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL		NOTES discovered 2/00; between and behind 60.610 & 60.608; green, good 4/00; tag mia, replaced 2 & 4/01; plant mia 2 & 4/01
	60.70		11.09										· · · · ·		• • • • • • •			 -					1.40			discovered 9/99; hunkered 9/99; hunkered, green, good 2 & 4/00, 2 & 4/01
	61.00 61.10		7.87 7.87	346 346	0.60		0 0										mia			i mia			mia			plant & tag mia 2 & 5/96, 2 & 5/97, 2 & 4/00
							Ū	0.50			0.90	0	0	1.00	0		0 1.40	0	0	1.80) 0	1.73	0		nestled in, measured in one direction only 2/98; nestled in 2/99; green, good 4/99; nestled in, green, good 2 & 4/00, 2 & 4/01
:	61.20 61.30		7.87	346 346	0.40		0		1								0 0.70	0	0	1.10	C	0 0	1.82	Ō		measured in one direction only 2/98; green, good 4/99; dark green, good 2 & 4/00, 2 & 4/01
· · · · · · · · · · · · · · · · · · ·							0		0	0	1.00	0	0	1.30	0		0 1.60	1	1A	mia			0.88	mia	0	nestled in 2/96; tag & nail loose 2/98 & 2/99; relocated, green, good, tag & nail loose 4/99; hunkered, green, good 2 & 4/00; tag and nail loose, replaced, plant very hunkered, green, OK 2 & 4/01
	61.40 61.50		7.87 7.87	346 346	0.80	0	0	0.70 0.80	0			mia mia	mia	0.60	0		0 0.80			mia			mia			etagged 2/97; plant & tag mia 5/97; 2/98, 5/98, 2/99 & 4/99
	61.60	2	8.19	355			_	0.00					mia				0 1.10	0	0	2.30	1	1A	2.19	1fr	r r	ag mia 2/96; relocated & retagged 5/96; nestled in 2/98 & 2/99; green, good 4/99; nestled in, green, good 2 & 4/00; tag and nail loose, plant mia 2 & 4/01
	31.70		8.05	346							0.80	0	0	1.20	mia) mia			mia			mia		i	under rock; mia 2/96; relocated 5/96; tag oose, not at same measurement 2/97
i	1.80	2	7.50										-				1.10	0	0	1.40	0	0	1.55	0	8	between rocks; measured in one direction only 2/98, 2/99, 2/00; green, good 4/99, 2 & 4/00; purplish-green, good 2/01; green, good 4/01
	,1.00	4	7.50	344									-				0.60		0	1.10	0	0	0.71	0	r	n rock crack; discovered 5/97; tag mia, etagged 2/99; green, good 4/99; just pines left, COD unknown 2/00

I	⊃L#	ST#	DIST	ANGLE	93DM;	93FL	93FR	94DM	94FI	94FR	95DM			06014			07014	0701	0750	1	····			······································	
	61.90	2	7.95	346							000.00		901 M	300101	JOFL	<u>90-11</u>	0.60	9761	9758	98DM mia	98FL	98FR	99DM 0.89	99FL mia	99FR NOTES 0 discovered 5/97; tag & plant mia 2/98 & 5/98; tag back, but plant still mia 2/99; relocated, green, good 4/99; nestled in, green, good 2 & 4/00; tag and plant mia 2
	62.00	2	7.89	346	1.20	0		0.90	0	ō	0.80	0	0	1.30	0	0	1.00						··· ··· ···		& 4/01
	62.10	2	7.80	346							0.00							0	0	2.20	1	1A	2.58	0	0 7 seedlings 3/93; under rock 2/94; 5+seedlings 2/94; no seedlings 2/96; green, good 4/99, 2 & 4/00; hunkered, green, OK 2 & 4/01
	52.20	2		348?										1.50	0	0	1.20	0	0	1.80	Ō	Ō	1.70	0	0 loose in soil 2/96; still loose, healthy 2/97 & 5/97, 2 & 4/99; still loose, green, good 2 & 4/00; green, good 2 & 4/01
 																				-			2.12		0 discovered in shin oak clump 4/99; green, good 4/99, 2 & 4/00; olive, OK 2 & 4/01
• •	64.00 65.00		8.27 8.18	355 356	4.60 5.90	3					4.50		0	4.70			Dead								COD unknown, stem hollow, no insects
	35.10		6.09		5.90	6	5	5.50	3	0	4.60	4	2	4.30	5	2,disp									1 fr. with hole & seeds dispersed 5/96: COD unknown, stem solid
	5.20																1.90		0	2.30	2	1A	2.45	1A	0 discovered 5/97; hooded during weevil study in summer 99; green, good 4/99, 2 & 4/00; dark green, good 2/01; maroonish- green, OK 4/01
			6.13													3	0.60		0	0.90	0	0	0.89	0	0 discovered 5/97; really hunkered down 2/99; popping out, green, good 4/99, 2/00; hunkering, green 4/00; popping out, dark green, OK 2 & 4/01
	6.10		6.48 7.80		1.10	0	0	1.40	0	0	1.80	1	0	2.10	nd	1	3.20	2	nd	3.30	3	3	3.01	2fr	2 maybe stepped on 2/98; hunkered in Selaginella, OK 2/99; green, good 4/99, 2 & 4/00; good 2 & 4/01
			1.00	6 		·																	0.68		0 discovered 4/99; left of 66.20, at edge of seed ring; OK 4/99; loose, light green, OK, under leaves 2 & 4/00; COD unknown 2/01
															·			•	d.	· · · · · · · · · · · · · · · · · · ·			!	·	
PL	#	ST#	DIST	ANGLE	E 93DM	93FL	93FR	94DM	94FL	94FR	95DM	95FL	95FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FB	99DM	99FI	99FR NOTES
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	20	2	7.80	6																			0.49		0 discovered 4/99; right of 66.10, at edge of seed ring; OK 4/99; loose, light green, OK, under leaves 2 & 4/00, 2/01; plant mia 4/01
67.			4.63	356	3.00	1	1	3.10	0	0	2.70	1	0	2.80	nd	disp	3.70	1	1	3.70	1	disp	3.14	2fr	r 2 buried in leaves 2/99; popping out, green, good 4/99, 2 & 4/00; tag mia, replaced 4/00; olive green, OK 2/01; green, good 4/01
67.			4.43	354									·				3.00		0	2.90	1	disp	3.11	2fr	r 2 discovered 5/97; buried in leaves 2/99; green, good 4/99, 2 & 4/00; reddish- green, OK 2/01; olive and gold, poor 4/01
68.		2	4.72		1.90		0	1.90	0	0	2.00	0	0	2.10	1	1A	2.80	0	0	2.90	1	1Ā	3.35	0	0 0 tag moved & slightly chewed, replaced 2/97; tag replaced 2/98; almost buried, green, good 4/99, 2 & 4/00; coming out, green, good 2 & 4/01
69.1		2	4 70	358	1.20	0	0	mia		0	1.60	0	0	1.50	0	0	. 2.20	0	0	2.20	0	0	2.41	0	 0 buried in leaves 2/97 & 2/98; tag mia, replaced 2/98; plant loose in leaves but rooted 2/99; almost buried, green, OK 4/99; totally buried, very loose, green, good 2/00; coming out, green, good 4/00, 2/01; almost buried in leaves, green, good 4/01
70.0		2	4.26	0	0.90		0		0	0	1.40	0	0	2.00	0	0	2.20	1	1	2.60	0	0	2.10	0	0 buried in leaves 2/97 & 2/98; buried in leaves, tag mia, retagged 2/99; good, green 4/99; coming out, good, green 2 & 4/00, 2 & 4/01
71.0		2	4.13	358	0.80	0	0	0.90	0	0	0.90	0	0	1.10	0	0	2.10	0	0	2.00	1	1	2.42	0	0 buried in leaves 2/97 & 2/98; green, good 4/99, 2 & 4/00, 2 & 4/01
72.(2	4.16	0	1.10	0	0	nd	nd	0	1.20	0	0			0	1.70	0	0	1.60	0	0	1.74	0	0 buried in leaves 2/97, 2/98 & 2/99, tag mia, retagged 2/99; totally buried, green, almost spinetess 4/99; popping out, green, OK 2 & 4/00, 2 & 4/01
73.0	U	2	4.23	2	1.50	0 :	0	1.70	0	0	1.80	0	0	1.90	0	0	2.40	0	0	2.30	0	0	2.46	0!	0 buried in leaves 2/97, 5/97, 2/98 & 2/99, tag mia, retagged 2/99; green, good 4/99; pale green, OK 2/00; green, good 4/00; getting buried in leaf litter, green, OK 2 & 4/01

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PL #	ST#	DIST	ANGLE	93DM	93FI	_ 93F	R	94DM	94FL	94F	B 950	M⊺q	5EL		96DM		LOCED	0704						r.—			-		
74.00	2	3.81	2	1.20	(<u>כן</u> כ	0	1.50	0	$\frac{1}{2}$	0 1.	60	0	<u></u>		90FL	96FH		и <u>9</u>	7FL	97FR	<u>98DM</u>	98F	Ľ 9	8FR	99DN	99F	L 99F	R NOTES
													U I	U	1.80) 0) 2.3	0	0	0	2.30		0	0			0	0 buried in leaves 2/97; buried in leaves &
		ļ													ł			-					1			1			drass 2/98 & 2/97, bulled in leaves &
						1					i				1			i	ļ										grass 2/98 & 2/99; good 4/99; pale green,
					l		[ļ					i.											OK 2 & 4/00; almost buried in leaves,
76.00	·	3.18	0	2.60		1	1	2.80	1		0 De	ad	a di	-				1								-			green, good 2 & 4/01
76.10	2		?						-			60	0						-										Dead 95
77.00	2	3.40	6	1.00		1	ō	0.90	n N	. <u>1</u> 2	and second second		ana in the second second second second second second second second second second second second second second s	0		i de construir de la la la la la la la la la la la la la		mi	a			mia							pup of 76.00; mia 96, 97 & 98
			-	1.00				0.90	U	, 	0 0.9	90	0	0	1.10	0 0	C) _i 1.50	כן ה	0	0	1.50		0	0	1.52		:	
		1								1	ĺ									ľ	ļ					1.02	1		0 green, good, new spine growth 4/99;
70 00	+					_												i i				1							green, OK 2 & 4/00; green, good 2 & 4/01
78.00	2	3.48	10	0.90	C)	0	1.10	0		0 1.4	10	0	0	1.70	<u> </u>	ō				- ·								
		ļ												0	1.70	0		2.10	J	0	0	2.40	•	1	1	1.91		0	0 green, good, new spine growth 4/99; dull
·	1							ĺ				i						!		ľ					1				green, OK 2/00; green, good 4/00; olive,
79.00	2	3.97	30	1 00							_											1							OK 2/01; green, good 4/01
10.00		5.97	JU	1.90	0		0	2.40	0		0 2.8	30	1	<u>1</u> S	2.50	nd	1 disp	3.30)	1	1A	2.70		न संस		0.00	Seller		
									방송한													2.70				2.60	11	r e la cal	1 tag moved, replaced 5/97; green, good
																													4/99; yellowish-green, OK 2/00; green
							326																						good 4/00; COD unknown but not weevils
																													2/01; three seedlings (79.01-79.03)
79.01	2	3.90	34		La distant		<u>.</u>	<u></u>			14.2					<u> </u>	(a.a. 1971). Ja				.u P. 25.00			6.53 10 10	6				
4											ļ					1		1							للسنعة مذلة		<u></u>		left of 79 02 coording of 70 00 (
																			İ										left of 79.02, seedling of 79.00 (plant 79
											Í		l			;		l :		1									removed & replaced with rock),
79.02																			İ							[discovered 2/01; not tagged, green, OK 2
/9.02	2	3.90	34					l				· [· ·						···		- -		[.						i	& 4/01
			1																										right of 79.01, seedling of 79.00 (plant 79
i I				ľ							i																		removed & replaced with rock)
												İ							Í										discovered 2/01; not tagged, green, OK 2
79.03	-	0.00	ā+					.					1													[1.	& 4/01
79.03	2	3.90	34											·····				1	ŀ		· · ·							4	
į 1													1													ľ			behind 79.01 & 79.02, seedling of 79.00
:							[(plant 79 removed & replaced with rock)
						l		[İ						ļ		ĺ							discovered 2/01; not tagged, green, OK 2
80.00	2	5.10	0	2.40	0		Ô 3	2.70	िन	<u>.</u>	0.0																		& 4/01
		·						<u> </u>			2.6	U .	2	2	3.50	nd	2	4.00		2	1+1A	4.30		1	1	4.03	0		harely rooted 2/00
	: I.																					5 B -							barely rooted 2/98; uprooted, replanted
: .				:		增力的																							2/99; dark green; OK 4/99; very loose,
		-		· . *								÷.											en di Negro a						green, good, tag mia, replaced 2/00; up
01.00								<u>}</u>																					rooted, removed for weevil study, no
81.00	2	3.90	34		ĺ						• •		Ļ	. 1.		··· •····	المشتقد ف	1.80			0		•				a - Le -		evidence of weevils, COD unknown 4/00
	!															ł		1.00		U	U :	2.60	1	1	1A	2.90	0	C) tag moved & chewed, retagged 5/97;
1			:																										good 4/99; green, good 2 & 4/00, 2 & 4/01
									i									i										:	

PL# ST# DIST ANDALE 03DM, 03FL 03FR 94FR 93DM 95FL 95FR 96DM 97FL 97FR 98DM 98FL 98FR 99DM 99FT discovered 201; 0ilve; green, OK, flower 83.00 2 14.33 91 discovered 201; 0ilve; green, OK, flower discovered 201; 0ilve; green, OK, flower 84.00 2 2.24 97 discovered 401; green, OK, flower discovered 401; green, OK, flower attaken and recorded by Ray Emmett 1993, flower, Carlos, Stores, Stor																									
83.00 2 14.12 91 discovered 2/01; olive, OK 2/01; green, good 4/01; discovered 2/01; olive-green, OK, flowen stepped on 2/01; tag ma replaced, plant green, OK 4/01 83.10 2 14.33 91 84.00 2 2.24 87 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; amongst rocks, green, good 4/01 discovered 4/01; amongst rocks, green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; amongst rocks, green, good 4/01 discovered 4/01; amongst rocks, green, good 4/01 discovered 4/01; amongst rocks, green, good 4/01 discovered 2/01, Si/00 2/27-9/01,4/28/01, Si/00 discovered 4/01; amongst rocks, green, good 4/01 discovered 2/01, Si/00 2/27-9/01,4/28/01, Si/00 discovered 4/01; amongst rocks, green, good 4/01 discovered 2/01, Si/00 2/27-9/01,4/28/01, Si/00 discovered 4/01; amongst rocks, green, good 4/01 discovered 2/01, Si/00 2/27-9/01,4/28/01, Si/00 discovered 4/01; amongst rocks, green, good 4/01 discovered 2/01, Si/00 2/27-9/01,4/28/01, Si/01 discovered 4/01; amongst rocks, g	PL# ST#	DIST	ANGLE	93DN	A 93FI	93FB	94DM		0450					T- ==: ·											
83.00 2 14.12 91 83.00 2 14.12 91 83.10 2 14.33 91 83.10 2 14.33 91 84.00 2 2.24 87 discovered 2/01; cilve, ork 2/01; agreen, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 <	82.00 2	1.80	78				0-010		<u>940 n</u>	95010	9255	95FH	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
83.00 2 14.12 91 good 4/01; 83.00 2 14.33 91 discovered 2/01; olive-green, OK, flower stepped on 2/01; tag mia replaced, plant green, OK 4/01 84.00 2 2.24 87 discovered 4/01; green, good 4/01 discovered 4/01; amongst rocks, green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 ata taken and recorded by Hay Emmett 1993-1995 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Ì</td> <td></td> <td>:</td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td>discovered 2/01: olive, OK 2/01: green</td>											Ì		:		1							1			discovered 2/01: olive, OK 2/01: green
83.10 2 14.33 91 84.00 2 2.24 87 discovered 4/01; green, Qod 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, Qod 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, Qod 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, Qod 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, Qod 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 discovered 4/01; green, good 4/01 green, good 4/01 discovered 4/01; green, good 4/01 green, good 4/01 discovered 4/01; green, good 4/01 green, good 4/01 discovered 4/01; green, good 4/01 green, good 4/01 discovered 4/01; green, good 4/01 green, good 4/01 discovered 4/01; green, good green, good 4/01 green, good 4/01 discovered 4/01; green, good green, good green, good green, good green, good green, good green, good green, good green, good green, good green, good green, green, g	83.00 2	14 12	<u>Q1</u>	-					· · ·																good 4/01;
83.10 2 14.33 91 84.00 2 2.24 87 ata taken and recorded by Ray Emmett 1993-1995 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Jackie Poole 2/21/96. 2/18/98 ata taken and recorded by Bill Colvert (WHC). (eevil research conducted by Bill Colvert (WHC). ata taken and recorded by Bill Colvert (WHC).		17.12	31															†·	·			····		·	diagony and 0.001
83.10 2 14.33 91 green, OK 4/01 84.00 2 2.24 87 discovered 4/01; green, good 4/01 discovered 4/01; amongst rocks, green, good 4/01 discovered 4/01; amongst rocks, green, good 4/01 ata taken and recorded by Ray Emmett 1993-1995 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 geode 4/201; amongst rocks, green, good 4/01 ata taken and recorded by Jackie Poole 5/65, 2/13/97, 5/6/97, 5/5/98, 2/16/99, 4/20/99, 6/99, 9/99, 2/9-10,15-16/00, 4/25-26/00, geode 4/201; amongst rocks, green, good 4/201 [2/7-9/01,4/25/01, 5/1/01] geode 4/201; amongst rocks, green, good 4/201 geode 4/201; amongst rocks, green, good 4/201 [2/7-9/01,4/25/01, 5/1/01] geode 4/201; amongst rocks, green, good 4/201 geode 4/201; amongst rocks, green, good 4/201 [2/7-9/01,4/25/01, 5/1/01] geode 4/201; amongst rocks, green, good 4/201 geode 4/201; amongst rocks, green, good 4/201 [2/7-9/01,4/25/01, 5/1/01] geode 4/201; amongst rocks, green, good 4/201 geode 4/201; amongst rocks, green, good 4/201 [2/7-9/01,4/25/01, 5/1/01] geode 4/201; geode 4/201		ļ			1					1		1													stopped on 0/01, onve-green, OK, flowers
84.00 2 2.24 87 discovered 4/01; green, good 4/01 discovered 4/01; amongst rocks, green, good 4/01 discovered 4/01; green, go			·												İ							1			groop OK 4/01
discovered 4/01; amongst rocks, green, good 4/01 ata taken and recorded by Ray Emmett 1993-1995 ata taken by Gena Janssen and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 5/96, 2/13/97, 5/6/97, 5/5/98, 2/16/99, 4/20/99, 6/99, 9/99, 2/9-10, 15-16/00, 4/25-26/00, [2/7-9/01,4/26/01, 5/1/01] //eevil resecrich conducted by Bill Colivert (WHC).																+		+ · · - · · ·							
ata taken and recorded by Ray Emmett 1993-1995 ata taken by Gena Janssen and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 5/96, 2/19/97, 5/5/98, 2/16/99, 4/20/99, 6/99, 9/99, 2/9-10, 15-16/00, 4/25-26/00, 2/7-9/01,4/26/01, 5/1/01 /eevil research conducted by Bill Calvert (WHC).	84.00 2	2.24	87						· ····	<u>+</u>								+ +							discovered 4/01; green, good 4/01
ata taken and recorded by Ray Emmett 1993-1995 ata taken by Gena Janssen and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 5/96, 2/19/97, 5/5/98, 2/16/99, 4/20/99, 6/99, 9/99, 2/9-10, 15-16/00, 4/25-26/00, 2/7-9/01,4/26/01, 5/1/01 /eevil research conducted by Bill Calvert (WHC).																								[discovered 4/01; amongst rocks, green.
ata taken by Gena Janssen and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 5/96, 2/13/97, 5/6/97, 5/5/98, 2/16/99, 4/20/99, 6/99, 9/99, 2/9-10,15-16/00, 4/25-26/00, 2/7-9/01,4/26/01, 5/1/01 //eevil research conducted by Bill Colvert (WHC).				f					l			· ··· ·· · · · ·			<u></u>	+	· ·						· •	1	good 4/01
ata taken by Gena Janssen and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 5/96, 2/13/97, 5/6/97, 5/5/98, 2/16/99, 4/20/99, 6/99, 9/99, 2/9-10,15-16/00, 4/25-26/00, 2/7-9/01,4/26/01, 5/1/01 //eevil research conducted by Bill Colvert (WHC).				1				+ - +																	
ata taken by Gena Janssen and recorded by Jackie Poole 2/21/96, 2/18/98 ata taken and recorded by Jackie Poole 5/96, 2/13/97, 5/6/97, 5/5/98, 2/16/99, 4/20/99, 6/99, 9/99, 2/9-10,15-16/00, 4/25-26/00, 2/7-9/01,4/26/01, 5/1/01 //eevil research conducted by Bill Colvert (WHC).	Data taken an	nd recoi	rded by	Ray E	mmett	1993-19	995				¦		···											• • • •	
ata taken and recorded by Jackie Poole 5/96, 2/13/97, 5/5/98, 2/16/99, 4/20/99, 6/99, 9/99, 2/9-10, 15-16/00, 4/25-26/00, 2/7-9/01, 4/26/01, 5/1/01 /eevil research conducted by Bill Colvert (WHC).	Data taken by	Gena	Janssei	n and i	recorde	d by la	ckie Po	⊥ nla 2/2	1/06 2	/10/00	·														
/eevil research conducted by Bill Calvert (WHC).	Data taken an	id recor	ded by	Jackie	Poole	5/96 2	/13/07	5/6/07	E/E/00	0/10/90									1		· ···				
/eevil research conducted by Bill Calvert (WHC).	2/7-9	01.4/2	6/01.5	/1/01	T	1	10/07,	J J J J	3/3/90	, 2/16/9	9, 4/20	/99, 6/	99, 9/99	, 2/9-1	0,15-16	6/00, 4/2	25-26/00),							······
	Neevil resear	rch co	nducte	ed by		L.	⊥ /HC)	+															· · · ·		
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PL #	STK #	DIST	ANGLE	96DM	96FL	_ 96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99F1	99FR	NOTES
1.00	15 Stra	24.80	om troug 189	h, mid-s 3.90	lope; GP 3fr	253 = R02 2+1 disp	16 <u>22A</u> 3.30	0	1	3.40		2		1+2fr		heavily shaded by three awn 2/97; green, good 4/99; goldish-green, OK 2/00; green, good 4/00, 2 & 5/01
1.10 2.00		24.80 22.48	189 194	2.80 4:30	0	0	2.60 4.40	0	0 	2.40 Dead	O	Ó	mia			heavily shaded by three awn 2/97; gone without a trace 2 & 4/99; only spines left, COD unknown 2/00 looks grayish, but still firm 2/97; new spine growth 5/97; weevils tunnels,
2:01 3.00		22:58 8.7∩	194 265	2.60	1fr	1disp	. 1.00 3.10	0	0	0.90 2.60	0	0	1.31 2.69	0 1fr	0 1 ·Jisp	dead 2/98 no hooked spines, may not be AT 2/97; looks like At 2/98; under rock, green, good 4/99; tag mia, just spines left, COD unknown 2/00 tag mia, replaced 2/97; purplish, OK 4/99; spines dull gray, body purple, poor 2/00; new spine growth,
3.10	1	8.80	265	1.80	0	0	2.30	0	Ō	2.00	0	0	2.20	0	0	orangish, OK 4/00; reddish, OK 2/01; dark green, OK 5/01 lag mia, replaced 2/97; green, good 4/99; flowers paritally eaten, plant dark green, OK 2 & 4/00; purplish- green, OK 2/01; hunkered, green,
3.20	1	3.90	262				1.30	0	0	1.20	mia	0	1.51	0	O r t t	DK 5/01 no hooked spines, may not be A. obuschii 2/97; starting to develop nooks 5/97; rock atop, removed 5/98; green, good 4/99; goldish- green, OK 2/00; olive, OK 4/00; green, good 2 & 5/01

							- •		o Caverns	SINA - 3	snag Ca	irpet			
	STK #		ANGLE	96DM	96FL	96FR	97DM	97FL		98DM	98FL	98FR	99DM 99F		
3.30		8.91 8.63	269 263				0.60) O	0.90	Ô	0	ma	L 99FF	NOTES no hooked spines, may not be A. tobuschii 2/97; loose in soil, root exposed 5/97; bad 5/98; plant mia 99, 00, 01
										1.30	0	0	1.48	0 (0 measured in one direction only, discovered 2/98; green, good 4/99, 2/00; olive, OK 4/00; under rock, green, OK 2 & 5/01
3.50	1	8.25	263					<u> </u>		2.80	1	1A	2.70 2	r 1 disp	stepped on, discovered 2/98; green, good 2 & 4/00, 2 & 5/01
3.51	1	8.26	265			· <u></u> .	• • • •				-		1.15	Ō	discovered 4/99; OK 4/99; tag mia, retagged, under rock, green, good 2 & 4/00, 2 & 5/01
3.60	1	7.33	265							2.00		1	2.21) ō	discovered 2/98; green, good 4/99; OK 2/00; green, OK 4/00, 2 & 5/01
3.70	1	7.33	262							1.10	0	0	1.39 (Ō	measured in one direction only, to the right of 3.80, discovered 2/98; measured in one direction only 2/99, 2/00; green, good 4/99, 2 & 4/00; green, OK 2 & 5/01
3.80	1	7.33	262							0.80	0	O	0.95 C		measured in one direction only, to the left of 3.70, discovered 2/98; green, good 4/99; just spines left, COD unknown 2/00

[) Kie	An <mark>ci</mark> sti ckapoc	ocactus (Caverns	obusch SNA - S	ii Data Shag Ca	for arpet			3 of 4
PL # 4.00	STK 1		ST_ .46	ANGLE 83	96DM 3.50	96FL 3fr	96FR 2+1 disp	97DM 3.80	97 <u>F</u> L 1	97FR 1	98DM 3.30		98FR 3 disp	99DM 3.18	99FL 3	99FR NOTES 3 dull green, OK 4/99; maroonish, spines dull gray, poor 2/00; orange, poor 4/00; new apical growth, gray at base, purplish-green, OK 2 & 5/01
4.10	1	21	.29	77	1.70	1fr	1 disp	2.40	1	1	2.30	1	1	2.13	1+2fr	3 reddish, OK 4/99, 2/00; reddish- green, OK 4/00, 2 & 5/01
4.20	1	19	03	~77				2.00	0	0	1.90	1		1.84	1fr	1 tag mia, retagged 5/97; olive green, OK 4/99; ligth reddish-green, loose, poor 2/00; reddih-green, OK 4/00; rock fell on top, removed, green, OK 2 & 5/01
5.00	1	5.	02	65							4.50	6	5+1A	2.72	2fr	2 discovered 2/98; green, good 4/99; green, good, flowers partially eaten 2 & 4/00; green, good 2 & 5/01
- 6.00	1	~42.:	30	~75												discovered 2/01; purplish-green, good 2 & 5/01
7.00	1	~22.(~84												discovered 2/01; dark olive, OK 2 & 5/01
8.00	1	~21.9	6	84								• •••		-		discovered 2/01; under rock, green, good 2 & 5/01

PL # 5 9.00	6TK # 1	DIST 7.72	·	96DM	96FL	96FR	_97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR		vered 5	NOTE /01; oliv	S ve, OK 5	/01
									· · · ·											
itake 2 is	s at to	p of hill.	. in openi	1. Na bevor	nd iunine	rs and oal	ks; GPS4	Dool								•	1.			
5.00	2	9.57	322	3.60	1+5fr	disp	4.10	= H021 6			-						-		· ·	
					: : :	didp	4.10	0	1+2disp	4.00	5	5	4.03	6fr	4	partial 2/97; j tips, s goldis	ly eate ourplish mall an n, poor	n, tag m i with or ts on fru 2/00; re	althy, 4 f nia, repla range tu uits 4/99 eddish-c	aced bercle ; live, O
		· · · · · ·														4/00; r purplis	eddish h-gree	-olive, p n, OK 5	000r 2/0 /01	1;
ata taka											-				- <u>-</u>	4/00; r purplis	eddish h-gree	-olive, p n, OK 5	000r 2/0	1;
ata taker ata taker	n and	recorde	ed by Jac	kie Poole	on 2/13	3/97 & 5/6/	97; 5/5/98	;_2/16/9	9, 4/21/9	9, 2/15/00	0, 4/26/	00, 2/9/	01, 5/2/0	01	· -	4/00; r purplis	eddish h-gree	-olive, p n, OK 5	000r 2/0 /01	1;
ata taker ata taker	n and n by C	recorde Gena Ja	ed by Jac nssen an	kie Poole d recorde	on 2/13	3/97 & 5/6/ ckie Poole	/97; 5/5/98 9 on 2/18/9	; 2/16/5	99, 4/21/9	9, 2/15/00	0, 4/26/	00, 2/9/	01, 5/2/0	01	·	4/00; r purplis	eddish h-gree	-olive, p n, OK 5	000r 2/0 /01	1;
ata taker ata taker	n and n by C	recorde Gena Ja	ed by Jac nssen an	kie Poole d record	e on 2/13 ed by Ja	0/97 & 5/6/ ckie Poole	/97; 5/5/98 9 on 2/18/9	: 2/16/s 18	99, 4/21/9	9, 2/15/00	0, 4/26/	00, <u>2/9</u> /	01, 5/2/0	01	·	4/00; r purplis	eddish h-gree 	-olive, p n, OK 5	000r 2/0 //01	1;
ata taker ata taker	n and n by G	recorde Gena Ja	ed by Jac nssen an	kie Poole d record	on 2/13 ed by Ja	3/97 <u>& 5/6/</u> ckie Poole	/97; 5/5/98 2 on 2/18/9	; 2/16/s 18	99, 4/21/9	9, 2/15/00	0, 4/26/	00, <u>2/9</u> /	01, 5/2/0	01	· -	4/00; r purplis	eddish h-gree	-olive, p n, OK 5	00or 2/0 /01 	1;
ata taker ata taker	n and n by G	recorde Sena Ja	ed by Jac nssen an	kie Poole d record	e on 2/13 ed by Ja	0/97 & 5/6/ ckie Poole	/97; 5/5/98 9 on 2/18/9	; 2/16/9	99, 4/21/9	9, 2/15/00	0, 4/26/	00, 2/9/	01, 5/2/	01	·	4/00; r purplis	eddish h-gree	-olive, p n, OK 5	00or 2/0 /01	1;
ata taker ata taker	n and n by G	recorde àena Ja	ed by Jac nssen an	kie Poole d record	e on 2/13 ed by Ja	0/97 & 5/6/ ckie Poole	/97; 5/5/98 9 on 2/18/9	; 2/1ē/9 8	99, 4/21/9	9, 2/15/00	0, 4/26/	00, <u>2/9</u> /	01, 5/2/0	101	· - · ·	4/00; r purplis	eddish h-gree	-olive, p n, OK 5	00or 2/0 /01	1;
ata taker ata taker	n and n by G	recorde Sena Ja	ed by Jac nssen an	kie Poole d record	ed by Ja	1/97 & 5/6/ ckie Poole	/97; 5/5/98 9 on 2/18/9	; 2/16/5	99, 4/21/9	9, 2/15/00	0, 4/26/	00, <u>2/9</u> /	01, 5/2/	01	· · · · · ·	4/00; r purplis	eddish h-gree	-olive, p n, OK 5	00or 2/0 /01	1;
ata taker ata taker	n and n by G	recorde Sena Ja	ed by Jac nssen an	kie Poole d record	e on 2/13 ed by Ja	1/97 & 5/6/ ckie Poole	97; 5/5/98 on 2/18/9	; 2/16/s 18	99, 4/21/9	9, 2/15/00	0, 4/26/	00, 2/9/	01, 5/2/	D1	· · · · · · · · · · · · · · · · · · ·	4/00; r purplis	eddish h-gree	-olive, p n, OK 5	00or 2/0 /01	1;

•

	O'TIZ "								•					uart Ca	ave			
Tho re	ວ K # foro=-	DIST e point i	ANGLE	96DM	96FL	96 🗌	FR	97DM	97FL	97FF	7 98	DM	98FL	98FR	99DM	99FI		NOTES
ine ie	to nor	e point i th gate,	s a pink	-topped	rebar, ~!	<u>50 pa</u>	ces N	lorthwe	st of th	e large	st pin	ıon,	2.1 mi	North	ot the l	odae or	main	NOTES
1.00		th gate, 9.63		INORTHE	ast of ro	ad inte	ersec	ction be	low Gr	en Ca	ve; G	PSS	$= \overline{R0}$	21522E	3	[, ngui	
1.00	40	9.03	250									:			1.22		• •••	measured over Vasey oak; discovered summer 99; green, good 9/99, 2 & 4/00 2 & 5/01
1.10	45	9.18	245	 				- · · · <u>-</u> · · · ·			N						· <u>-</u> ·	discovered 2/01; dark reddish-green, Or 2/01; green, good 5/01
2.00	45	11.88	250											i gi bri	3.08			discovered summer 99; measured over
																		Vasey oak, wedged between rocks 9/99 measured in one direction only 9/99, 2/00; olive green with some orange
3.00	45	11.54	253												2.38			tubercles, OK 9/99, 2 & 4/00; just spines left, COD unknown 2/01
												A A A A A A A A A A A A A A A A A A A			2.30			measured over Vasey oak; discovered. summer 99; purplish; OK, 9/99, 2 & 4/00; just spines left; COD unknown 2/01
4.00 5.00		~11.57	254 254												1.22			measured over Vasey oak; discovered summer 99; one measurement only 2/00; green, hunkered, OK 9/99, 2 & 4/00; plant mia 2/01; spine clusters and hole in vicinity, COD unknown 5/01
															2.74			measured over Vasey oak; discovered summer 99; one measurement only 9/99, 2/00; dark green, OK, under rock 9/99 & 2/00; purplish, OK 4/00; green, OK 2/01; purple, OK 5/01

PL #	STK #	DIGT		00004												
6.00		DIST ~11.66	ANGLE 254	96DW	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM 2.37	99FL	99FR	NOTES measured over Vasey oak; discovered summer 99; one measurement only 2/00; green, good, under rock 9/99, 2 & 4/00, 2 & 5/01
7.00	45 45	12.12 12.31	256 258										2.59			measured over Vasey oak; discovered summer 99; green, good, under rock 9/99; dark green, good 2 & 4/00; COD unknown, just spines left 2/01 measured over Vasey oak; discovered summer 99; green; hunkered, OK 9/99; olive, OK 4/00; just spines left; COD
45.10	45	11.85	62	6.30	7 fr	1A, disp	7.30	7	6	6.30	4	4	5.71	1+3fr		unknown 2/01 green, good 4/99, 2 & 4/00, 2 & 5/01
45.11	45	12.05	64	0.70	0	0	0.80		0	0.90	0	0	1.24	0	0	OK 4/99; dull green, OK 2 & 4/00; green, OK 2 & 5/01
45.12	45	12.10	63	2.40	1 fr	4	2.90	1	1	3.40	2	2	3.20	0	0	very shaded by juniper 2/99; green, good 4/99, 2 & 4/00, 2 & 5/01
45.13	45	11.97	62	1.00	0	0	1.00	0	0	1.80	0	0	1.45	0	t t	almost buried in juniper litter 2/99; totally buried, green, good 4/99; mia 2/00; otally buried, green, good 4/00; plant and tag mia 2/01; buried in juniper litter, green, OK 5/01

	1.0.0									erns SN	IA - 31	uart	ave			
PL #		f	ANGLE	*	* · · · · · ·	96FR	97DM	97FL	97FB	98DM	98FI		99DM		0055	
45.14	45	11.43	64	2.40	0	0							***			NOTES 3 under rock; green, good 4/99; plant mia 2 & 4/00, 2 & 5/01
45.15	45	12.18	68	1.60	1 fr	1	2.20	2	2	2.40	2	2	2.26	1+1fr	24	under prickly pear; tag mia, retagged 2/97; one measurement only 2/00; maroonish, OK 4/99; dull green, OK 2/00; getting covered by litter, green, OK 4/00; very maroonish, poor 2/01; green, OK 5/01
45.20	45	~39.05	-140	7.70	7 fr	disp	7.80	10	11	7.50	10	4	Dead			measured through junipers; plant reddish; spines;dying 2/98; hollow;
45.21	45	~39.08	~139	1.70	Ō	1	1.70		1	2.00	0	0	Dead			probably weevils 2/99 measured through junipers; hollow,
45.24		39.90	~136				2.40	in dise Second	.3	Dead						probably weevils 2/99 discovered 5/97; just a spine cup, COD unknown 2/98
45.25 45.30	45 45	39.70 1.00	~137 206	2.40	1fr	disp	1.10 2.80	2	0 3	1.00 3.20	0	0	Dead 3.25	1+2fr		discovered 5/97; COD unknown 2/99
											U	0	5.20	1+211		ants swarming fruits 5/98; green, good 4/99; hooded during weevil study in summer 99; dull green, OK 2 & 4/00, 2 & 5/01
45.31	45	0.74	246	1.80	0	0	2.30	3	2	2.50	3	2+1A	3.05	1+2fr		tag moved, retagged 2/97; green, good 4/99; hooded during weevil study in summer 99; dull green, OK 2 & 4/00, 2 & 5/01
45.40	45	~ 7.60	~215	8.10	6+15 fr	1+1A, disp	8.60	14	29	7.60		3+1À	Dead			measured through Vasey oaks & persimmons; 3 flowers with petals eaten 2/96; very purplish 2/98; hollowish, weevils? 2/99

								пскарс			. 0	uant	Cave			
PL #	STK #		ANGLE		96FL	96FR	97DM	97FI	9758							
45.41	45	7.55	211	1.10	0		÷	0	Ō	2.20		2 2	R 99DI	1 99FL	. 99FF	NOTES
			. 										0 2.7	1 2+11	ri :	B measured through Vasey oaks & persimmon; green, good 4/99; accidently stepped on 2/00; purplish, OK 4/00, 2 & 5/01
45.42	45	7.63	223	4.80	2+1 fr	2	5.40	2	6	5.20	c		0 4.2	D C		measured through Vasey oaks & persimmon; loose on lower side 2/98; almost buried in juniper litter, very shaded 2/99; out of litter, green, good 4/99; hooded during weevil study in summer 99; green, good one flower eaten 2/00; dark green, good 4/00, 2/01; dark purplish-green, OK 5/01
45.43	45	~8.73	~219		alaan oo saya		3.50	-	1							
45.44	45	8.92	223					3	4	Dead						measured over Vasey oaks & persimmon; COD unknown 2/98
		0.02					4.90	4	5	4.70	5		2 4.59	4fr		measured over Vasey oaks & persimmon; under juniper; green, good though shaded 4/99; hooded during weevil study in summer 99; purplish- green, good, flowers pinkish 2/00; green, good 4/00; purplish-green, OK 2/01; dark green, good 5/01
45.45	45	9.32	233				1.80	1	0	1.90	2	2A	1.90	1+1fr		measured over Vasey oaks & juniper; green, good 4/99; hooded during weevil study in summer 99; dull green, OK 2 & 4/00; green, good 2 & 5/01

	STK #	DIST														
15.46		7.45		96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FF	NOTES
										2.50	1	1A	2.70	2		measured over Vasey oaks; green, g 4/99; dark green, good 2 & 4/00, 2 & 5/01
5.50 5.51	45 45	~7.40 6.92		4.40			5.40	5								measured over Vasey oaks; death by weevil larvae, larvae killed 2/98
		0.02	240	3.00	2+1 Ir	3	3.40	2	3	3.40	2	2	4.10	3	2+1A	measured over Vasey oaks; tag mia, retagged 2/97; tag loose 2/99; maroonish, OK 4/99; dull gray green, 2 & 4/00; green, good 2/01; maroonis OK 5/01
.52	45	7.37	254				1.70		1	1.80		0	1.76	1+1fr	<u>1</u> +1Ä	measured over Vasey oaks; discovere 5/97; one very small bud 2/98; hunker
and Argent, all all a																during weevil study in summer 99; purplish-gray 7/26 to 8/9/99; may not i due to hood placement; reddish-purpli
																OK 2 & 4/00; COD unknown 2/01
ke 4: 22	5 A is b∉ 45A	ehind a d 4.29	coyotillo 101	betweer 1.30	n a prickl	y pear and	d <u>a</u> smal 1.50	junipe	r, ~8 m	eters fro	m roa					······································
								F .	2	1.70		1A	1.56	0		measured through junipers; maroonish OK 4/99; covered with caliche road du dull green 2/00; maroonish, OK 4/00; olive, OK 2 & 5/01

								ionapo		1112 214	A - 30	uart Ca	ve			
PL # 45.23	STK # 45A	DIST 4.19	ANGLE 102	96DM 1.60	96FL 0	96FR 0	97DM 2.30	97FL 2	97FR 2	98DM 2.20		98FR 0		99FL 2+1fr	1+2A	NOTES measured through junipers 4/99; green, good 4/99, 2/00 (covered with caliche road dust), & 4/00; green, good 2 & 5/01
45.26	45 A	5.10	103				1.20		-o	1.20	0	Ō	1.43	0		discovered 5/97; buried in dirt 2/98; hunkered down in gravel 2/99; green, good, popping out 4/99, 2/00 (covered with caliche road dust); green, good 4/00, 2/01; olive, OK 5/01
Data tal	(en by (Gena Ja	nssen al	nd record	lea by la	, 5/8/96, 2 1/28/00, 2 ackie Poo kie Poole	<u>//,9/01, 1</u>		2/15/99	9, 4/23/	99, 9/1	5/99,				

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Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Tank Hill

DI #	OTIC							·····		erns SNA	A - Tank	Hill				
Tank Hi	ISTK #	F _DIS s ~0 1-0		96DM	96FL	96FR	97DM	97FL	97FF	98 DN	98 FL	98 FR	99 DM	99 FI	99 FR	NOTEO
take 4	14 A is	3 -0.1-0. 131 doar	2 miles 2	Southwes	st of wate	er tank on	top of h	ill <u>, 1.0 m</u>			lodge o	n main ro	ad to res	idence	33 FN	NOTES
1 00	44A	62.88		e tank or	the hill,	North end	d of roac	; GPS5	= R021	814A	[1			┿╌──╴──	
1.00	447	02.00	207										3.13	1+1fr	1+disp	plant gone without a trace 2 & 4/00, 2 & 4/01
44.00	44A	47.77	78	2.60	2 fr	2A	2.50	3		2 2.40	1	1	2.70	1	l t	yellowish, bad 5/97; dark green pulled into Selaginella 2/98, 4/9 hunkered, maroonish, OK 4/00; plive, OK 2 & 4/01
44.10	44A	48.54	78	3.00	2 fr	2A	4.00	3		4 4.20	3	3	4.56	4fr	l g ti	ruits turning red 5/97; green & good 2/98; OK 4/99; some redd ubercle tips, OK 4/00; green, ge 2 & 4/01
4.11	44A	47.76	78	6.00	0	mia	mia					ANI				
4.20	44A									mia		and a second s	mia		11	heck tag, may be marked 44.1 so change to 44.11; tag mia a /97, 2/98, 5/98, 2/99 & 4/99
4.20	44A	23.19	80	4.80	4 fr	1A, rest	Dead) de la							
4.30	44A	59.64	248	0.00		disp									S	OD unknown, only scattered - pines left 2/97
				2.50	2 fr	Dead									P	lant gone, root & a few spines
4.40	44A	57.17	248	3.40	2 fr	Dead									Constant, 187, 8582	
4.80	44A	60.39	250	2.40		disp									le Ie	lant gone, root & a few spines. ift; tag removed
						usp	3.10	2	2	3.10		1	mia		01 2/	rangish 5/98; tag & plant missir /99, 4/99; tag still mia, COD
4.81	44A	~60.51	250										<u>ii</u> .		se di re	nknown 2/00 eedling of 44.80, on left of 44.82 scovered 2/00; green, good 2/0 eddish, hunkered, OK 4/00, 2/01 een, OK 4/01

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Tank Hill

									bo Cave	IIS SINA	- rank r	1111				
PL #		IDIST	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98 DM	98 FL	98 FR	00 014	100.51		
44.82	44A	~60.51	250								<u> 301 L</u>	90 FR	99 DM	99 FL	99 FR	NOTES seedling of 44.80, on right of 44.81, discovered 4/00; hunkered,
44.00				 					1							green, OK 2 & 4/01
44.83	44A	~60.53	250								· ·-·	·				seedling of 44.80, discovered 4/00; hunkered, green, OK 2 & 4/01
44.84	44A	~60.59	250	····												
																discovered 4/01; hunkered, green, OK 4/01
44.85	44A	~60.60	250					·								discovered 4/01; green, OK 4/01
·····																
Stake 44	4B is S	outh of re	pad helo	w hill 85		to tank;								··• ·		······································
1.00	44B	27.70	190					R02181	5A							
															2	discovered 2/00; olive-green, good 2 & 4/00, 2/01; hunkered, green, DK 4/01
2.00	44B	18.63	247	· ·····			••••••									
																liscovered 4/01; green, good 4/01
3.00	44B	18.70	247		• • •										d	liscovered 4/01; olive, OK 4/01
	4															
4.00	44B	18.77	247	· · · ·				·	• • •	-	• ••••				d	iscovered 4/01; green, good 4/01
					· · · ·											
															<u> </u>	

Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Tank Hill

	071	-						•			- Tank ł					
PL # 5.00	STK # 44B	DIST 18.99	ANGLE 247	96DM	96FL	96FR	97DM	97FL	97FR	98 DM	98 FL	98 FR	_99 DM	99 FL	99 FR	NOTES
0.00		10.33	247													discovered 4/01; maroonish-green OK 4/01
44.50	44B	25.75	206	5.70	2	1,disp	6.30	6	9	5.60	6	6	E 17	0.00		
44.60													517	3+2fr	5	piss ants swarming fruits, plant yellowish 5/97; green again 2/98; dull green-maroon, OK 4/99; maroonish, OK-poor 2/00; orangish, poor 4/00; COD weevil (one chamber) 2/01
44.00	44B	25.62	206	2.20	2 fr	disp	2.70	3	1	2.90	3	2A	2.17	1fr	disp	fruit chewed on 5/97; hunkered down 4/99; pale green, a few orange tubercles, OK 2 & 4/00, 2 8 4/01
44.70	44B	26.37	25	3.40	1+2 fr	disp	3.60	3	1+2A	4.00	4	2+2A	3.73	5		green, good 4/99; slightly green, maroonish, good 2/00; good 4/00; green, good 2 & 4/01
44.80	44B	20.00	247													green, good 2/00; plant and tag mia 4/00; green, good 2 & 4/01
44.90	44B	16.06	232								n Oleman	1967 (1 97 - 197 - 197			Digi	
																green, good 2/00; orange-green; OK 4/00; weevil larvae inside, dead 2/01
	· ·	····						· · · · · · · · · · · · · · · · · · ·							·· ·	······
ata take	n and r	ecordec	l by Jacki	e Poole	2/12/97	, 5/5/97; ;	5/5/98 2	/99 with f	Dave Stu	art 4/21				· · ·		······································
ata take	n by Go	ena Jan	ssen & re	corded	by Jacki	e Poole 2	2/18/98			ai (, <u>4/2 </u>	59, 2/9/0	iu, <u>4/</u> 26/(<i>J</i> U, 2/19/(J1, 4/25	/01	
													-	!		··· · · · · · · · · · · · · · · · · ·
ini	<u> </u>			i												

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a cast or	T ANGI t of lodge 7th large 1 .83 198	along m encepos	ain road	d to Nor	th nate	00.00	draina	an ta fam-	eline	-	99DM	99FL	99FR	NOTES
ne 147m	rin large i	encepos	t east fr	rom the	large w	last for								
				1		estiel	icepost	in creek						
1 1											4.33	2+3fr	4+1A	grayish-green, OK 4/99; grayish-green, good 2/00; olive, OK 4/00; dark maroonish-green, OK 2/01; green, good 4/01
17.86	86 198									 (discovered 4/01; green, good 4/01
17.75	75 198													
						11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								discovered 2/01; hunkered, green, good 2/01; dead, COD unknown 5/01
10.60	60 199										3.95	5	1	maroonish, OK 4/99; orangish- maroonish-green, OK 2 & 4/00; orangish-maroonish-green, good 2 & 4/01
10.69	69 199													not at base of 2.00, discovered 2/01; green, OK 2/01; green, good 4/01
10.68	68 199									-				base of 2.00, left of 2.03 & 2.04, discovered 2/01; hunkered, green, OK 2 & 4/01
10.68	58 199									•			; 	pase of 2.00, between 2.02 & 2.04; green, good 2 & 4/01
i	57 199					-		• • •	·				t.	pase of 2.00, right of 2.02 & 2.03; green, good 2 & 4/01
10														0.67 199

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	STK #	דפות	ANGLE	0CDM	OCTI		07044									1
2.05		10.62	ANGLE 199	900101	90FL	90-4	97DM	97FL	97F <u>R</u>	_98DM	98FL	98FR	99DM	99FL	99FR	NOTES at 2 o'clock on 2.00, discovered 4/01; green, good 4/01
2.06	46	10.67	199					· ··· · · <u>·</u> ·· ·	·		** * _{***}	·				at 7 o'clock on 2.00, discovered 4/01; green, OK 4/01
2.07	46	10.67	199													at 7:30 o'clock on 2.00, discovered 4/01; green, OK 4/01
2.08	46	10.66	199													at 8 o'clock on 2.00, discovered 4/01; green, OK 4/01
2.09	46	10.65	199	• •			·									at 8:30 o'clock on 2.00, discovered 4/01; green, OK 4/01
2.10	46	10.64	199			·	·,									at 8:45 o'clock on 2.00, discovered 4/01; green, OK 4/01
2.11	46	10.63	199													at 9 o'clock on 2.00, discovered 4/01; green, OK 4/01
2.12	46	10.64	200												(discovered 4/01; olive, OK 4/01

PL #	STK #	DIST	ANGLE	96DM	96FL	96FB	97DM	97FI	97FD				000014	0051		
2.13	46	11.50			· · · ·		0,014	<u> 371 E</u>	9/1 <u>1</u>	900101	98FL	98FR	99DM	99FL	99FR	NOTES
			ĺ			-							!	i		discovered 2/01; originally tagged as
																2.10, green with a few red tubercle tips
			4 													OK 2/01; dark green, OK 4/01
3.00	46	52.09	271				an in the second of the									
0.00		02.00											5.05	3+3fr	3+2A	very reddish 2/99; very reddish, OK
																4/99; most spines gray, some new
																growth, no flowers, removed 2/00;
4.00	46	16.13	197			in Kalen pantaka	전 화 화가		11							dead, COD unknown 2/00
1 4.00	40	10.15	197									1	3.46		2A	reddish, OK, discovered 4/99; hooded
		1		i				:								during weevil study in summer 99;
								:								green, good, spines growing into
								1	i							shroud 9/99; olive green, good 2/00;
																rock on top, green, good 4/00; olive,
											į			-		OK 2/01; dark green, good 4/01
											[_
4.10	46	17.26	197					!							·	
																in grass clump, discovered 2/01; green,
											ľ					good 2 & 4/01
5.00	46	~17.20	198										1.57	+	0	discoursed 4/00 total
										ſ			1.07		v	discovered 4/99; injured, new head off
						į		÷								side, OK 4/99; green, good 2 & 4/00, 2 & 4/01
		ľ		;	ŀ	f		÷					1			
								i i	[
6.00	46	~17.24	198		•	·		↓								
	-			i				1					3.04		0	discovered 4/99; hunkered, green, OK
								:					1			4/99; green, good 2 & 4/00, 2 & 4/01
				:								[1			
												ļ				
7 00		·· <u>;-</u>										1				
7.00	46	~17.42	198									+	3.09		1A	discovered 4/99; green, good 4/99;
												:				hooded during weevil survey in
ĺ		i.	:									1		ĺ		summer 99; green, a little shrunken,
		i	ļ								1					OK 9/99; green, good 2 & 4/00, 2/01;
1					;	:										dark green, hunkered, OK 4/01
			-			:								;	•	
•				<u>.</u>						1	i					
																1

PL #	STK #	DIST	ANGLE	96DM	96FL	96FR	97DM	97FI		09014	000			005		
8.00	46	~17.54	198				0.0			300101	SOLL	9054	99DM	99FL	99FR	NOTES
													2.81		0	discovered 4/99; green, good 4/99, 2 & 4/00; maroonsih, OK 2/01; green, good 4/01
9.00	46	~17.56	198					·					0.87		0	discovered 4/99; green, good 4/99, 2 & 4/00, 2 & 4/01
10.00	46	~15.76	199										1.46		0	discovered 4/99; green, good 4/99, 2 & 4/00, 2 & 4/01
11.00	46	~15.78	199										1.36			discovered 4/99; left side of cluster 11- 12; green, good 4/99, 2 & 4/00, 2 & 4/01
12.00	46	~15.78	199										1.53		0	discovered 4/99; right side of cluster 11 12; one measurement only 2/00; green, good 4/99, 2 & 4/00, 2 & 4/01
12.10	46	~15.8	199													discovered 4/01; green, good 4/01
13.00	46	~16.56	198									·	0.88			discovered 4/99; top left side of cluster 13-17; green, good 4/99, 2/00; green, OK 4/00, 2 & 4/01
14.00	46	~16.55	198			· .			%				1.45		, ·	top middle of cluster 13-17; discovered 4/99; green, good 4/99; olive green, good 2 & 4/00, 2 & 4/01

	STK #	DIST	ANGLE	96DM 96	FL 96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
15.00	46	~16.56	198									0.79		0	top right of cluster 13-17, discovered 4/99; green, good 4/99, 2/00; hunkered, OK 4/00, 2 & 4/01
16.00	46	~16.57	198		· · · · · · · · · · · · · · · · · · ·				· · · · · · · · · · · ·		· ·· · · ·	0.68			behind 14.00, discovered 4/99; green, good 4/99; olive green, good 2 & 4/00; green, OK 2 & 4/01
17.00	46	~16.58	198									0.64			behind & right of 16.00, discovered 4/99; green, good 4/99; olive green, good 2 & 4/00; hunkered, green, OK 2 & 4/01
18.00	46	17.59	199	i <u>—</u>							······ ··· I	1.61	<u>·</u>		discovered 4/99; green, good, hunkered 4/99, 2 & 4/00, 2/01; popping out, green, good 4/01
18.01	46	~17.64	199								······································	-		1	discovered 2/01; coming out at top of ag, green, OK 2 & 4/01
18.02	46	~17.65	199											(discovered 4/01; coming up at lower ight edge of tag, OK 4/01
19.00	46	17.62	199	·								0.91		C	Dehind 18.00 & left of 20.00, discovered 4/99; green, good, nunkered 4/99, 2 & 4/00, 2 & 4/01
20.00	46	17.59	199	• -•••		· · · · · · · · · · · · · · · · · · ·				·	<u>-</u>	0.64		— 0 r g	ight of 19.00, discovered 4/99; green, good 4/99, 4/00, 2 & 4/01

PI #	STK #	DIST		LOCDM!		00000	07041								
20.10		17.61	ANGLE 199		90FL	9014	970M	97FL	97FR	98DM	98FL	98FR	99DM	9 <u>9FL</u>	99FR NOTES between 18.00 & 21.00; green, hunkered, good 2/00; hunkered, OK 4/00; hunkered, green, good 2 & 4/0
21.00	46	~17.57	199										1.40		0 under Texas kidneywood, discovered 4/99; green, good 4/99, 4/00, 2 & 4/
22.00	46	~18.39	200					·		· · · · · · · · · · · · · · · · · · ·			2.57		2A discovered 4/99; dull green, OK 4/99 maroonish, OK 2/00; green with som orange tubercles, OK 4/00; slightly maroonish-green, OK 2/01; bluish- green, good 4/01
23.00	46	~18.79	200										4.12		1A discovered 4/99; slightly reddish, OK 4/99; hooded during weevil study in summer 99; green with spine growth some orange tubercles, OK 9/99; gre with spine growth & some orange tubercles, good 2/00; maroonish, OK 4/00, 2 & 4/01
23.01	46	18.88	200					:					,		at 4 o'clock position on 23.00, discovered 4/01; one measurement only, green, good 4/01
23.02	46	18.89	200												at 4:30 o'clock position on 23.00, discovered 4/01; one measurement only, green, good 4/01

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1	STK #	DIST	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
23.03	46	18.89	200								· · · · · · · · · · · · · · · · · · ·					at 5 o'clock position on 23.00, discovered 4/01; one measurement only, green, OK 4/01
23.04	46	18.90	200													at 6 o'clock position on 23.00, discovered 4/01; one measurement only, green, good 4/01
23.10	46	19.07	200			·										discovered 4/01; loose, green, OK 4/01
24.00	46	~17.42	~204										2.71			dull green, OK, discovered 4/99; hooded during weevil study in summer 99; green, good, shroud totally off 9/99, 2/00; ants swarming fruit, green, good 4/00; slightly maroonish-green, good 2/01; green, good 4/01
24.10	46	~17.48	~210		-											discovered 5/01; green, good 5/01
24.20	46	~17.49	~210					· ••								discovered 5/01; green, OK 5/01
25.00	46	9.60	193										- ï.11		0	discovered 4/99; green, good, under rock 4/99, 2 & 4/00, 2 & 4/01

	STK #	DIST	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTEC
26.00	46	12.38	186										2.17		33111	NOTES discovered summer 99; green, good 9/99, 2 & 4/00; ants in flowers, plant green, good 2/01; green, good 4/01
27.00	46	12.43	188										4.10			discovered summer 99; green, good 9/99, 2 & 4/00, 2 & 4/01
27.01	46	12.47	188										0.87			discovered 9/99; green, good, hunkered, not tagged 9/99, 2 & 4/00; green, good 2 & 4/01
28.00	46	12.57	195		• • 								4.07			discovered summer 99; green, good 9/99, 2 & 4/00, 2 & 4/01
29.00	46	12.39	198										1.75			discovered summer 99; green, good 9/99, 2 & 4/00, 2 & 4/01
29.01	46	12.43	198	_		-							0.91			discovered 9/99; green, hunkered, good 9/99; 2 & 4/00; hunkered, reddish, OK 2/01; green, good 4/01
30.00	46	16.82	201										1.11			discovered summer 99; orange, OK, hunkered, squishy 9/99; reddish, hunkered, Ok 2/00; hunkered, green, OK 4/00, 2 & 4/01

	STK #	DIST	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98FI	98FB	99DM	99FL	99FR	NOTEO
30.10	46	16.79	199							00, 2	00111		33FC	<u>99FN</u>	NOTES discovered 4/01; hunkered, green, good 4/01
31.00	46	16.85	200									0.68	· · · - · ·		discovered summer 99; dark green, OK, hunkered 9/99; olive green, hunkered, OK 2 & 4/00, 2 & 4/01
32.00	46	16.90	197									0.96			discovered summer 99; green, good, hunkered, almost buried 9/99; hunkered, green, OK 4/00, 2/01; popped out, green good 4/01
33.00	46	18.89	198							 		1.55			discovered & shrouded 7-9/99; green and good 9/99, 2 & 4/00; maroonish, OK 2/01; maroonish-green, OK 4/01
34.00	46	~19.25	199						-	 		1.13	• • •		discovered & shrouded 7-9/99; shroud loose, green, good, hunkered 9/99; green, good 2 & 4/00; dark green, OK 2/01; green, good 4/01
35.00	46	11.40	~210					•···		 				- ·;	discovered 2/00; green, good 2 & 4/00; olive, OK 2/01
35.01	46	11.44	~210	-	4					 					at 6 o'clock on 35.00, discovered 4/01; one measurement only, green, good 4/01
			· · · · · · · · · · · · · · · · · · ·							·			1		

35.02 46 35.03 46 35.04 46 35.05 46 35.06 46	11.44 11.40 11.39 11.38	~210					99DM	99FL	99FR	NOTES at 5 o'clock on 35.00, discovered 4/01; one measurement only, hunkered, OK 4/01 at 3 o'clock on 35.00, discovered 4/01; one measurement only, green, OK 4/01 at 2 o'clock on 35.00, discovered 4/01; one measurement only, green, OK 4/01
35.04 46 35.05 46 35.06 46	11.39	~210			· · · · · · · · · · ·					one measurement only, green, OK 4/01 at 2 o'clock on 35.00, discovered 4/01;
35.05 46 35.06 46			 		 (- - -	at 2 o'clock on 35.00, discovered 4/01; one measurement only, green, OK 4/01
35.06 46	11.38	~210	 	 	 	 				
										at 1:30 o'clock on 35.00, discovered 4/01; one measurement only, green, OK 4/01
35.07 46	11.37	~210		" *	 	 	 			at 1 o'clock on 35.00, discovered 4/01; one measurement only, green, good 4/01
	11.37	210		 	 	 - <u>-</u>	 		<u> </u>	at 12:30 o'clock on 35.00, discovered 4/01; one measurement only, green, OK 4/01
35.08 46 1	11.37	210	 	 -,	 		 			at 12 o'clock on 35.00, discovered 4/01; one measurement only, green, OK 4/01

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	STK #	DIST	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
35.09	46	11.37	210											00, 2		at 11:30 o'clock on 35.00, discovered 4/01; green, good 4/01
35.10	46	11.46	209										···· .			discovered 4/01; green, good 4/01
35.11	46	11.37	210								••					at 11 o'clock on 35.00, discovered 4/01; one measurement only, green, OK 4/01
35.12	46	11.39	210													at 10 o'clock on 35.00, discovered 4/01; one measurement only, green, OK 4/01
35.13	46	11.37	210												. .	above 35.11 & left of 35.09; discovered 4/01; green, good 4/01
36.00	46	~18.90	~190												.	discovered 4/00; green, good 4/00; tag mia, replaced, plant dark with a few red tubercle tips, good 2 & 4/01
37.00	46	~12.60	~228								· ·				: 	discovered 4/01; blue-green, good 4/01
38.00	46	12.26	~214													discovered 4/01; green, good 4/01
							•		1		:					

								К	іскаро	o Cavei	rns SN	A - Vire	o Territo	ory		
PL # 39.00	STK #	DIST 12.28	ANGLE ~214	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	_99FL	99FR	NOTES discovered 4/01; green, good 4/01
40.00	46	12.30	~214	 			· · ·									discovered 4/01; green, good 4/01
41.00	46	12.44	~215		**	1 0.000				- <u>-</u>			,,,,	, •	····· ·····	discovered 4/01; olive, OK 4/01
42.00	46	12.49	~216			<u>.</u>										discovered 4/01; hunkered, green, OK 4/01
43.00	46	12.53	~214													on left of 43.00, discovered 4/01; green, OK 4/01
44.00	46	12.54	~214					·								on right of 42.00, discovered 4/01; green, OK 4/01
45.00	46	12.59	~214	<u></u>									···			discovered 4/01; green, good 4/01
46.10 46.11		28.70 28.85	184 184	2.30	3		2.10 1.30	0	Dead 0	1.50	0	0	1.76	1fr	1A	tag uprooted, retagged 2/97; COD unknown 5/97 hunkered, green, good 4/99, 2 & 4/00, 2/01; popping out, green, good 4/01
46.20	46	28.70	184	2.00	0	0	1.60	0	Dead							tag mia, retagged 2/97; COD unknown 5/97

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46	28.70	184	1.10	0	0	Dead		97FR		98FL	98FR	99DM	99FL	99FR	NOTES There was a large dead plant beside
										and the second second					a lange acad plant bealde
						12430		2 C C C C C C C C C C C C C C C C C C C							46.1-46.3. This plant was found dead
											id Ney de la Mission de				in 2/96 (COD unknown, stem black
			A. 19												Inside but not hollow). This plant
															(46.30) was a pup (its root coming off
	13240 1218 12002283191	10													the large plant's root). The pup had a
															hole in the stem from which a larva was
															collected 2/97.
46	28.35	184		1121 - 14 131 131		- 2.20	0	0	Dead					Niprit (plant maroon 5/97; dead larva inside
46	13.20	. 219	j∉.st.	AS MIL				leven) d						机带管机	2/98
-0	13.20	~210													discovered 4/01; green, good 4/01
46	13.14	~219										· - · · ·			discovered 4/01; hunkered, green, OK
															4/01
46	12.49	~213				· · · · · · · · · · · · · · · · · · ·									discovered 4/01; green, OK 4/01
											:				
46	16.98	~204										:			discovered 4/01; olive, OK 4/01
						. 1									
												1			
								- · · -							
A is th	e 3rd ru	isty T-oc	 ost east	from th	he laro	e fenco	noet in	the cro		10 0	001000				
6A	26.65	193	2.40	1 fr	1	2.90	2 2		2 90	<u>12 = n</u> 1	14				fruit torn open attended to a tor
									2.00			2.09	U		fruit torn apart, dispersing seeds 5/96; one very small bud 2/98; yellowish at base, green, new spine growth on top, OK 4/99; olive green, OK 2 & 4/00; maroon, poor 2/01; new spine growth at apex, maroon, poor 4/01
46	b b is th	5 13.14 5 12.49 5 16.98 is the 3rd ru	5 13.14 ~219 5 12.49 ~213 5 16.98 ~204 is the 3rd rusty T-po	5 13.14 ~219 5 12.49 ~213 5 16.98 ~204 is the 3rd rusty T-post east	5 13.14 ~219 5 12.49 ~213 5 16.98 ~204 is the 3rd rusty T-post east from t	5 13.14 ~219 5 12.49 ~213 5 16.98 ~204 is the 3rd rusty T-post east from the larg	5 13.14 ~219 5 12.49 ~213 5 16.98 ~204 is the 3rd rusty T-post east from the large fence	5 13.14 ~219 6 12.49 ~213 7 16.98 ~204 8 16.98 ~204 is the 3rd rusty T-post east from the large fencepost in	5 13.14 ~219 6 12.49 ~213 7 16.98 ~204 8 16.98 ~204 is the 3rd rusty T-post east from the large fencepost in the cre	3 13.14 ~219 3 12.49 ~213 3 16.98 ~204 is the 3rd rusty T-post east from the large fencepost in the creek; GPS	3 13.14 ~219 3 12.49 ~213 4 16.98 ~204 5 16.98 ~204 is the 3rd rusty T-post east from the large fencepost in the creek; GPS 12 = R	13.14 ~219 12.49 ~213 16.98 ~204 is the 3rd rusty T-post east from the large fencepost in the creek; GPS 12 = R021822	3 13.14 -219 3 12.49 -213 4 16.98 -204 5 16.98 -204 is the 3rd rusty T-post east from the large fencepost in the creek; GPS 12 = R021822A	3 13.14 ~219 3 12.49 ~213 4 16.98 ~204 5 16.98 ~204	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

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PL # STK # DIST AN	GLE 96DM 96FL 9	96FR 97DM 97FL 97F	R 98DM 98FL	98FR 99DM 99	FL 99FR	NOTES
Data taken and recorded	by Jackie Poole 3/3/	96, 5/8/96; 2/12/97, 5/6/9	7; 5/5/98; 4/99, 9/	/15/99, 2/9/00, 4/28/0	0 with Craig So	cofield & Bill Calvert,
2/16/01, 4/25-26/0 Data taken by Gena Jans				·		
Data taken by Jackie Poo	le and recorded by	inda Hedges 2/99	-,	······································	· · · · · · · · · · · · · · · · · ·	
					· _ +	

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Others area government against

I.01 13.48 9 1.00 0 on right of 1.0 green, good 5 2/00; oull gree 4/00, 2/01; tag green, good 5 1.02 13.48 9 1.17 0 on left of 1.01 green and goo hunkered in S 2/01; tag chew out, green, good 0 1.03 13.67 9 0.64 0 discovered 5/2 dead plant 5/9 green, OK 4/00 OK 2/01; green 1.04 13.69 9 0.52 0 discovered 5/2 dead plant 5/9 green, OK 4/00 OK 2/01; green, OI 1.041 13.75 9 0.52 0 discovered 5/2 dead plant 5/9 itag mia, replac replanted 2/01 5/01 1.041 13.98 8 2.31 0 discovered 5/9 green, OI 1.05 13.98 8 2.31 0 discovered 5/9 greedish 5/99; d reddish 5/99; d reddish 5/99; d	NOTES
I.01 13.48 9 1.00 0 on right of 1.0 green, good 5 2/00; oull gree 4/00, 2/01; tag green, good 5 1.02 13.48 9 1.17 0 on left of 1.01 green and goo hunkered in Si 2/01; tag chew out, green, goo 1.03 13.67 9 0.64 0 discovered 5/2 dead plant 5/9 green, OK 4/00 OK 2/01; green 1.04 13.69 9 0.52 0 discovered 5/2 dead plant 5/9 green, OK 4/00 OK 2/01; green 1.04 13.75 9 0.52 0 discovered 5/2 dead plant 5/9 green, OK 4/00 OK 2/01; green 1.04 13.75 9 0.52 0 discovered 5/9 dead plant 5/9; discovered 2/0 2/01; green, OI 1.05 13.98 8 2.31 0 discovered 5/9; discovered 5/9; discovered 5/9; discovered 5/9; of reddish 5/99; discovered 5/9; of reddish 5/99; discovered 5/9; of reddish 6/99; discovered 5/9; of reddish 6/99; discovered 5/9; of reddish 6/99; discovered 5/9; of reddish 6/99; discovered 5/9; of reddish 6/99; discovered 5/9; of reddish 6/99; discovered 5/9; of reddish 6/99; discovered 5/9; of reddish 6/99; discovered 5/9; of reddish 6/99; discovered 5/9; of reddish, OK 4/0; 5/01	e); GPS15 = R021716A
1.02 13.48 9 1.17 0 on left of 1.01 green and god hunkered in S 1.03 13.67 9 0.64 0 discovered 5/2 dead plant 5/9 green, OK 4/00 OK 2/01; green 1.03 13.67 9 0.64 0 discovered 5/2 dead plant 5/9 green, OK 4/00 OK 2/01; green 1.04 13.69 9 0.52 0 discovered 5/2 dead plant 5/9 green, OK 4/00 OK 2/01; green 1.041 13.75 9 0.52 0 discovered 2/0 2/01; green, OI 1.05 13.98 8 2.31 0 discovered 5/9; dead plant 5/9; discovered 2/0 2/01; green, OI 1.05 13.98 8 2.31 0 discovered 5/9; discovered 2/0 2/01; green, OI	4/99; dark purplish-green, en, good 4/00; maroonish- red, OK 2 & 5/01
1.03 13.67 9 0.64 0 discovered 5/2 1.03 13.67 9 0.64 0 discovered 5/2 1.04 13.69 9 0.52 0 discovered 5/9 1.04 13.69 9 0.52 0 discovered 5/9 1.04 13.75 9 0.52 0 discovered 5/9 1.041 13.75 9 discovered 2/0 2/01; green, OI 1.05 13.98 8 2.31 0 discovered 5/9; discovereed 5/9; discoveree	01 & 1.02; discovered 5/99; 5/99; one measurement only en, OK. under rock 2 & g chewed, replaced 2/01; 5/01
1.04 13.69 9 0.52 0 discovered 5/9 1.04 13.69 9 0.52 0 discovered 5/9 1.04 13.75 9 0.52 0 discovered 2/0 1.041 13.75 9 0 discovered 2/0 2/01; green, OI 1.05 13.98 8 2.31 0 discovered 5/9; discovered 5/9; discovered 5/9; reddish 5/99; discovered 5/9; reddish 5/99; discovered 5/9; reddish, OK 4/0 1.05 13.98 8 2.31 0 discovered 5/9; discovered 5/9; reddish 5/99; discovered 5/9; discovereed 5/9; discover	& 1.02; discovered 5/99; od 5/99; dull green, Selaginella, OK 2 & 4/00, wed, replaced 2/01; coming ood 5/01
dead plant 5/9 tag mia, replact replanted 2/01 5/01 1.041 13.75 9 discovered 2/0 2/01; green, Ol 1.05 13.98 8 2.31 0 discovered 5/9 reddish 5/99; d reddish, OK 4/0 5/01	99; OK, seedling of larger 99; purplish, hard, OK 2/00; 90; tag mia, replaced, olive, en, good 5/01
2/01; green, Ol 1.05 13.98 8 2.31 0 discovered 5/9 reddish 5/99; d reddish, OK 4/0 5/01	99; OK, seedling of larger 99; dull green, OK 2 & 4/00; ced, accidentally uprooted, ; grayish-green, poor 2 &
reddish 5/99; d reddish, OK 4/0 5/01)1; grayish-green, poor K 5/01
	99; OK, apical meristem dull grayish-red, OK 2/00; 00; plant and tag mia 2 &
green, hunkerir	9; green, good 5/99; ng, OK 2 & 4/00; tag d, grayish-green, OK 2 &

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PL# STK#	DIST	ANGLE	99DM	99FL	99FR	NOTES	_	
1.07	14.46	20	2.02	· · · · · · · · · · · · · · · · · · ·	0	discovered 5/99; green, good , hunkered in gravel and Selaginella 5/99, 2 & 4/00; bluish-green, OK 2/01; hunkered, green, OK 5/01		
1.08	14.98	21	2.23		0	under small juniper, discovered 5/99; green, good 5/99, 2 & 4/00; partially covered by juniper litter, green, OK 2 & 5/01	· · · · · · · · · · · · · · · · · · ·	
1.10	14.65	4			<u>.</u>	discovered 2/01; grayish-green, OK 2/01; maroonish-green, OK 5/01	· · · · · · ·	
1.20	13.83	13				discovered 2/01; green, good 2 & 5/01		
1.30	14.06	13				discovered 2/01; hunkered in Selaginella, green, OK 2/01; green, good 5/01		··· ···
2.00	15.12	10	3.10	5		OK, 2/99; poor, reddish, 4/99; hooded during weevil study during summer 99; green, good, 9/99; reddish, OK 2/00; reddish-green, OK 4/00; tag and plant mia 2 & 5/01		
2.10	12.90	25				discovered 2/00; dull green, OK 2 & 4/00; tag and plant mia 2 & 5/01		
2.11	12.90	25 1			ili il che i signi ici i che i signi	discovered 2/01; edge of grass clump; gray-green, poor 2/01; hard, dry, COD Jnknown 5/01		
2.20	13.12	24			ly	discovered 2/00; maroon, OK 2/00; /ellowish, OK 4/00; apex damaged, maroon, poor 2/01; green, good 5/01		<u>,</u>
2.30	10.24	15				discovered 2/01; hunkered in Selaginella, green, good 2 & 5/01		
· · · · · · · · · · · · · · · · · · ·								

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		ANGLE			99FR	NOTES	
2.40	10.51	13				discovered 2/01; hunkered in Selaginella, green, good 2 & 5/01	
3.00	12.17	211	6.28	6+1fr		maroon, good 4/99; maroon, OK 2/00; some maroonish tubercles, OK 4/00; some maroonish tubercles, bluish-green, good 2/01; reddish-green, good 5/01	
4.00	12.57	211	2.55	1+1fr	0	poor, plant partially eaten 4/99; hunkered, green, good 2 & 4/00, 2/01; popped out, green, good 5/01	· · · · ·
4.10	12.55	216				discovered 5/01; hunkered in Selaginella, green, OK 5/01	-
5.00	12.13	209	6.57	7+7fr		maroonish, OK 4/99; dull reddish-green, OK, fresh flowers yellow, fade to pinkish dusky yellow (Photos 1-4) 2/00; some orange tubercles, OK 4/00; maroonsih- green, OK 2/01; purplish-green, OK 5/01	
5.10	12.28	212				discovered in grass and Selaginella 2/00; green, good 2 & 4/00, 2 & 5/01	
5.20	11.22	212				discovered 2/01; maroonish-green, OK 2 & 5/01	
6.00	12.56	209	2.04	2+1fr		OK, green, 4/99; maroon, OK 2 & 4/00, 2 & 5/01	
7.00	12.05	209	1.02	0		ag loose, dull green, OK 4/99; maroon, hunkered, OK 2/00; hunkered, dull green, OK 4/00; bluish-green, OK 2 & 5/01	

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PL#	STK#	DIST	ANGLE	99DM	99FL	99FR	NOTES		
8.00		12.64	208	2.50	1	1	reddish, OK, fruit has hole 4/99; maroon, OK 2/00; reddish-green, OK 4/00; purple OK 2 & 5/01		• •
9.00	, , : :	12.47	207	1.59	0		two-headed plant, head closest to stake, spines gray 4/99; reddish, OK (Photos 5- 6) 2 & 4/00, 2/01; dull reddish-olive, OK 5/01		
9.01		12.47	207	1.66	0	0	two-headed plant, head farthest from stake, reddish, poor 4/99; reddish, OK 2 & 4/00, 2/01; dull reddish-olive, OK 5/01	 	
10.00	the Line Sin Find	12:45	202	3.33	0		two-headed plant, head on left looking toward stake, dead 4/99		
10.01	1. X81.22 514	12.45	202	1.38	0		two-headed plant, head on right, dead 4/99		
11.00	<u> </u>	12.57	207	0.97	01		dull green, OK 4/99; red, poor 2 & 4/00, 2/01; reddish-green, OK 5/01	<u>1 836 (2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 </u>	

	: :							
12.00	12.46	207	0.93	0	0	green, good 4/99; reddish-green, OK 2 & 4/00; dull reddish-green, poor 2/01; pale reddish-green, OK 5/01		
13.00	12.57	207	1.59	0	0	dull green, OK 4/99, 2 & 4/00; reddish at base, otherwise pale olive, OK 2 & 5/01	i	:
13.01	12.59	207	0.68	0		on right, OK 4/99; dull gray-green, poor 2/00; maybe dead 4/00, 2/01; green, OK 5/01	· · ·	
13.02	12.59	207	0.51	0	:	on left, pinkish, OK 4/99; mia 2/00; relocated under rock, green, good 4/00; plant mia 2/01; relocated under rock, green, OK 5/01	· · · · · · · · · · · · · · · · · · ·	
14.00	12.30	206	1.69	-0	Dead			
15.00	12.28	206	.0.91	0	Dead			

	<# DIST				NOTES	
16.00	10.86	207	1.45	C	discovered 4/99; dull green, OK, stepped on 4/99, 2/00 (misshapen); pale green, OK 4/00; plant mia 2 & 5/01	
			: '	: !	: · · ·	
17.00	10.99	207	2.59	1A	17.00 is on left; dull green, OK, stepped on, discovered 4/99; starting to form two	
					heads, measured as one 2/00; maroon,	
					OK 2 & 4/00; reddish-green, OK 2 & 5/01	
17.01	10.99	207	· · · ·		17.01 is on right, reddish-green, OK 2 &	
					5/01	
18.00	11.10	207	2.20	1	green, good, stepped on, discovered	
					4/99; hooded during weevil study in summer 99; dull green, OK, 9/99;	1
1		-			reddish, OK 2 & 4/00, 2/01; pale	
					maroonish-olive, OK 5/01	:
ļ						
19.00	11.60	208	1.27	· 0	green, hunkered, squishy, OK 9/99; hunkered, dull green, OK 2 & 4/00; tag	
:					mia, replaced, maroonish-green, OK	
					2/01; maroon, OK 5/01	
20.00	14.45	214	0.94	0	green, hunkered, OK 9/99, 2 & 4/00; pale	
		i			green with pale reddish tubercle tips, OK 2 & 5/01	
1		i		· ·		
1.00	14.52	213	1.83	0	purplish-green, hunkered, OK 9/99, 2 & 4/00; popped out, purplish-green, OK 2 &	
		 	:		5/01	
2.00	7.52	203			discovered 2/00; green with a few	
; ;					reddish tubercles, OK 2/00; orangish, OK 4/00; purplish-orange, OK 2/01; orangish- olive, OK 5/01	
i	· ·					

 $(x,y_1,y_2,\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,y_{2k},y_{2k},\dots,$

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PL#	STK#	DIST	ANGLE	99DM	99FL	99FR	NOTES		
23.00		7.50	124				under small persimmon, discovered		
	i			:	.		2/00; green with a few gold tubercles,		
	:			:			good 2/00; orangish, OK 4/00; maroon,		
	:		!	:	· ·		poor 2/01; green with red tubercle tips,		
	1						OK-poor 5/01		
	· · ·								
	: 1								
			;						
	!		. .						
	1		ļ		1			i ·	
Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Whiskey Bottle

PL #	STK #	DIST	ANGLE	96DM	96FL]	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
Stake	WB1 IS	~ 125	paces ⊢a	st of roa	ad throug	gh small c	pening				on mair	road to	North	<u>gate. G</u>	PS8 = R0	
1.00	WB1	34.85	97	5.10	7 fr		4.60	0								COD=weevils
1.10	WB1	34.72	97	2.80	<u>1 fr</u>	ـــــــــــــــــــــــــــــــــــــ	2.40	0	Dead		1911 - 1912 1913 - 1913 - 1917			5		COD=weevils
1.20	WB1	34.77	96	4.10	l fr	U	Dead									reddish, not looking good 2 & 5/96; COD unknown, no weevils or insect exit holes, tag removed 2/97
1.30	WB1	35.36	100	4:40	👘 8 fr	2A, rest	4.40	0	Dead			läigt ich	3		SCHARSEL	COD=weevils; pin flag stuck in
						disp										cactus; larva collected from nearby Coryphantha echinus 5/97
1.40	WB1	~32.62	-105	4.00	3fr	0, disp?	3.90	3 		Dead						distance measured around juniper; plant turning yellow 5/96; dead, filled with 5 or 6 larvae (collected) & orange mush 2/98
2.00	WB1	31.30	209	3.40	- 4 fr	1+1A	3.90	4	4	4.00	5	5	Dead			hollow, probably weevils 2/99
2.10	WB 1	31.57	209	3.90	5 ft	disp	4.90	15	6	4.90	7	4. 1995 1995 1995 1995 1995 1995 1995 199	4.18	5+3fr	3+4 disp	flower & stigma bright yellow; plant dull green, OK, 2/99; small ants swarming fruits 4/99; tubercles getting orangish, OK 2 & 4/00; inside powdery; COD unknown 2/01
2.20	WB1	33.33	205	4.10	4 fr	2+1	4.60	4	6	3.80	2	Dead				dead, weevil collected 5/98
2.30	WB1	33.40	209	8.00	5+8 fr	4A+1 dehisc	8.40	9	14	Dead						COD unknown, not really hollow. (I.e., weevils) 2/98
2.40	WB1	35.22	205			<u></u>	3.30	3	3	3.20	3	1+1A	3.42	4fr	3А	hunkered in Selaginella, some reddish tubercles 2/99; green,
		, ;														good 4/99; green, good 2/00 (one flower eaten), 4/00; green, good 2 & 5/01
2.41	WB1	35.03	205		· · · · · · · · · · · · · · · · · · ·		4.50		5	4.60	4	4A	4.65	5+3fr	8	discovered 5/97; tag mia, replaced 98; flowers & stigma bright yellow, tag severely chewed, replaced 2/99; dark green, good 4/99, 2/00 (3 flowers eaten), 4/00; ~10% eaten, scarred over, slightly purplish-green, OK 2/01; olive, OK 5/01

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Ancistrocactus tobuschii Data for Kickapoo Caverns SNA - Whiskey Bottle

PL #	STK #	DIST	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
2.50	WB1	36.75	208		1		3.30	2	2+1A	3.40	4	2	2.99	3fr	2+1A	tag mia, replaced 98 & 2/99;
																squishy 2/99; maroonish olive, firm, OK 4/99, 2/00 (stigma and
																flowers pinkish); maroonish 2/01;
		1														olive, OK 5/01
2.60	WB1	~32.95	205			·/ · · ·			-	2.40	1	1	2.22	2+1fr	1+1 disp	around juniper, discovered 2/98;
2.00		02.00	200							2.40		•	2.22	2,10	•	edge of rock; flowers & stigma
																bright yellow 2/99; green, good 4/99; green, good, rock partially on
																top 2 & 4/00, 2 & 5/01
2.70	WB1	30.95	208									·				purplish-orange green, OK 2/00;
																green, OK 4/00; olive, OK 2 & 5/01
3.00	WB1	~57.58	~198	5.10	6 fr	6A	4.50	0	0	4.70	5	4	3.92	4+1fr	2+3A	measured beside juniper and
	President in the second															through agarita; flowers & stigma yellow; a little maroon, OK 4/99;
						n an an an an an an an an an an an an an										hollow, weevil chambers and five
			100				0.00	de sinteriori Antonio de la companya de la companya de la companya de la companya de la companya de la companya de la companya		0.00	an the			100 AB 10		weevils, Dead 2/00
3.10	WB1	~57.25	~198				3.00	2		2.90	0	0	Dead			by rock; hollow, probably weevils 2/99
												···				
Data ta	aken ar	nd recor	ded by Ja	ackie Po	oole 3/5/	96 & 5/9/	96; 2/12	2/97; 5/5	/98; 2/1	5/99, 4/	21/99, 2	2/8/00 w	/ith Crai	g Scofie	eld, 4/28/0	0, 2/9/01, 5/02/01
			Stuart an		· · · · · ·				L					•		
Uata ta	aken by	/ Gena	Janssen	ano rec	oraea by	Jackie F	0018 2/	18/98	L	£		L				<u> </u>

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Ancistrocactus tobuschii Data for Private Preserve, Kerr County

		· · · · · · · ·										,			
PL#	STAKE	DIST	ANGLE	96DM	96FL	96FR	97DM	97FL	_97FR	98DM	98FL	98FR	99DM	99FL	99FR NOTES
The ref	erence p	point (r	ebar) is	in front o	of a prun	ed junipe	r. GPS1	R03091	4A					' '	
1.00		7.93	73	2.20	1	0	3.20	1+1B	1A	2.90	1	1	3.10	3fr	2 good 3/98; pulling into soil 5/98 & 3/99; popping out, olive, OK 5/99; out, green, good 3 & 5/00; green with some red and orange tubercle tips, misshapen, OK 2 & 4/01
2.00		8.03	73	1.90	1	0	2.50	1+1B	2	1.90	2	2	2.77	2	2 dead plant beside 3/96; dead plant gone, getting covered by lichens, but looking good 3 & 5/98, 3/99; olive, OK 3/99; slightly hunkered, green with a few orange tubercles, OK 3 & 5/00; pale green, OK 2/01; green, good 4/01
3.00		8.22	75	2.80	1+1fr	2	2.80	3	1Ā	2.70	0	0	2.80	2	3 very small buds 3/97; OK 3 & 5/98, 3/99; green, good 5/99; olive, OK 3/00; green, good 5/00; yellowish- green, OK 2/01; green with yellowish tubercle tips, OK 4/01
3.01		8.18	75	11 100									0.40		0 discovered 5/99; green, OK 5/99, 3 & 5/00; green, good 2 & 4/01
4.00		7.94	76	3.30	1+2fr	3	3.60	2+2B	1+3A	4.10	3	3	3.60	1+1fr	2 good 3 & 5/98, 3/99; maroon, OK 5/99 & 3/00; orangish, OK 5/00; reddish olive, OK 2 & 4/01
5.00		6.97	74	4.10	0	0	4.50	3B	3	4.30	3	3	dead		of the cluster 5-6, 5 is on the right looking toward the reference point; good 3 & 5/98; dead, solid and dry, granular and fluffy inside, COD unknown 3/99

	STAKE		ANGLE		96FL	96FR	97DM	97FL	97FR	98DM	98FL 98FF	R 991	DM	99FL	99FR NOTES
6.00		6.96	74	3.40	0	0	4.00	1+2B	3				ad		of the cluster 5-6, 6 is to the left of 5;
												non Sal			OK 5/98; dead, solid, dry, fluffy -
															granular inside, COD unknown 3/99
7.00		7.05	76	3.10	2	2	3.10	1+2B	2	3.00	1	2 3	3.03	1fr	1 good 3 & 5/99; good, green 3 & 5/00,
															2 & 4/01
									1						
8.00		7.13	76	4.50	3	3	5.30	2+2B	4	4.90	0	0 4	.43	2+1fr	3 plant good, tag loose 3/99; good
												-			5/99; slightly reddish, good 3 & 5/00;
														-	green, good 2 & 4/01
											, ,				
9.00		7.08	74	1.60	0	0	2.30	Ö	0	2.40	0	0 2	2.52	0	0 green, good 5/99, 3 & 5/00, 2 & 4/01
									·			-			
					•									ĺ	
9.01		7.01	74						[··· · · · · ·	2	2.38	!	0 green, good, discovered 5/99, 3 &
									ŗ						5/00, 2 & 4/01
									ļ						,
				· · · · · · · · · · · · · · · · · · ·											
10.00		7.11	78	1.40	0	0	1.40	0	0	1.50	0	0 1	.92	0	0 good 3 & 5/99; green, good 3 & 5/00,
									i						2 & 4/01
									:						
11.00		8.68	79	2.40	2	<u>1</u>	mia			mia		· · · ·	mia		disappearance due to fire ants? no
	역사는 100년 기억 101년									mia				iti hi his	more fire ants, plant mia 3 & 5/97, 3
12.00		· 6.77	86	2.60	0	<u> </u>	3.20		1						& 5/98, 3/99 and 5/99
12.00		. 0.77	00	2.00	U	U	3.20	1	ł	3.70	3	3 3	3.15	1+1fr	2 of the cluster 12-15, 12 is left of 15,
															closest to the reference point; good 5/98, 3 & 5/99, 3/00; green, good
													1		5/00, 4/01
						:								:	
					······			<u>-</u>							

	STAKE				96FL	_96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
13.00		6.80	86	2.90	1	0	3.20	2B	2	2.80	0	1	4.19	· 2	1+1A	of the cluster 12-15, 13 is behind and
																to the right of 12; flower buds look
						ĺ										odd 3/97; good 5/98, 3 & 5/99; green,
																good 3 & 5/00, 2/01; green, good
																4/01
14.00		6.80	86	3.30	2	2	3.40	2B	0	3.90	2	2	3.92	2 . 2	3	of the cluster 12-15, 14 is behind 12
																& to the left of 13; buds barely
																formed 3/97; good 5/98, 3 & 5/99;
																green, good 3 & 5/00, 2/01; green,
																good 4/01
15.00		6.80	86	2.30	0	0.	2.80	1B	0	3.00	1	1	2.93	1	1	of the cluster 12-15, 15 is to the left
	:															of 14; bud very small 3/97; good
																5/98, 3 & 5/99; reddish, OK 3 & 5/00;
																olive, OK 2 & 4/01
											1					
16.00		6.65	88	2.60	2	····· 0	3.30	1B	1	3.10	- <u>-</u>	1	3.43	2		plant crushed 3/96; OK 3/97, 3/98 &
10.00		0.00	00	2.00	-	Ŭ	0.00		•	3.10	0	I	0.40	2	2	F/08 2/00 alive OK 5/00 and 5
																5/98, 3/99; olive, OK 5/99; green,
																good 3 & 5/00; chunk missing on one
																side, scarred over, green, OK 2 &
																4/01
	:															
17.00		ē 00		0.00			0.50									
17.00		6.20	88	2.30	1	1	3.50	3B	2+1A	3.30	3	3	3.42	1	1	on right of 18.00; good 5/98, 3/99;
														:		green, good 5/99; forming a new
														•		apical meristem, green, good 3 &
	:									ĺ						5/00, 2/01; dead, chambers &
																galleries, COD - weevils, collected for
			ļ						:							weevil study 4/01
l	<u> :</u>						İ		I					.		

										inneone					
	STAKE		ANGLE		96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR NOTES
18.00		6.20	66	2.20	0	0	3.20	3B	3	3.40	1	t	2.93	3	3 on left of 17.00; good 5/98, 3/99;
														~	green, good 5/99, 3 & 5/00; green
															with some reddish tubercles, OK 4/01
													:		with some reduisit tubercles, OK 4/01
19.00		6.57	88	2.00	0	0	2.80	1+1B	2	3.10	1	† · · 1	3.40	2+2fr	4 good 3 & 5/99; green, good 3 & 5/00,
									_				0.10	2 (2, 1	2 & 4/01
19.01		6 54	- 88				1.00								
10.01		0.34	- 00									ALL PROPERTY.	1.54		0 left of 19.02, discovered 5/99; green,
	Rige in the						1.5.1								good 5/99, 3 & 5/00; just spines left,
10.00				ab dad se			Second and a se	dian-t-rit	1						COD unknown 2/01
19.02		6.55	88										1.41		0 on right of 19.01, discovered 5/99;
								34. sh		5 malente					slightly maroonish; OK 5/99; green,
20.98966							an dere								good 3 & 5/00; filled with orange
1.26.123.05				Parage de Milia				8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8							liquid, no insect sign, COD probably
		040.00 040.00								1.000					fly larva 2/01
20.00		6.51	94	2.80	2	2	3.70	3B	3	4.60	3	5	4.45	4+1fr	5 tag mia, replaced 3/98; good 3/99;
								1							good, green 5/99; turning goldish at
															base, otherwise green, OK 3 & 5/00,
															2/01; green, good 4/01
													:		
	1														
			_										1		
20.01		6.79	95								,	· - ·	·		discovered 2/01, in solution pocket in
													1		rock, green, good 2/01; covered by
														1	pissant dirt, OK 4/01
													:		pissairt uirt, OK 4/01
													ļ		
		<u>,</u> +												-	
21.00		6.41	94	1.70	0	0	1.80	0	0	2.10	2	2	2.09	1	0 of the cluster 21-23, 21 is to the left
								Ì							and behind 22 and 23; good 5/98,
															3/99; green, good 5/99; reddish, OK
															3/00; green, good 5/00; reddish olive,
							-	1					. !		OK 2/01; reddish, poor 4/01
1													į		

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PL#	STAKE	DIST			96FL		07011	0751		00014			00011		
22.00	STARE	6.38	94	3.40		96FR 2	97DM 4.40	97FL 2B	97FR	98DM	98FL	98FR	99DM	99FL	99FR NOTES
22.00		0.30	94	3.40	2	2	4.40	20	2	4.70	4	3+1A	4.26	2+1fr	3 of the cluster 21-23, 22 is to the left of 23; looks good 5/98, 3/99; maroonish, OK 5/99; olive, OK 3 & 5/00; marronish-olive, OK/poor 2/01 forming a second apical meristem, green, OK 4/01
23.00		6.38	94	3.20	2	2	4.00	28	2	3.80	3	3	3.97	1+1fr	2 of the cluster 21-23, 23 is to the righ of 22; good 5/98, 3/99; maroonish, OK 5/99; olive, OK 3 & 5/00, 2/01; yellow-green at the base, green above, new spine growth 4/01
23.01		6.36	94												discovered 4/01, 12 o'clock on 23, green, OK 4/01
24:00		6.58	9 4				2.50	0	0	2.50		0	dead		grayish red, firmly rooted, looks bad & 5/97; about one-third eaten, grayish red, bad 3/98; misshapen; OK 5/98; dead, solid, granular, COE unknown 3/99
25.00		6.45	99	2.20	0	0	2.80	1B	1A	2.70	2	2	2.94	1+1fr	2 good 3/99; maroonish, OK 5/99 & 3/00; orangish, OK 5/00; olive, OK 2 & 4/01
26.00		6.30	99	2.70	0	0	3.00	0	Ő	3.20	0	0	3.24	1+1fr	1+1A good 3/99; maroonish, OK 5/99 & 3/00; olive, OK 5/00; maroonish, OK poor 2/01; maroonish-green, OK 4/0

	STAKE		ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
27.00		6.18		3.40	3	3	4.00	2BB	1+1A	4.10	3	3	· · - · · · · · · · · · ·	· 2		good 3/99; green, good 5/99; reddish, OK 3/00; green, good 5/00, 2 & 4/01
28.00		5.82		2.80		0	3.90	4B	4	4.20	2?	3	3.85	0	0	of the cluster 28-37, 28 is in the center; OK, reddish 3/99, 5/99, 3 & 5/00; new head forminig on left side 5/00; new head gone, plant squishy, reddish, loose, poor 2/01; collected for weevil study 2/01
29.00		5.82	93	1.70	0	0		3B	2A	.2.50	0	0	2.06	0	Q	of the cluster 28-37, 29 is behind and right of 28; OK, reddish 3/99, 5/99, 3 & 5/00; squishy, seems dead 2/01; collected for weevil study 2/01
30.00		5.84	93.	2.00		0	-2.10	0	0	2.10	0	0	1.83	0	0	of the cluster 28:37,30 is to the left of 29; OK, reddish 3/99, 5/99, 3 & 5/00; squishy, maybe dead 2/01; collected for weevil study 2/01
30.01		5.84	93				1:10			1.20	0	mia	mia			between 30.00 & 31.00, behind 28.00; not tagged 3/97; mia 5/98; 3/99, 5/99, 3 & 5/00, 2/01; surrounding plants collected for weevil study 4/01
31.00		5.84		1.70	0	0	270	0	0	2:40	0	O	1.25	0	0	of the cluster 28-37, 31 is behind 28.00 and 30.00; getting squeezed out, reddish, OK 3 & 5/99, 3 & 5/00; squishy, tan, looks dead, collected for weevil study 2/01
32.00		5.84	93	1.10	0	0	2.10		0	1.90	0	0	1.61	0	.0	of the cluster 28-37, 32 is to the left of 31; reddish, OK 3/99, 5/99, 3 & 5/00; green, OK 2/01; collected for weevil study 2/01
32.01		5.84	93							0.80	0	0	1.24		0	of the cluster 28-37, 32.01 is below or behind 34.00, not on tag, discovered 3/98; réddish, OK 3 & 5/99, 3 & 5/00; plant mia 2/01; surrounding plants collected for weevil study 2/01

	STAKE		ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
33.00		5.83	93	1.20	• 0	0	1.60	0	0	1.30	0	0	1.67	+ 0	0	of the cluster 28-37, 33 is left (below) 32; reddish, OK 5/99, 3 & 5/00; green, OK 2/01; collected for weevil
			in degrad : in regard :													study 2/01
34.00		5.82	93	1:50	0		1.60	0	0	1.50		0	1.19	0		of the cluster 28-37, 34 is to the left of 33 and to the right of 35, behind & between 35 & 36; reddish, OK 3 & 5/99, 3 & 5/00; weevil larva inside 2/01
35.00		5.81	.93	1.40		0	1:80	0		1:70	0	0	1.82	0	0	of the cluster 28-37, 35 is to the left of 28, behind and between 36 & 37; reddish, OK 3 & 5/99, 3 & 5/00; green, OK, collected for weevil study 2/01
35.01			93				1.00	O Salar Salar Salar Salar		1.10	0	mia	mia	al ann a Statute Galaine Galaine Galaine		between 36.00, 35.00 & 34.00, not tagged 3/97; mia 5/98, 3 & 5/99, 3 & 5/00, 2/01; surrounding plants collected for weevil study 2/01
36.00		5.79	93	1.70		0	1.60	0	0	1.70		0	2:26	0		of the cluster 28:37, 36 is far left of 37; producing additional apical meristems?, reddish, OK 3/99; reddish, OK 5/99; forming a new apical meristem on left; reddish, OK 3 & 5/00; producing 3 new heads, plant red, squishy, loose, poor, collected for weevil study 2/01
37.00		5.80	93	1.90	0	0	2.10	0			0	0	2,21	0	Ō	of the cluster 28-37, 37 is the closet to stake; reddish, OK 3/99, 3 & 5/00; green with reddish tubercle tips, OK, collected for weevil study 2/01
37.01		5.68	93		;											beside rock, discovered 5/00; one measurement only 5/00; green, good 5/00, 2 & 4/01
38.00		5.99	95	5.90	6+1fr	7	6.40	4B	4	6.10	3	5+1A	6.05	2+1fr		good 3/99; olive, OK 5/99, 3 & 5/00; green with reddish tubercle tips, OK 2 & 4/01

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PL#	STAK	E DIST	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
39.00		5.91	94	3.60	0	0	3.90	3B	3A	3.10	<u> </u>	0	dead	•		poor 3 & 5/98; solid, granular, COD
		- - -	01	0.00							is terrest a			Sat sat		unknown 3/99
40.00		5.7	94	3.90	0	0	3.90	0	Q	Dead	Dead	Dead				40 is to the right of 41; yellow-orange
			n ang shires a						121 (11) 121 (11)					1990 - 197		on top, bad 5/97; stem solid, COD
41.00		5.68	3 94	S SECTION:								tini di			liki.	unknown 3/98
41.00		5.66	5 94	3.30		3	3.70	38	2+1A	3.80	3	3	3.79	2+2fr	3+1A	41 is to the left of 40; good 3/99; olive, OK 5/99; purple, partially covered with ant litter, OK 3 & 5/00; gray green with purplish tubercles, lopsided, OK 2/01; reddish-green, new green apical growth, OK 4/01
42.00		5.89	97	2.80	2	2	3.20	1B		2.80	1		0.45	4.44.		
42.00		5.00	5 57	2.00		٢	3.20	ID		2.00	I	I	2.45	1+1fr	2	42 is to the right of 43; good 3/99; good, green 5/99; reddish, OK 3/00; green, good 5/00; purplish green, OK 2/01; green, good 4/01
43.00		5.88	3 97	2.80	2	2	3.00	1B	1A	2.70	0	1	2.84	2	2	43 is to the left of 42; good 3/99;
																good, green 5/99; reddish, OK 3 & 5/00; greenish yellow, OK 2 & 4/01
44.00		5.80	97	1.30	0	0	1.70	0	<u></u>	1.90	0		1.86	0		of the cluster 44-46, 44 is the farthest
					0		1.70		Ū	1.50	U		1.00		U	on the right, a 4th head may be coming out; no 4th head 3/98; reddish, OK 3/99, 5/99, 3/00; purplish, OK 5/00, 2 & 4/01
44.01		5.80	97				1.10	, 0	0	mia			mia			in front of and between 44.00 &
						명한 모날 그림									25) 1997	45.00; not tagged 3/97; mia 3 & 5/98,
	- 														a 180 - A Alfred Alfred	3/99, 5/99, 3 & 5/00

	STAKE		ANGLE	÷ 10	96FL	96FR	97DM	_ 97FL	97FR_	98DM	98FL	98FR	99DM	99FL	99FR NOTES
45.00		5.80	97	1.50	0		1.50	0	0	1.70	0	0	1.85	0	0 of the cluster 44-46, 45 is between 44 and 46, a 4th head may be coming out; no 4th head 3/98; reddish, OK 3 & 5/99, 3/00; purplish, OK 5/00, 2 & 4/01
46.00		5.80	97	1.80	0	0	2.10	0	Ō	2.40	0	0	2.54	0	0 of the cluster 44-46, 46 is the farthest on the left, a 4th may be coming out; no 4th head 3/98; reddish, OK 3 & 5/99, 3/00; purplish, OK 5/00, 2 & 4/01
47.00		5.74	96	3.10	2	2	3.40	0	0	3.40	0		2.50	0	 0 becoming 2-headed 5/98; not 2- headed, reddish; OK; 3 apical meristems, reddish; OK(5/99, 3/00; four-headed; green, good 5/00; exit holes, cause of death weevils 2/01
48.00		5.60	96	1.80	0	0	1.90	0	0	1.80	0	nd	1.67	0	0 gcod 3/99; maroonish, OK 5/99; olive, OK 3/00; green, good 5/00, 2 & 4/01
49.00		5.39	98	3.10	0	1	3.20	1B	1	3.70	2	2	3.12	0	1 49 is to the right of 50; dull green, OK 3/99 & 5/99; purplish-yellowish green, OK 3/00; covered with litter, OK 5/00; purplish tan, poor 2/01; reddish green, OK 4/01
50.00		5.40	98	2.70	0	ō	2.60	0	Ō	2.70	0	Ō	2.33	0	0 50 is to the left of 49; dull green, OK 3/99, 5/99, 3/00; covered with litter, OK 5/00; dull green, OK 2/01; green, good 4/01
51.00		5.42	98	2.20	0	0	2.10	0	0	2.20	0	0	1.80	0	0 OK, 3/99; misshapen, olive, OK 5/99, 3/00; covered with litter, OK 5/00; blue green, OK 2/01; looks dead, collected for weevil study 4/01

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	STAKE				96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR NOTES
52.00		5.89	111	2.10	0	0	2.60	0	0	2.30	0	0	2.30	• 0	
53.00		5.89	111	1.70	0	0	2.20	0	0	2.50	0	0	2.28	0	0 of the cluster 52-59, 53 is between 52 and 54; dull green, OK 3/99, 5/99 3/00; green, good 5/00; green, OK 2 & 4/01
54.00		5.90	111	2.60	0	ō	2.90	0	0	2.90	0	0	2.52	0	0 of the cluster 52-59, 54 is the leftmost of the closest three heads t the reference point; dull green, OK 3/99, 5/99, 3/00; green, good 5/00, 2 & 4/01
55.00		5.91	111	3.10	0	0	3.40	0	0	3.60	0	0	3.28	0	0 of the cluster 52-59, 55 is behind 52 54 and is the rightmost head of the 2nd line of heads; dull green, OK 3/99, 5/99, 3/00; green, good 5/00; olive, OK 2 & 4/01
55.01	· · · · · · · · · · · · · · · · · · ·	5.93	110												discovered 3/00; reddish, OK 3/00; hunkered, OK 5/00; blue green, OK & 4/01
56.00		5.94	111	2.30	0	0	2.80	0	0	2.60	0	0	2.25	0	0 of the cluster 52-59, 56 is behind 55 dull green, OK 3/99, 5/99, 3/00; green, good 5/00; olive, OK 2 & 4/0 ⁻

PL#	STAKE	DIST	ANGLE	06DM	96FL	96FR	07014	97FL	0750	00014	005	0050		0051	0050	
57.00		5.93	· · · · · · · · · · · · · · · · · · ·	3.10	0		97DM 3.10		97FR 0	98DM 2.80	98FL 0	<u>98FR</u> 0	99DM 2.78	99FL 0	99FR	NOTES of the cluster 52-59, 57 is between
					0	0	5.10	0	Ū	2.00	U	0	2.70	Ū		55 and 58 in the middle line of heads; dull green, OK 3/99, 5/99, 3/00; green, good 5/00, 2 & 4/01
58.00		5.94	111	2.00	Ō	0	1.80	0	0	1.40	0	0	1.61	0		of the cluster 52-59, 58 is to the left of 57; dull green, OK 3/99, 5/99, 3/00; green, good 5/00, 2 & 4/01
59.00		5.95	111	1.10	0	0	1.30	0	0	1.10	0	Ō	-1.05	0		of the cluster 52-59, 59 is behind and between 57 & 56; dull green, OK 3/99, 5/99, 3/00; green, good 5/00; hunkered, green, OK 2 & 4/01
60.00		6.45	109	2.80	0	0	2.80	0	0	2.60	0	0	2.64	0		of the cluster 60-62, 60 is closest to the reference point on the right; poor 3/98; greening up, OK 5/98 & 3/99; olive, OK 5/99; maroonish, OK 3/00; dull green, OK 5/00, 2 & 4/01
60.01		6.89	110										2.66	0		discovered 5/99; green, OK 5/99, 3/00; green, good 5/00, 2 & 4/01
61.00		6.44	109	2.40	0	Ō	2.30	0	0	2.00	0	0	1.72	0	4	of the cluster 60-62, 61 is the closest to the reference point on the left; poor 3/98; greening up, OK 5/98 & 3/99; olive, OK 5/99; maroon, OK 3/00; olive, poor 5/00 & 2/01; reddish- green, root partly exposed, poor 4/01

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PL#	STAKE	DIST	ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	. 99DM .	99FI	99FR NOTES
62.00		6.47	109	2.00		0		0	0			0		Ō	0 of the cluster 60-62, 62 is behind 60 and 61; poor 3/98; greening up, OK 5/98, 3/99; olive, OK 5/99; maroon, OK 3/00; olive, OK 5/00; maroonish green with exposed tan spineless lower stem, poor 2 & 4/01
62.01		6.46	109				1.60	0	0	1.50	0	0	1.44	0	0 behind 61.00 & to the left of 62.00; not tagged 3/97; poor 3/98; greening up, OK 5/98, 3/99; olive, OK 5/99; green, OK 3/00; yellowish, OK 5/00; gray green with exposed tan spineless lower stem, poor 2 & 4/01
63.00		6.38	111	3.10	1	1	3.50	18	1A	3.80	0	1	3.79	ō	0 good 3/99; green, good 5/99; green with some reddish tubercle tips, OK 3 & 5/00, 2 & 4/01
64.00		5.84	102	1.60	0	0	1.50	0	0	1.60	0	0	1.52	0	0 good 3/99; green, good 5/99, 3 & 5/00, 2 & 4/01
65.00		5.14	79	2.20	0	0	2.50	0	0	2.20	0	0	2.08	0	0 of 65 and 66, 65 is closest to the reference point; fire scarred?, poor 3/98; OK 5/98; dull green, OK 3/99 & 5/99; reddish-green, OK 3/00; yellowish-olive, OK 5/00 & 2/01; reddish green, OK 4/01
66.00		5.15	79	3.20	0	0	3.70	1	1	3.80	0	Ō	3.60	0	1 of 65 and 66, 66 is behind 65; fire scarred?, poor 3/98; OK 5/98, 3/99; dull green, OK 5/99 & 3/00; yellowish- olive, OK 5/00; green with some red tubercle tips, OK 2 & 4/01

	STAKE		j	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
66.01		5.15					0.80		0	0.90	0	0	1.01	+ 0	of sp 2/	ot tagged, discovered 5/97; to right 66: OK 3/99, 5/99, 3 & 5/00; just bines left, cause of death unknown 01
66.02		4.65	86										0.72		5/	scovered 5/99; green, OK 5/99, 3 & (00; maroonish green, OK 2/01; reen, OK 4/01
67.00		5.22	81	1.30	0	0	1.60	0	0	1.90	0	0	2.01	0	0	etting covered by crustose lichen, K 3/99; popping out, green, good /99, 3 & 5/00, 2 & 4/01
68.00		5.42	81	1.80	0	0	2.30	0	0	2.40	1	1	2.57	1fr	or ba	ery reddish, OK 3/99, 5/99, 3/00; rangish, OK 5/00, 2/01; reddish at ase with new green apical growth, K 4/01
69.00		5.48	79	1.30	0	0	1.40	0	0	1.40	0	0	1.80	0	0	etting covered by crustose lichen, K 3/99; popping out, green, good /99, 3 & 5/00, 2 & 4/01
69.01		5.48	79				0.60	ō	0	0.60	0	0	0.66	0	al O	eleft of 69.00; not tagged 3/97; most covered by crustose lichens, K 3/99; coming out, green, good /99; green, OK 3 & 5/00, 4/01
70.00		5.20	82	1.50	0	0	1.60	Ŏ	0	2.10	0	0	2.10	0	O gr	etting covered by crustose lichens, IK 3/99; green, good 5/99; tag loose, reen, good 3/00; green, good 5/00; live, OK 2/01; green, good 4/01

PL#	STAKE		ANGLE	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
71.00		5.38	82	1.80	0	0	1.70	0	0	1.50	0	0	1.99	· 0	0	green, good 5/99, 3 & 5/00, 2 & 4/01
72.00		5.46	81	0.60	Ō	0	0.70	0	0	0.80	0	0	0.89	0	O	reddish, few spines, poor 3/97; OK 5/97; root becoming exposed, plant OK 3/98; root more covered 5/98; OK 3/99; olive, OK 5/99, 3/00; hunkering, OK 5/00, 2 & 4/01
73.00		4.88	45	3.70	1+1fr	2	4.20	2B	2	3.80	2	1Ă	3.56	1+2fr	3	maroon, OK 3 & 5/98; some loose
- - - -																spines, hunkering, getting misshapen, OK, dull green 3/99; maroon, OK 5/99, 3 & 5/00; purple, OK 2 & 4/01
74.00		2.95	46	1.50	Ö	Ó	1.60	0	0	Dead	Dead	Dead				only spines left, COD unknown 3/98
75.00		2.85	49		1+1fr	2			1+1A	Dead	1. THE	Dead				mushy red inside, COD unknown
75.10		3.10	44				0.90	0	0	1.00	0	0	1.07	Ō	C	hunkered 3/99; green, good, hunkered 5/99; green, OK 3 & 5/00, 2 & 4/01
75.20		3.15	44				1.50	0	0	1.90	0	0	2.02	0	(hunkered 3/99; popping out, green, good 5/99; one flower damaged, plant green, good 3 & 5/00; purplish- green, OK 2 & 4/01
75.30		. 3.03	41				0.90	0	0	1.00	0	Ō	1.08	Ō		D hunkered 3/99; green, good, hunkered 5/99; coming out, green, good 3/00; hunkering, OK 5/00 & 2/01; popping out, green, OK 4/01

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	STAKE			96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
75.40		3.66	40				3.40	1+1B	2A	3.30	0	0	3.63	·2fr	2	green, good 5/99, 3 & 5/00, 2 & 4/01
75.50		3.45	44		•										-	discovered 3/00; green, good 3 & 5/00, 2 & 4/01
76.00		2.01	45	3.20	0	0	3.30	0	0	3.40	0	0	3.41	1+1fr	1+1A	good 3/99; dull green, OK 5/99; tag mia, replaced 3/00; green, good 3 & 5/00, 2 & 4/01
77.00		2.09	45	3.40	0	0	Dead	lanano dari Solano visu								COD unknown, yellow viscous liquid inside 3/97
78.00	<u>914</u>	2.35	22	3.00	<u>1</u>	1	2.80	1B	1	2.70	<u></u> 1	1A	2.70	1+1fr	2	barely stepped on 3/98; yellow-green, OK 3/99; reddish, OK 5/99; light green, OK 3 & 5/00, 2 & 4/01
78.01		2.27	26						 magnetize contain 				0.91		C	discovered 5/99; OK 5/99; just two pale green tubercles, poor 3/00; hunkered, green, OK 5/00, 2 & 4/01
78.02		2.25	26										0.64	···	- c	discovered 5/99; OK 5/99; hunkered, OK 3 & 5/00, 2 & 4/01
79.00		2.57	24	2.30	0	0	2.30	0	0	2.30	0	С С) dead			fire scarred?, badly stepped on, gray, hard, poor 3/98; olive green, OK 5/98; solid, hard, dry, COD unknown 3/99

1	STAKE				96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
80.00		2.59	27	2.70	0	0	3.00	0	0	2.90	0	0	2.61	0	0	fire scarred?, gray, hard, poor 4 & 5/98, 3/99; dull green, OK 5/99, 3 & 5/00, 2/01; green, OK 4/01
81.00		2.17	30	1.30	0	0	1.40	0	0	1.50	0	0	1.32	0	0	hunkered, OK 3/99; popping out, dull green, OK 5/99; green good 3 & 5/00, 2 & 4/01
82.00		5.97	8	3.00	2	0	4.50	1+4B	2+3A	4.40	3	3	5.24	4?	1+3?A	of the pair 82-83, 82 is on the left; good, flowers granulated by ants 3/99; green, good 5/99, 3/00; yellowish, good 5/00; ca. 20% of plant eaten, green with maroonish tubercles, OK 2/01; lower part maroonish green, upper stem green with new growth, OK 4/01
83.00		5.97	8	2.60	2	2	4.00	5B	3+1A	4.30	4	5	5.44	4?	4?A	of the pair 82-83, 83 is on the right; good, flowers granulated by ants 3/99; green, good 5/99, 3/00; some yellowish tubercles, good 5/00; some tubercle damage, plant maroonish- green, OK 2/01; maroonish-green at base with new green apical growth, OK 4/01
83.01		6.20	12										1.21		0	discovered 5/99, green, good, popping out of crustose lichen 5/99, 3/00; hunkered, OK 5/00; popping out, blue green, oK 2/01; green, OK 4/01
84.00		5.91	6	3.00	2	C	3.90	2+3B	5	mia			mia		-	of the pair 84-85, 84 is on the left; mia 3 & 5/98, 3/99, 5/99, 3 & 5/00

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100

PL#	STAKE			96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
85.00		5.94	6	2.10		0	2.80	1+2B	1+2A	mia			mia			of the pair 84-85, 85 is on the right; mia 3 & 5/98, 3/99, 5/99, 3 & 5/00
86.00		2.54	124	4.10		2	4.30	1+2B	3	4.80	1	1	4.97	2fr	. 2	found in 5/96; great 5/98, 3/99; green 5/99, 3 & 5/00; green, good 2 & 4/01
87.00		3.00	133	3.10		0	3.60	0	0	3.50	1	1	3.79	0	0	found in 5/96; good 3/99; green, good 5/99, 3 & 5/00, 2 & 4/01
87.10		4.26	108											<u>_</u>		under juniper, discovered 3/00; green, OK, hunkered in juniper needles 3 & 5/00, 2 & 4/01
87.20		4.29	108													under juniper, discovered 3/00; yellowish at base, OK 3/00; green, OK 5/00; pale green, tan at base, OK 2 & 4/01
88.00		7,47	79	2.90		0	3,40	3	2+1A	2.90	0	0) 2:90	0	C	found in 5/96; of the cluster 88-94, 88 is closest to the reference point between 89 and 94; reddish, OK 3/99, 5/99, 3 & 5/00, 2/01; collected for weevil study 2/01
88.10		7.45								1.10	0	0) 1.00	, 0	C	left of 89.10, in front of 88; discovered 3/98; green, good 5/99, 3 & 5/00; exit holes, COD - weevils 2/01
88.20		7.45	79										0.54	0	Ċ) left of 88.10, in front of 88, OK, discovered 3/99; OK 5/99, 3/00; green, good 5/00; exit holes, COD - weevils 2/01

PL#	STAKE	DIST	ANGLE	a sector of the	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
89.00		7.47	79	1.00			1.30	0	0		0		1.22	0	0	found in 5/96; of the cluster 88-94, 89 is right of 88 & in front of 90.1; reddish, OK 3/99 & 5/99; green, good 5/00; exit holes, COD - weevils 2/01.
89.10		7.46	79							1.10	0	0	0.69	0	dead	in front of 89, right of 88; discovered 3/98; seems dead, just spines, firmly attached 3/99; gone, COD unknown 5/99
90.00		7.47	79	1.80		0	2.50	2	1+1A	2:40	2	2	2:47	0	0	found in 5/96; of the cluster 88-94, 90 is behind and right of 89, and rightmost; reddish, OK 3 & 5/99; very red, OK 3 & 5/00; exit holes, COD - weevils 2/01
90.10		7.49	79							1.30	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mia			between 88 & 90; discovered 3/98; mia 3/99, 5/99, 3 & 5/00, 2/01; surrounding plants collected for weevil study 2/01
91.00		7.49	79	0.80		0	1.40	0	0	1.50	0	0	1.26	0	0	found in 5/96; of the cluster 88-94; 91 is behind 88 & 90, & to the right of 92; reddish, OK 3/99 & 5/99; 3 & 5/00; exit holes, COD - weevils 2/01
91.10		7.51	79 *							0.80	0	C	0.82	0	0	below 91, between 90 & 92; discovered 3/98, reddish, OK 3/99 & 5/99; green, OK 3/00; green; good 5/00; exit holes; COD weevils 2/01
92.00		7.49	79	1.50		0	2.20		0	2.00	0	C	2.49	0 1	O	found in 5/96; of the cluster 88-94, 92 is between 91 and 93; reddish, OK 3/99 & 5/99; green with a few orange tubercles, OK 3 & 5/00; exit holes, COD - weevils 2/01
93.00		7.49	79	1.10		0	110	0	O A A A A A A A A A A A A A	1:40	0	C	1.67	0	C	found in 5/96; of the cluster 88-94, 93 is farthest from the reference point on the left; reddish, OK 3/99 & 5/99; green, OK 3/00; orangish, OK 5/00; exit holes, COD - weevils 2/01

PL#	STAKE	DIST	ANGLE		96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
94.00		7:48	179	1.90		0	2.10	0	- 0	2.00	0	0	2.11	0	0	found in 5/96, of the cluster 88-94, 94
								Shurry Pri-								is closest to the reference pointion the left; reddish, OK 3/99 & 5/99;
								1947 - 1948 - 19 1949 - 1948 - 19 1949 - 1947 - 194					Agentina Terlaget			green, OK 3 & 5/00; exit holes; COD -
																weevils 2/01
95.00		4.55	80	1.60		- 0	1.80	0	0	1.60	0	. 0	0.78	0	dead	found in 5/96, in solution hole in rock;
																bad, probably dead, loose yet firmly rooted 3/99; dead, COD unknown,
																removed by WHC 5/99
96.00		6.47	91	1.20		0	1.40	Ó	0	1.50	0	0	1.96	0	0	found in 5/96; OK, hunkering 3/99;
																popping out, green, good 5/99; green, good 3/00; hunkered, green,
																good 5/00 & 2/01
							-									
97.00		7.22	79							1.10	0	0	1.17	0	0	discovered 3/98; OK, getting covered
							l									by crustose lichens 3/99; popping
																out, green, OK 5/99; reddish-green, OK 3 & 5/00; green, OK 2/01; green,
																good 4/01
97.10	1	7.24	80	· · ·												
97.10		7.24	80													discovered 3/00; green, OK 3 & 5/00, 2/01; green, good 4/01
98.00	· ·	6.34	70							2.80	ō		2.48			
90.00		0.54	10 -							2.00	U	U.	2.40	2fr	4	discovered 3/98; dull green, OK 3/99 & 5/99; slightly reddish, OK 3 & 5/00;
											1					hunkered, green, OK 2 & 4/01
							i			-						
															:	
98.01		6.25	70	· · ·	-								1.29	·	Č	in solution pocket, slightly maroon,
00.01		0.20											1.20		L	OK, discovered 5/99; green, OK 3 &
						t			1				:			5/00; olive, OK 2 & 4/01
									1							
l			 	<u>i.</u>		I								i		

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	OTAKE	DIOT		00DM			07014	075					00011			
	STAKE			96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
99.00		6.13	69			1				1.40	0	0	1.46	· 0		in solution pit in rock; discovered
																3/98; OK 3/99; maroonish, OK 5/99,
					i											3 & 5/00, 2 & 4/01
																1
									1							
100.00		5.88	65				· ·			2.50	1	1	2.69	2fr	1+1A	discovered 3/98; good 3/99; OK,
										2.00		•	2.00			yellowish at base 5/99, 3 & 5/00;
																purplish, OK 4/01
									;						1	
100.01		5.91	65							0.90		0	1.05	ō	- · · · .	behind 100, not tagged; discovered
		.								0.00	Ŭ	Ŭ		Ŭ		3/98; good, hunkering 3/99; popping
																out, green, good 5/99, 3 & 5/00;
					. !											yellowish green, OK 2/01; green,
																good 4/01
ļ																
	-							·				· · · · · · · · · · · · · · · · · · ·				
101.00		2.08	33							0.80	0	0	0.92	0	0	discovered 3/98; almost buried, good
									:							3/99; popping out, green, good 5/99,
																3 & 5/00, 2 & 4/01
	+ . +															
102.00		2.10	33							1.60	0	0	1.91	0	0	discovered 3/98; good, hunkered
									1							3/99; popping out, green, good 5/99,
																3 & 5/00, 2 & 4/01
1			1													
100.00	÷						· ····									
103.00		6.10	62													discovered 4/01; green, good 4/01
		•							1							
	1				1 .	· ·			i . <u>-</u> .				+			· · · · · · · · · · · · · · · · · · ·
	[·· - ···		· ·		ł						· i		+		•••••••••••••••••••••••••••••••••••••••	-
Data ta	l	recorde	d hv la	i	⊥ .lo 3/1 <i>∆/</i> 0	6 5/7/04	3/10/07	7 5/0/07	3/10/09	5/8/08.	3/9/99; wi		$\frac{1}{5/5/9}$	L		• · · · · · · · · · · · · · ·
				1, 4/30/0		0, 0///30		, <u></u> ,	010030		5, Wi		1000	J,		н
	10/0/00,	5/1/00	212010	1, 4/30/0		·		<u> </u>			-		1	1		

									LUSI	maples	State I	vaturai	Area			
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FF	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
Stake 1	is 31.4	1 m at 2	253 de	grees fi	rom 20 i	mph sic	n unde	r and be	lween s	nall live	oaks o	ver aga	ritas: S	take 1	= GPS1	R030119A
1.00		5.40	44	1.80						2.80			mia			 burned 1/96; burned shell beside 3/96; OK, shell gone 5/96; green, good 3/97, 5/97, 3/98 & 5/98; a few spines in vicinity 3/99; 2 seedlings or 2 tubercles 4/99; two plants 1.01 and 1.02 2/00
1.01	1	5.38	42			 -				-						tubercle or seedling of 1.00; green, good 2 & 4/00; olive, OK 2 & 5/01
1.02	1	5.39	42					·								tubercle or seedling of 1.00; green, good 2 & 4/00; olive, OK 2 & 5/01
2.00		6:35	42	5.10		2	4:40		4	4.60	3	2	nd			0 not burned1/96; OK-poor, dull greenish-red 5/96; green & good 97 OK, tubercle tips getting orange 98; eaten down to soil level 3/99; very poor, 2 spine clusters 4/99; pup coming off of eaten stem, pup bad, not measured 2/00; looks deads 4/00; pup dead, parent dead, COD herbivory 2/01
2.01	1	6.33	42	1.50	0	0	2.10		0	2.50	1	1	nd	0	m	ia burned 1/96; good 5/96, 3/97, 5/97, 3/98; getting buried 5/98; eaten down to soil level 3/99; plant mia 4/99; green, good 2/00; olive, OK 2/01; green, good 5/01
3.00		6:29	38	2.50	0	0	2.30			1 2.60		O	2:45	O		 burned 1/96; dead (?) one beside 3/96; OK; dead one still there 5/96; dead one gone, green, good 3 & 5/97; green, good with a few tan tubercle tips 3/98 & 5/98; green, OK 3/99 & 4/99; light green, OK 2 & 4/00; squishy, pale green with tan tubercle tips, poor 2/01; dead, COD unknown 5/01

									Lost N	aples	State N	latural	Area			
PL#	STAKE		ANG	4	96FL	96FR	97DM	_97FL		98DM	98FL	98FR			99FR	NOTES
4.00	1	5.48	37	4.50	1A	0	5.00	3B+2A?	4+1A	5.60	3	3	4.70	2		green, good 3/97 & 5/97; a little purplish at the base, good 3/98; orangish 5/98; green, good 3/99 & 4/99; green top, reddish base, good 2/00; green, good 4/00, 2 & 5/01
4.10		5.39	38				3.20	1+1 fr	2	3.20	1		,nd	0		fire scars, dark purplish green, OK 3 & 5/97; purplish green, OK 3/98; orangish 5/98; eaten down below soil level 3 & 4/99, COD herbivory
5.00	1	5.00	42	3.30	1 fr	0	3.60	4(2A?)	4	3.90	1	0	mia	mia	0	burned 1/96; OK 5/96, 3/97 & 5/97; a little purplish & yellowish, deer shit on plant, OK 3/98; green, good 5/98; loose spines nearby 3/99; seedling or tubercle present 4/99; green, good 2 & 4/00, 2 & 5/01
5.10	1	5.93	39							2.50	1	1	nd	0		discovered 3/98; getting buried 5/98; eaten down below soil level 3/99; spine cluster or seedling present 4/99; green, good 2 & 4/00, 2 & 5/01
6.00	1	4.99	39	4.30	2A+1fr	0	5.00	6(3A?)	5 (1 disp.)		4fr	2+2Ā	mia	l		burned 1/96; poor, maroon in color, new growth faded 5/96; dark green, good 3/97; partially eaten 5/97; maroon again, OK 3/98 & 5/98; loose spines in vicinity 3/99; gone without a trace 4/99; tag and plant mia 2 & 4/00, 2 & 5/01
7.00	1	5.98	28	3.70		0	3.40	3	2+1A	3.80	0	0	3.53	3 0	0	burned 1/96; OK 5/96; green, good, being shaded by Schrankia 97; green, good, shaded by little bluestem 98, 99, 00; green, with a few yellow tubercle tips, good 2/01; green, good 5/01
8.00	1	4.12	. 31	3.50	1+1fi	2	5.20	3+3fr+1A	5+1A	5.10		3 3	dead			burned 1/96; OK 5/96; tag mia, retagged, good 3/97 & 5/97; tag mia, retagged, fantastic 3/98 & 5/98; whole plant eaten, only spines left 3/99

Ancistrocactus tobuschii Data for

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	STAKE	DIST		96DM	96FL	96FR		97FL		98DM					99FR	NOTES
9.00	1	3.94	31	3.50		2	4.20	4+2fr	6	4.30	<u>`</u> 3	. 3	nd	0	mia	burned 1/96; OK 5/96; good, green 3/97, 3/98 &
			ANI 2015				Sec. 345 Pur S				a File TSP					5/98 eaten down to soil level 3/99; tag and plant.
			1864-1362 1910-1468							104120380						gone without a trace 4/99; 9.01 and 9.02 probably
																tubercles of 9.00; mia 00; 01
9.01	1	3.93	34					<u>Nic, inde mide a</u>								possibly tubercle of 9.00; green, good 2 & 4/00, 2
																& 5/01
												1				
										l						
9.02		3.95	34			·							<u> </u>			possibly tubercle of 9.00; green, good 2 & 4/00, 2
9.02	1	3.95	54													& 5/01
							e I									a 5/01
	Í															
10.00	1	N 03	*17 *	5.10	4	2	6.00	5+3fr	7	6.50	5	2+2A	nd	n n	0	burned 1/96; OK 5/96; great 3/97; several fruit
10.00		4.55	maint pro-	0.10	-1941 - HORAN					0.50						partially eaten 5/97; OK; slightly goldish 3/98;
		Stop 2											16 1 2			yellowish & orange 5/98; mostly eaten, 1 tubercle
																left 3/99 & 4/99; gone, tag removed, COD
	10×11			- 19 H											n den staden	mammal herbivory 2/00
	4	4.40	010	2.40	0:0		2.60		0	2.90	2	1 1 1	nc	mia	0	burned 1/96; OK 5/96; tag mia; retagged, good 3
11.00		-4:40	18	2.40		U. Company	2.00	U de re	San C	2.90	2,00				U	Durned 1/96, OK 5/96, lag mia, relagged, good 3
		Ratio	di ten							1.411		e de la		1.1		& 5/97; OK, yellowish 3/98; green, pulling into dirt
																5/98; gone without a trace 3/99; new growth off
			1 A.				distant.								Contraction of the	old stem 4/99; green, good 2,& 4/00; body hollow,
						Constantial Constantia	E FO									COD Moneilema 2/01
12.00		8.06	301	3.40		0	\$.50	2+3fr	3+1A	5.50	2	1 2	5.22	2 3fr+2	4+1A	burned 1/96; OK 5/96; good 3/97 & 5/97; tag mia,
			- april and								6 N 10001			and the second		replaced, good 3/98, 5/98, 3/99, good, green 4/99
																& 2/00; a few orange tubercle tips, OK 4/00; one
	and the second se		105 12 18 19 19 19 19 19 19 19 19 19 19 19 19 19	x			INEDALOURALIA MARINE ALCON	북 가슴이 가슴 같은 가지 가슴				5.440				gallery and exit hole, COD Moneilema? 2/01
						<u> 1908 / </u>	4113 3 1 . j									
13.00	1	6.52	70						1							discovered 2/00; green, good 2 & 4/00; trampled,
									1							olive with a few orange tubercle tips, OK 2/01;
											ĺ					green, OK 5/01
	-								-							
						1										
1 .			1			1							Γ			
		—				1										
Stake 2	2 is 24.9	0 m at	194 de	egress f	from the	20mph	sign o	ver agarita	a; Stake	2 = GF	S2 R0	30120/	۹			

Image: 10.00 348 1.20 0 0 1.400 0 1.36 0 1.36 0 0 1.36 0 0 1.36 0 0 1.36 0 0 1.36 0 0 1.36 0 0 1.36 0 0 1.36 0 0 1.36 0 0 1.36 0 0 1.36 0 <th< th=""><th>13.00 2 7.17 356 2.40 1fr 0 3.80 0 0 3.01 3 1A burned 1/96; OK 5/96; one-thrid eaten, scarred over, greenish purple, poor 3/97; better, only a slight scar 5/97; trampied a lot, OK, new growth center 3/98; right in path, green, level with group 5/98, 3/99; spine olusters loose, OK 4/99; green good 2/00; purplish, OK 4/00; becoming two-headed, green with purplish tubercles, OK 2/01; only one apical meristem, within a much larger basal stem, green, OK 5/96; green, good 3/97; & 5/97; drampid a lot, OK, new growth center 3/98; good for angle outsets loose, OK 4/99; green good 3/97; & 5/97; only one apical meristem, within a much larger basal stem, green, OK 5/01 14.00 4.2 10.00 348 4.20 2+1A 1 5/90 4 4A 5.19 2+41r 6 burned 1/96; OK 5/96; green, good 3/97; & 5/97; green; good 3/97; & 5/97; green; good 1/97; & 5/97; green; good 1/97; & 5/97; green; good 1/97; & 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 3/97; & 5/97; green; good 3/97; & 5/97; green; good 3/97; & 5/97; green; good 3/98; good 5/98; 3/99; green; good 3/98; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 3/98; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99;</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>apies</th><th></th><th>i a i a i a i</th><th></th><th></th><th></th></th<>	13.00 2 7.17 356 2.40 1fr 0 3.80 0 0 3.01 3 1A burned 1/96; OK 5/96; one-thrid eaten, scarred over, greenish purple, poor 3/97; better, only a slight scar 5/97; trampied a lot, OK, new growth center 3/98; right in path, green, level with group 5/98, 3/99; spine olusters loose, OK 4/99; green good 2/00; purplish, OK 4/00; becoming two-headed, green with purplish tubercles, OK 2/01; only one apical meristem, within a much larger basal stem, green, OK 5/96; green, good 3/97; & 5/97; drampid a lot, OK, new growth center 3/98; good for angle outsets loose, OK 4/99; green good 3/97; & 5/97; only one apical meristem, within a much larger basal stem, green, OK 5/01 14.00 4.2 10.00 348 4.20 2+1A 1 5/90 4 4A 5.19 2+41r 6 burned 1/96; OK 5/96; green, good 3/97; & 5/97; green; good 3/97; & 5/97; green; good 1/97; & 5/97; green; good 1/97; & 5/97; green; good 1/97; & 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 1/96; OK 5/96; green; good 3/97; & 5/97; green; good 3/97; & 5/97; green; good 3/97; & 5/97; green; good 3/97; & 5/97; green; good 3/98; good 5/98; 3/99; green; good 3/98; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 3/98; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99; green; good 5/98; 3/99;											apies		i a i a i a i			
14.00 12 10.00 348 4.20 2+1A 1 530 1B+2+2fr 4+1A 5.90 4 4A 5.19 244fr 6 burned 1/96; 7th in path, green, level with groun 5/98, 3/99; spine clusters loose, OK 4/99; green good 3/97; better, only a slight scar 5/97; trampled a lot, OK, new growth good 2/00; purplish, OK 4/00; becoming two-headed, green with purplish, OK 4/00; becoming two-headed, green with purplish, OK 4/00; becoming two-headed, green with purplish, OK 4/00; becoming two-headed, green, within a much larger basal stem, green, OK 5/01 14.00 12 10.00 348 4.20 2+1A 1 530 1B+2+2fr 4+1A 5.90 4 4A 5.19 244fr 6 burned 1/96; OK 5/96; green, good 3/97; 8:597; direen, good 3/97; 8:597; direen, good 4/00; plaif 1 14.01 2 10.03 348 1.20 0 1.50 0 1.40 0 1.36 0 Oburned 1/96; OK 5/96; teg mia, retagged, OK 14.01 2 10.03 348 1.20 0 1.40 0 1.36 0 Oburned 1/96; OK 5/96; teg mia, retagged, OK 14.01 2 10.03 348 1.20 0	14:00 12 10:00 248 4.20 2+1A 1 5:30 18+2+2fr 4+1A 5:90 4 4.4 5:19 2+4fr 6 burned 1/96; OK 5/96; green, good 3/97; batter, only a slight scar 5/97; trampled a lot, OK, new growth center 3/88; right in path, green, level with group 5/98, 3/99; spine clusters loose, OK 4/99; green good 2/00; purplish tubercles, OK 2/01; only one apical meristem, within a much larger basal stem, green, OK 5/01 14:00 12 10:00 248 4.20 2+1A 1 5:30 18+2+2fr 4+1A 5:90 4 4A 5:19 2+4fr 6 burned 1/96; OK 5/96; green, good 3/97, & 5/97; green, good 3/07, & 5/97; green, good .llowers smashed 3:08; green, good .see, goo	PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR NOTES
14.00 2 10.00 348 4.20 241A 1 5.30 18+2+2ft 4+1A 5.90 .4 4A 5.19 2+4ir 6 burned 1/96; OK 5/96; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/96; green, good 3/97; & 5/97; green, good 3/96; green, good 3/97; & 5/97; green, good 1/96; OK 5/96; green, good 3/97; & 5/97; green, good 1/96; OK 5/96; green, good 3/97; & 5/97; green, good 1/96; OK 5/96; green, good 3/97; & 5/97; green, good 1/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/99; green, go	14:00 12 10:00 348 4.20 2+1A 3:30 1B+2+2Ti 4+1A 5:90 4 4A 5:19 2+4tr 6 burned 1/96; OK 5/96; green, good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; 8:5/97; nampled a lot, OK, new growth soft a good 3/97; all good 3/96; good 5/96; 3/97; poped out, good 1/96; good 5/96; 3/97; poped out, good 1/96; good 5/96; 3/97; poped out, good 1/96; good 3/96; 3/97; good 3/98; good 5/96; 3/97; poped out, good 1/97; all good 3/98; good 5/96; 3/97; s/97; poped out, good 1/96; good 5/96; 3/97; s/97; poped out, good 1/96; good 5/96; 3/97; s/97; poped out, good 1/96; good 5/96; 3/97; s/97; poped out, good 1/96; good 5/96; 3/97; s/97; poped out, good 1/96; good 5/96; 3/97; s/97; s/97; s/97; s/97; s/97; s/97; s/97; s/97; s/97; s/97; s/97; s/	13.00	2	7.17	356	2.40	1fr	0	3.10	0		3.80	0	Ō	3.01	3	1A burned 1/96; OK 5/96; one-third eaten, scarred
14:00 2 10:00 348 4.20 24:1A 5:30 18+2+2fr 4+1A 5:90 4 4.4 5:19 24:4fr 6 burned 1/96; OK 5/96 green, good 3/97; A 5/97; green, good 3/97; A 5/97; green, good 3/97; A 5/97; green, good 3/97; A 5/97; green, good 3/97; A 5/97; green, good 3/97; A 5/97; green, good 3/97; A 5/97; green, good 3/99; arean, good 3/97; A 5/97; green, good 3/99; arean, good 3/99; arean, good 3/99; arean, good 3/99; arean, good 3/99; arean, good 3/99; arean, good 3/99; arean, good 3/99; arean, good 3/99; arean, good 3/99; green, good 3/98; good 5/98; 3/99; green, good 3	14.01 2 10.03 348 1.20 0 1.50 0 1.40 0 1.36 0 0 1.36																over, greenish purple, poor 3/97; better, only a
14:00 2 10:00 348 4:20 2+1A 1 5:30 1B+2+2f 4+1A 5:90 4 4A 5:19 2+4fr 6 burned 1/96; OK 5/96; green, gobd 3/97; 8:5/97; green, gobd 3/99; green, gobd 3/99; green, gobd 3/99; green, gobd 3/99; green, gobd 3/99; green, gobd 3/99; green, gobd 3/99; green, gobd 3/99; green, gobd 3/99; green, gobd 3/97; 8:5/97; green, gobd 3/99; green, gobd 3/	14.00 2 10.00 348 4.20 2+1A 1 538 14.1A 5.90 .4 4A 5.19 2+4fr 6 burned 1/96; OK 5/96; green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/97, & 5/97, green, good 3/99, green, good 3/97, & 5/97, green, good 3/99, green, good 3/97, & 5/97, green, good 3/99, green, good 3/99, green, good 3/98, gr																slight scar 5/97; trampled a lot, OK, new growth in
14.00 1.2 10.00 348 4.20 2+1A 1 530 1B+2+2fr 4+1A 5.90 4 4A 5.19 2+4fr 6 burned 1/96; OK 5/96; green, good 3/97,8 5/97; green; good 3/97,8 5/97; green; good 3/97,8 5/97; green; good 3/97,8 5/97; green; good 1/97,8 5/97; green; good 1/97,8 5/97; green; good 1/97,8 5/97; green; good 1/97,8 5/97; green; good 1/97,8 5/97; green; good 1/97,8 5/97; green; good 1/97,8 5/97; green; good 1/99,8 2/00; covered with ant litter, 2/00; covered with ant litter, 2/00; gooey red-orange; collected dead 2/01 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 0 0 1.36 0 0 0 1.36 0 0 0 1.36 0 0 1.36 0 0 0.397; at grean; good 5/96; 3/97, 5/97; 3/98 3/99; green; good 1/9; good 5/96; 3/97, 5/97; 3/98 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 0 0 1.40 0 0 1.36 0 0 0 397; at most buried in dit 5/97; popped cut, good tagrea; collected dead 2/01	14.00 12 10.00 348 4.20 2+1A 1 530 1B+2+2tr 4+1A 5.90 4 4A 5.19 2+4tr 6 burned 1/96; OK 5/96; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/96; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/96; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/97; & 5/97; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/97; & 5/97; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/97; & 5/97; green, good 3/96; green, good 3/96; green, good 3/97; & 5/97; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/96; green, good 3/98; green, good 3/96; green, good 3/96; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 4/90; green, good 4/90; green, good 4/90; green, good 4/90; green, good 4/00; tag mia, replaced 3/98; green, good 4/90; green, good 4/90; green, good 4/90; green, good 4/90; green, good 4/90; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/90; green, good 4/99; green, good 5/96; 3/97; 5/97; 3/98; 3/99; under live cak seedling, green, good 4/99; green, good 5/96; green, green, good 4/90; green, good 4/99; green, good 5/96; 3/97; 5/97; 3/98; 3/99; under live cak seedling, green, good 4/90;																center 3/98; right in path, green, level with ground
14:00 2 10:00 348 4.20 241A 3 5:30 1B+2+2fr 4+1A 5:90 4 4A 5:19 244r 6 burned 1/96; OK 5/96; green, good 3/97, & 5/97; green, good 3/97, & 5/97; green, good 3/97, & 5/97; green, good 3/97, & 5/97; green, good 3/97, & 5/97; green, good 3/98; green, good 3/97, & 5/97; green, good 3/98; green, good 3/97, & 5/97; green, good 4/00; plant 14:01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 0 burned 1/96; OK 5/96; tag mia, retagged, OK 14:01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 0 burned 1/96; OK 5/96; tag mia, retagged, OK 3/97; almost buried in dift 5/97; popped cut, good tag mia, replaced 3/98; good 5/98, 3/99; green, good 4/99; covered with ant litter, OK 200; coving out, green, good 4/90; tag mia, replaced misshapen, green, OK 2/01; orange, hunkered, poor 5/01 15.00 2 9.85 348 7.00 0 3.20 1+1fr 2 3.80 1 1 2.74 1 1 slightly burned 1/96; good 5/96, 3/97, 5/97, 3/98 3/99; under live oak seedling, green, good 4/99;	14.00 2 10.00 348 4.20 2+1A 1 5:30 1B+2+2P 4+1A 5:90 4 4A 5:19 2+4F 6 burned 1/96; OK 5/96; green, good 3/97; 8:597, green, good 3/97; 8:597, green, good 3/97; 8:597, green, good 3/97; 8:597, green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 3/98; green, good 4/00; plant 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 15.00 2 9.85 348 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5/98, 3/99; spine clusters loose, OK 4/99; green,</td></t<>																5/98, 3/99; spine clusters loose, OK 4/99; green,
14.00 2 10.00 348 4.20 2+1A 1 5:30 1B+2+2fr 4+1A 5:90 4 4A 5:19 2+4/r 6 burned 1/96; OK 5/96; green, good 3/97; 8:5/97; green; good 3/97; 8:5/97; green; good 3/97; 8:5/97; green; good 3/90; coming out; green; good 4/09; gibint 1 14.01 2 10.03 348 1.20 0 0 1.50 0 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 14.01 2 10.03 348 1.20 0 0 1.40 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK	14.00 2 10.00 348 4.20 2+1A 1 530 1B+2+2tr 4+1A 5:90 4 4A 5:19 2+4tr 6 burned 1/96: OK 5/96; green, good 3/97: & 5/97; green, good 3/97: & 5/97; green, good 1/97: & 5/97; green, good 1/99: & 2/97: & 5/97; green, good 1/99: & 2/97: & 5/97; green, good 1/99: & 2/97: & 5/97; green, good 1/99: & 2/97: & 5/97; green, good 1/99: & 2/97: & 5/97; green, good 1/99: & 2/97: & 1/99: 4/99: & 2/90: rowerd: with ant litter 1/96; good 2/90; piant lictor 1/96; green good 4/00; piant lictor 1/96; good 2/90; piant lictor 1/96; good 2/90; piant lictor 1/96; good 2/90; piant lictor 1/96; good 3/97; green, good 4/99; gover red-orange; collected dead 2/01. 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 Durned 1/96; CK 5/96; tag mia, retagged, OK 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 Durned 1/96; CK 5/96; tag mia, retagged, OK 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 Durned 1/96; CK 5/96; tag mia, retagged, OK 15.00 2 9.85 348 7.00 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>																
14.00 2 10.00 348 4.20 2+1A 1 530 1B+2+2fr 4+1A 5.90 4 4A 5.19 2+4fr 6 burned 1/96; OK 5/96; green, good 3/97; & 5/97; green, good 3/97; & 5/97; green, good 1/97; & 5/96; green, good 3/97; & 5/97; green, good 1/96; OK 5/96; green, good 3/98; green, good 5/98; 3/99; 4/99 & 2/00; covered with ani litter 4 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 0 burned 1/96; OK 5/96; tag mia, retagged, OK 3/97; almost buried in dirt 5/97; popped cut, goo tag mia, replaced 3/98; good 5/98; 3/99; green, good 4/00; tag mia, replaced 3/98; good 5/98; 3/99; green, good 4/99; covered with ani litter, VZ/00; coming out, green, good 4/00; tag mia, replaced 3/98; good 5/98; 3/99; green, good 4/99; covered with ani litter, VZ/00; coming out, green, good 4/00; tag mia, replaced 3/98; good 5/98; 3/99; green, good 4/00; tag mia, replaced misshapen, green, OK 2/01; orange, hunkered, poor 5/01 15.00 2 9.85 348 7.00 0 3.20 1+1fr 2 3.80 1 1 2.74 1 1 slightly burned 1/96; good 5/96; 3/97, 5/97, 3/98 15.00 2 9.85 348 7.00 0 3.20 1+1fr <	14.00 2 10.00 348 4.20 2+1A 1 530 1B+2+2tr 4+1A 5.90 4 4A 5.19 2+4fr 6 burned 1/96; OK 5/96; green, good 3/97 & 5/97; green; good 3/97 & 5/97; green; good 4/90; green; good 4/90; green; good 4/90; plant 14.00 2 10.00 348 4.20 2+1A 1 530 1B+2+2tr 4+1A 5.90 4 4A 5.19 2+4fr 6 burned 1/96; OK 5/96; green, good 3/97 & 5/97; green; good 4/00; plant 14.01 2 10.03 348 1.20 0 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 3/97; almost buried in dir 5/97; popped cut, goo 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 3/97; almost buried in dir 5/97; popped cut, goo 0 1.40 0 0 1.36 0 burned 1/96; OK 5/96; tag mia, retagged, OK 3/97; almost buried in dir 5/97; popped cut, goo 0 1.40 0 0 1.36 0 burned 1/96; good																
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3/99; under live oak seedling, green, good 4/99 2/00; covered with ant litter 2/00; out, dull green	3/99; under live oak seedling, green, good 4/99 2/00; covered with ant litter 2/00; out, dull green OK, covered with live oak leaves 4/00; may hav suffered apical damage, green, OK 2/01; green										ļ						
3/99; under live oak seedling, green, good 4/99 2/00; covered with ant litter 2/00; out, dull green	3/99; under live oak seedling, green, good 4/99 2/00; covered with ant litter 2/00; out, dull green OK, covered with live oak leaves 4/00; may hav suffered apical damage, green, OK 2/01; green										1	1			1		
3/99; under live oak seedling, green, good 4/99 2/00; covered with ant litter 2/00; out, dull green	3/99; under live oak seedling, green, good 4/99 2/00; covered with ant litter 2/00; out, dull green OK, covered with live oak leaves 4/00; may hav suffered apical damage, green, OK 2/01; green	15.00	2	9.85	348	7 00	n n	ñ	320	1+1fr	2	3.80	1	1 1	274	ι [†] 1	1 slightly burned 1/96: good 5/96, 3/97, 5/97, 3/98
2/00; covered with ant litter 2/00; out, dull green	2/00; covered with ant litter 2/00; out, dull green OK, covered with live oak leaves 4/00; may hav suffered apical damage, green, OK 2/01; green	13.00		0.00		1.00	U U		0.20			0.00	'		_ .,	· ·	
	OK, covered with live oak leaves 4/00; may hav suffered apical damage, green, OK 2/01; green			1					ļ			1					
I I I I I I I I I I I I I I I I I I I	suffered apical damage, green, OK 2/01; green																
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	STAKE	DIST		96DM	96FL	96FR	· _ ·	97FL	97FR		<u>98</u> FL	98FR		+ +	_ 99FR	NOTES
16.00	2	8.96	343	4.10	1	1	4.10	1B+2+1fr	4	4.00	1	1	3.91	0	C	burned 1/96; OK 5/96 & 3/97; tag mia, retagged, good 5/97; reddish, OK 3/98; poor 5/98; spines dull whitish-gray, body green with maroon overcast 3/99; goldish green, new spine growth, OK 4/99; top green, lower body tan, OK 2/00; goldish, OK 4/00; maroonish, OK 2 & 5/01
17.00	2	10.41	-339 	4.30	3 •	2	4.60	3B+2	1+2A	4.00			3.72	2+2fr		burned 1/96; one flower slightly eaten 3/96; poor, reddish 5/96; green, OK 3/97; OK, slightly covered with dirt 5/97; good with a few red tubercle tips 3/98 & 5/98; slightly maroonish green, good 3/99 & 4/99; green, OK; covered with ant litter 2 & 4/00; dead, body hollow, COD Moneilema 2/01
17.01	2	10.38	339	0.70	0		0.70		0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.70	0	0	1.17			5) slightly burned 1/96; OK 5/96; green, good 3/97; almost buried in dirt 5/97; popped out, good 3/98 & 5/98; OK 3/99; OK, green 4/99; pl mia 2 & 4/00; relocated, dead, just spines left, COD unknown 2/01
17.02	2	10.43	*339				1.00			1.20						0 discovered 5/97; looks good 3/98, 5/98, 3/99; good; green 4/99; mia 2 & 4/00; relocated, dead, hollow, too small for Monellema; COD unknown 2/01
18.00	2	10.39	339	3.60		0		1B+2+1fr		5.10) 3+1fr		4 burned 1/96; OK 5/96; green, good 3 & 5/97; tag mia replaced, green, good 3/98; green, good 5/98, 3/99 & 4/99; green, OK, covered with ant litter 2 & 4/00; body hollow; COD Moneilema 2/01
19.00	2	11.67	343	4.40	4	0	5.60	1B+3+4fr	9	5.80	4	4	4.71	4fr	2+1	A burned 1/96; OK-poor, a few new spines 5/96; OK 3/97; great 5/97 & 3/98; good 5/98; OK 3/99; yellowish, OK 4/99; green, good, covered with ant litter 2 & 4/00; apex damaged, some spineless tubercles, green, OK 2/01; new apex green, good, rest of plant slightly ornagish-green, OK 5/01

								,	Ancistro Lost M							6 of 96
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FI	98FR		99FI	99FR	NOTES
19.01		11.22					2.00		1+1A	2.30		1	1.90	ł	1 slightly orangish, fruit trampling, discovered otherwise good 3/98; ground 5/98 & 3/99; d 4/99; green, OK, mis green with a few rede	t abortion probably due to d 5/97; tubercle tips reddish, ; same but sinking into coming out, dull green, OK shapen, stepped on? 2/00; dish tubercle tips, OK 4/00; reen with a few reddish
20.00	2	8.84	338	5.30	4	3	4.80	2B+3	6	4.80	0	3	5.11	6		w growth 5/96; green, good 3 tips orangish 3/98; green, & 4/00, 2 & 5/01
21.00	2	10.18	323	3.00	1	1	3. 80	1+2fr	3	3.80	1	1	3.33	1fr	3/98, 5/98 & 3/99; gr covered with litter, gr	ks good 5/96, 3/97, 5/97, een, good 4/99; partly reen, good 2/00; out of litter, een with one yellow tubercle, 5/01
22.00	2	10.56	311	4.50	2	2 3	4.70	2B+3	1+1A	4.60	C	0	3.94	0	red with some new g poor, maroon, new s gray, body green, Ol OK 4/99; purple, OK	dish at base 3/96; OK, v reddish 3/97; purplish 5/97; green growth at top, bad 3/98; spine growth 5/98; spines K 3/99; reddish goldish green, 2/00; reddish, poor 4/00; cle tips, OK 2/01; maroonish,
22.10	2	10.66	311				2.00	C	0	2.00) () 0	2.03	3 0		re scars, good 3/97, 3/98, good 4/99, 2 & 4/00; yellowish en, OK 5/01

								4		Vaples						7 01 90
		DIOT		00014	0051		07014	075		-					0050	NOTES
PL#_ 22.20	STAKE 2	10.66		96DM	96FL	96FR	97DM 2.30	97FL 0		98DM 2.20						to right of 22.10; no fire scars, good 3/97, 3/98, 5/98, & 3/99; green, good 4/99, 2 & 4/00; getting buried, yellowish-green, OK 2/01; green, OK 5/01
22.30	2	10.00	309				4.60	1B+2	3	4.50	1	1	3.96	0	0	no fire scars, good 3/97; a few yellow tubercle tips, good 3/98; poor, mostly yellow 5/98; goldish, OK 3/99 & 4/99; base yellowish, green top, OK 2/00; olive, OK 4/00; some damage to apical meristem and tubercles, green with tan tubercle tips, OK 2 & 5/01
22.40) 2	7.78	308				5.30	1B+3	4	4.50	2	2	4.51	0	0	in juniper branches; no fire scars, good 3/97; getting yellowish, OK 3/98; good, a few yellow tubercle tips 5/98; dark maroonish green, OK 3/99; good 4/99; green, good 2 & 4/00; green with maroonish tubercle tips, OK 2 & 5/01
22.50) 2	8.73	311	· · · · · · · · · · · · · · · · · · ·		· · · ·				4.50	3	3	3.40	4	3+1A	discovered 3/98; OK, yellowish-green 5/98 & 3/99; green, good 4/99, 2 & 4/00, 2 & 5/01
23.00) 2	4.06	308	1.70	с С) C	1.90	18	1	2.20	ō	D G	2.04	0	0	not burned 1/96; good 5/96, 3/97, 5/97, 3/98 & 5/98; hunkered down, green, OK 3/99; green, good, coming out 4/99; a little misshapen 2/00; green, OK 2 & 4/00, 2 & 5/01

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Ancistrocactus tobuschii Data for

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										laples						
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
24.00				1.70		0	2.20	0	0	0.90	2	0	1.05	0	0	not burned 1/96; good 5/96; OK, slightly purplish 3/97; green, good 5/97; a few dry tubercles and spines in vicinity, cause unknown, 2 tubercles left, green, OK 3/98; green, good, level with soil 3/99; green, good, popping out 4/99; green, good 2 & 4/00; olive, OK 2/01; green, OK 5/01
25.00	2	4.17	306	1.80	0	0	2.70	1B+1+1fr	2+1A	2.50	1	1	2.26	2fr	2	2 burned 1/96; OK 5/96; green, good 3/97, 5/97, 3/98, 5/98, 3/99, 4/99, 2/00 & 4/00, 2 & 5/01
25.01	2	4.24	304				1.00		0	1.30	0	0	1.32	0	(0 discovered 5/97; good 3/98, 5/98 & 3/99; olive, OK 4/99; covered by rock 2/00; green, good 2 & 4/00, 2 & 5/01
26.00	2	4.35	297	3.90	2	2	4.90	2B+2+2fr	6	4.70	3	3	3.89) 1+4fr		5 burned 1/96; OK 5/96; green, good 3/97 & 5/97 getting a few reddish or yellowish tubercle tips, OK 3/98; green, OK 5/98; slightly maroon, OK 3/99 & 4/99; green, good 2 & 4/00, 2 & 5/01
26.10	2	5.36	290				2.10	· · · · · · · · · · ·	0	2.50	0	Ō	2.25	5 3fr	3/	A discovered 5/97; OK 3/98; good 5/98 & 3/99; green, good 4/99, 2/00 & 4/00, 2/01; slightly maroonish, good 5/01
26.20	2	5.37	290				2.00	· · · · · · · · · ·	0	2.30	0	Ċ	1.88	3 0		0 discovered 5/97; good 3/98, 5/98, 3/99; green, good 4/99, 2/00 & 4/00, 2 & 5/01

									Ancistro Lost N				-		9 of 96
	STAKE		ANG	96DM	96FI	96FR		97FL					99DM	99F1	99FR NOTES
PL# 27.00	2			2.70	2	2	3.40	3		4.10	4	4	3.69		4 not burned 1/96; OK, fruit split open 5/96; rock on top, flowers smashed, stem OK 3/97; good 5/97; OK, a little yellowish 3/98; green, good 5/98 & 3/99; buried in grass, grass dying back, plant green, good 4/99 & 2/00; slightly reddish at base, otherwise green, good 4/00; maroonish-green, good 2/01; olive, OK 5/01
27.10	2	10.20	278				4.40	2+4fr	5	4.60	4	1	3.46	4fr	4 no fire scars, good 3/97 & 3/98; OK, trampled 5/98; hunkered down 3/99; hunkered down, OK 4/99; green, good 2 & 4/00; sunken slightly on one side, green, OK 2 & 5/01
27.20	2	10.80	278				2.00	0	0	2.40	1	1A	1.74	0	0 no fire scars, good 3/97; almost buried, OK 5/98; tag upside down under rock, plant totally buried 3/99; barely above soil, green, OK 4/99 & 2/00; popped out, dull green, OK 4/00; maroonish, OK 2/01; pale blue-green, OK 5/01
27.30	- 2	10.98	-277				4.20	1+4fr	4+1A	4.40		0	Dead		no fire scars, slightly reddish, OK 3/97; good 3/98; poor, trampled 5/98; plant hard, dry, solid, COD unknown 2/98
27.40	2	10.84	275				3.80	2+1fr	3	4.40	4	3	3.52	4fr	2A no fire scars, good 3/97; partially eaten (~25%), good 3/98 & 5/98; almost buried 3/99; coming out, green, good 4/99, 2/00 & 4/00; several tubercle tips damaged, green, good 2/01; slightly maroonish-green, good 5/01
27.50	2	11.43	271				3.30	2+1fr	1	3.40	3fr	1	2.93	3 4fr	4+1A no fire scars, good 3/97 & 3/98; fruit eaten down to base, plant good 5/98; covered with silt 3/99; coming out, purplish, OK 4/99; green, good 2 & 4/00; misshapen, purplish, poor 2/01; misshapen, purplish, OK 5/01

PL#	STAKE	DIST	ANG	96DM	96FI	96FR	97DM	97FL	97FR	98DM	98FI	98FR	99DM	99FL	99FR	NOTES
27.60		10.03	286					Marin adheat	da Sera Const				3.76			uprooted, but a few roots still in soil, still green
	6	10.00								14 (Alan 12)) 14 (Alan 12)) 14 (Alan 12)						3/99; maroon with green apex & new spine
							La 9141 149									growth, OK 4/99; taken for weevil study 5/6/99 by
	10 00 IST.		12 013 2		3-13											WHC; COD unknown, no evidence of weevils
27.70	2	10.24	284	<u></u>	1	<u>1973) 1994</u>	i indu Grand a stantar A	<u></u>		Consense : 2101.	<u>- 240 (1922) 10</u>	222000000000000000000000000000000000000	2.75	1fr	1A	almost buried 3/99; coming out, olive 4/99; green,
27.70	~	10.4-1	201		ļ								-			good 2 & 4/00; green with some maroonish
																tubercles, OK 2/01; maroonish, OK 5/01
					1											
]				[
	l															
27.80	2	10.24	284					<u> </u>				+	1.64	0	0	good 3/99; green, good 4/99, 2 & 4/00; apical
27.00	2	10.24	204		i i											meristem damaged, new apex forming, green,
																OK 2/01; green, good 5/01
		0.54			1	· • · · -		· - · · · ·				·	- · · -·			green, good 2 & 4/00, 2 & 5/01
28.00	2	9.51	282													green, good 2 & 4/00, 2 & 5/01
				1						i i						
1		1							1							
		 		1	4				ļ	ļ						
29.00	2	9.04	288													green, good 2 & 4/00, green with some
	ļ															maroonish tubercle tips, good 2/01; green, good 5/01
																5/01
													1		ĺ	
								· · · ·							+	green, good 2/00; slightly reddish, OK 4/00;
30.00	2	9.98	290										1			partially eaten, green, OK 2/01; apex shifted,
											Ì					green, OK 5/01
								1								
										i i						
		1 1 2			·					+				· · · ·		green, good 2 & 4/00, 2 & 5/01
31.00	2	11.80	323			1				1						green, good 2 & 4700, 2 & 0701
			1						ł							
		1							1							
32.00) 2	5.00	0 305													green, good 2 & 4/00; geen with some maroonish
32.00	/ 2	5.00	303	,				i	1				1	ļ	1	tubercle tips, OK 2/01; olive OK 5/01
	ļ						-									
			1	ļ	1	÷		÷	-							
L	<u> </u>	1								;	ļ	ļ		1	1	

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STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
															green, good 2 & 4/00, 2 & 5/01
										<u>.</u> .					
ic 20.2	0 m at	239 46	⊥	rom the	Campir	n Area	sign pole	closest	to road	: Stake	3 = G	PS4 R0	30220A	<u> </u>	
3			3.90	1	1	4.80	1B+2+3fr	6	4.90	2	1+1A	5.26	2+2fr	2+2A	burned 1/96; OK 5/96; green, good 3/97, 5/97, 3/98 & 5/98; green, good, flowers partially eaten 3/99; green, good 4/99; yellowish-green, OK 2/00; green, good 4/00, 2 & 5/01
3	3.35	21	4.10	0	0	4.80	2fr+1A	2+1A	4.40	3?	3A	3.89	2	1+1A	burned 1/96; OK 5/96 & 3/97; good 5/97; stepped on, flowers smashed, otherwise good 3/98; poor, yellowish 5/98; green, a few tan tubercles, OK, flowers partially eaten 3/99; green, good 4/99, 2 & 4/00, 2 & 5/01
3	2.81	43	2.60	0	0	2.30	ō	mia	2.60	0	0	2.49	0	mia	slightly burned 1/96; dead plant at base 3/96; OK 5/96; in grass, green, good 3/97; plant & tag mia 5/97; deep in grass, good 3/98, 5/98 & 3/99; pl & tag mia 4/99; green, good, in grass 2 & 4/00, 2/01; green, OK 5/01
3															 burned 1/96; good 5/96; OK 3/97; good 5/97; OK, a few reddish tubercles 3/98; green, trampled 5/98; green, OK 3/99 & 4/99, 2 & 4/00; body hollow, COD Moneilema 2/01 burned 1/96; OK 5/96; good, green 3/97, 5/97, 3/98, 5/98 & 3/99; OK 4/99; green, slightly reddish, OK 2/00; green, good 4/00; green with some marronish tubercle tips, OK 2/01; green, good 5/01
	2 is 20.2 3 3	is 20.20 m at 3 2.71 3 3.35 3 2.81 3 2.81	2 4.73 309 3 20.20 m at 239 de 3 3 2.71 22 3 2.71 22 3 2.71 22 3 2.81 43 3 2.81 43 3 4.67 16	2 4.73 309 is 20.20 m at 239 degrees f 3 2.71 22 3 2.71 22 3 3.35 21 3 2.81 43 3 2.81 43 3 4.67 16 2.90 2.90	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	2 4.73 309 is 20.20 m at 239 degrees from the Camping Area sign pole 3 2.71 22 3.90 1 1 4.80 1B+2+3fr 3 3.35 21 4.10 0 4.80 2 2.81 4.3 2 3.00 1 3 2.81 4.3 2 3.00 1 3 2.81 4.3 2.60 0 0 2.30 0 2.30 3 2.81 4.3 2.60 0 0 2.30 0 2.30	STAKE DIST ANG 96DM 96FL 96FR 97DM 97FL 97FR 2 4.73 309 96DM 96FL 96FR 97DM 97FL 97FR 3 20.20 m at 239 degrees from the Camping Area sign pole closest 3 2.71 22 3.90 1 1 4.80 1B+2+3fr 6 3 2.71 22 3.90 1 1 4.80 1B+2+3fr 6 3 3.35 21 4.10 0 0 4.80 2fr+1A 2+1A 3 2.81 43 2.60 0 0 2.30 0 mia 3 4.67 16 2.90 1 0 2.70 2+1fr 3	STAKE DIST ANG 96DM 96FL 96FR 97DM 97FL 97FR 98DM 2 4.73 309 96FL 96FL 96FR 97DM 97FL 97FR 98DM is 20.20 m at 239 degrees from the Camping Area sign pole closest to road 3 2.71 22 3.90 1 1 4.80 1B+2+3fr 6 4.90 3 2.71 22 3.90 1 1 4.80 1B+2+3fr 6 4.90 3 3.35 21 4.10 0 0 4.80 2fr+1A 2+1A 4.40 3 2.81 43 2.60 0 0 2.30 0 mia 2.60 3 4.67 16 2.90 1 0 2.70 2+1fr 3 2.20	STAKE DIST ANG 96DM 96FL 96FR 97DM 97FL 97FR 98DM 98FL 2 4.73 309 degrees from the Camping Area sign pole closest to road; Stake 3 2.71 22 3.90 1 1 4.80 1B+2+3fr 6 4.90 2 3 2.71 22 3.90 1 1 4.80 1B+2+3fr 6 4.90 2 3 3.35 21 4.10 0 0 4.80 2fr+1A 2+1A 4.40 3? 3 2.81 43 2.60 0 2.30 0 mia 2.60 0 3 2.81 43 2.60 0 2.30 0 mia 2.60 0 3 2.81 43 2.60 0 2.30 0 mia 2.60 0	STAKE DIST ANG 96DM 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 2 4.73 309 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 3 2.020 m at 239 degrees from the Camping Area sign pole closest to road; Stake 3 = G 3 3 2.71 22 3.90 1 1 4.80 1B+2+3fr 6 4.90 2 1+1A 3 2.71 22 3.90 1 1 4.80 1B+2+3fr 6 4.90 2 1+1A 3 3.35 21 4.10 0 0 4.80 2fr+1A 2+1A 4.40 3? 3A 3 2.81 43 2.60 0 0 2.30 0 mia 2.60 0 0 3 4.67 16 2.90 1 0 2.70 2+1fr 3 2.20 0 0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	STAKE DIST ANG 96DM 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 99DM 99FL 2 4.73 309 96D 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 99DM 99FL 1 4.73 309 1 1 4.80 18+2+3fr 6 4.90 2 1+1A 5.26 2+2fr 3 2.71 22 3.90 1 1 4.80 18+2+3fr 6 4.90 2 1+1A 5.26 2+2fr 3 3.35 21 4.10 0 0 4.80 2fr+1A 2+1A 4.40 3? 3A 3.89 2 3 2.81 43 2.60 0 2.30 0 mia 2.60 0 0 2.49 0 3 4.67 16 2.90 1 0 2.70 2+1fr 3 2.20 0 0 1.82 0 <td>STAKE DIST ANG 96DM 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 99DM 99FL 99FR 2 4.73 309 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 99DM 99FL 99FR 1s 20.20 m at 239 degrees from the Camping Area sign pole closest to road; Stake 3 = GPS4 R030220A 3 2.71 22 3.90 1 1 4.80 18+2+3fr 6 4.90 2 1+1A 5.26 2+2fr 2+2A 3 3.35 21 4.10 0 0 4.80 2fr+1A 2+1A 4.40 3? 3A 3.89 2 1+1A 3 3.35 21 4.10 0 0 2.30 0 mia 2.60 0 0 2.49 0 mia 3 2.81 43 2.60 0 0 2.30 0 mia 2.60 0 0 2.49 0 mia 3 2.81 43 2.90</td>	STAKE DIST ANG 96DM 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 99DM 99FL 99FR 2 4.73 309 96FL 96FR 97DM 97FL 97FR 98DM 98FL 98FR 99DM 99FL 99FR 1s 20.20 m at 239 degrees from the Camping Area sign pole closest to road; Stake 3 = GPS4 R030220A 3 2.71 22 3.90 1 1 4.80 18+2+3fr 6 4.90 2 1+1A 5.26 2+2fr 2+2A 3 3.35 21 4.10 0 0 4.80 2fr+1A 2+1A 4.40 3? 3A 3.89 2 1+1A 3 3.35 21 4.10 0 0 2.30 0 mia 2.60 0 0 2.49 0 mia 3 2.81 43 2.60 0 0 2.30 0 mia 2.60 0 0 2.49 0 mia 3 2.81 43 2.90

										·	Stater					
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
32.10	3	3.28	17	0.90	na	0	1.30	0	0	1.90	0	0	1.59	0	0	not burned 1/96; discovered 5/96, good, originally tagged as 349; retagged, good 3/97, 5/97, 3/98, 5/98 & 3/99; green, good 4/99, 2 & 4/00; maroonish-green, OK 2 & 5/01
32.20	3	3.46	10	1.00	na	0	1.20	0	0	1.60	0	0	1.61	0	0	not burned 1/96; discovered 5/96, good, originally tagged as 348; retagged, good 3/97, 5/97, 3/98, 5/98 & 3/99; green, good 4/99, 2 & 4/00, 2 & 5/01
33.00	3	3.60	352	3.20	0	0	3.00	3	2+1A	2.90	2	2	3.00	0	0	burned 1/96; OK 5/96 & 3/97; good 5/97; a few tan tubercle tips, good 3/98; OK, olive green 5/98 & 3/99; green, OK 4/99, 2 & 4/00; pale green, OK 2/01; green, OK 5/01
33.1C	3	3.11	5	0.90	na	Ō	1.20	0	0	1.20	0	C	1.38	0	C	not burned 1/96; discovered 5/96, gc od, orginally tagged as 347; retagged, good 3/97 & 5/97; sort of misshapen, good 3/98, 5/98 & 3/99; green, good 4/99, 2 & 4/00; misshapen, green, OK 2 & 5/01
33.20	3	3.16	5	1.50	na	0	1.90	0	Ō	1.70) () 1.80	1	1	not burned 1/96; found 5/96, good, originally tagged as 346; retagged, good 3/97, 5/97, 3/98 & 5/98; OK, hunkered, petals eaten 3/99; dull dark green, OK 4/99; green, good 2 & 4/00, 2 & 5/01
33.30	3	3.26	355				1.10		Ō	1.40) () 1.25	0	(0 discovered 5/97; good 3/98; buried 5/98; buried, OK 3/99; popped out, green, good 4/99; green, good 2 & 4/00, 2 & 5/01
34.00	3	3.38	3 343	2.20	0	C	2.90	2	1+1A	3.40		1	3.07	7 2+1fr	3/	A not burned 1/96; good 5/96, 3/97, 5/97, 3/98, 5/98 & 3/99; green, good 4/99, 2 & 4/00, 2 & 5/01

									Lost M	aples S	State N	latural /	Area		
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR 9	99DM	99FL	99FR NOTES
34.10	!	3.22								2.10	ō	0	2.27	0	0 discovered 3/98; good 3/99; green, good 4/99, 2 & 4/00, 2 & 5/01
35.00	3	3.13	1	2.00	0	0	2.30	1B+1	1+1A	2.50	1	1	2.15	1	1A burned 1/96; OK 5/96; good, green 3/97, 5/97, 3/98 & 5/98; OK, a few loose spines 3/99; goldish, OK 4/99; dull green, reddish at base, OK 2/00; green, OK 4/00; apex damaged, purplish, OK 2/01; green with some red tubercles, OK 5/01
35.10	3	3.52	3												discovered 2/01; green, OK 2 & 5/01
36.00	3	2.82	355	2.40	0	0	2.80	0	0	mia			3.04	0	0 burned 1/96; OK 5/96; in grass clump, good, green 3/97 & 5/97; plant & tag mia 3/98 & 5/98; edge of little bluestem, green, good 3 & 4/99; green, good 2 & 4/00, 2 & 5/01
37.00	3	6.29	322	1.70) C) 0	2.50	1	0	3.10	2	1+1A	2.97	1+2fr	3 burned 1/96; good 5/96 & 3/97; tag mia, replaced, good 5/97, 3/98, 5/98 & 3/99; good, green 4/99, 2 & 4/00; trampled, green, OK 2/01; maroonish- green, OK 5/01
38.00	3	4.52	2 296	2.90		2 0	0 3.10	1B+1+2fi	3+1A	2.80	Č	0	2.03	0	0 burned 1/96; OK 5/96, 3/97 & 5/97; OK to poor, light green, some tubercle tips orange, center sunken 3/98; yellow-orange 5/98; plant collapsing on one side, pup forming 3/99; pup green, good 4/99; only pup measured, old head yellowish, pup green, good 2 & 4/00; old head collapsed, pup green, good 2 & 5/01

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Ancistrocactus tobuschii Data for

										iapies						
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
39.00	3	5.78	290	1.90	0	0	2.60	1fr	1	2.40	1	1	mia			not burned 1/96; OK 5/96; good, green 3/97 & 5/97; almost buried in ant mound, tag mia, OK 3/98; tag relocated, plant good 5/98; tag and plant mia, ant mound 3/99 & 4/99; tag and plant
40.00		5.77	289	3.00		0	3:30	3	2+1A	Dead						relocated 2/00; green, good 2 & 4/00, 2 & 5/01 burned 1/96; OK 5/96; good, green 3 & 5/97; only
																loose spines in vicinity, tag mia, COD unknown - 3/98
41.00	3	5.80	289	2.10	0	0	2.70	1B	0	nd	0	0	2.69	2	1+1A	burned 1/96; OK 5/96; good, green 3/97 & 5/97; totally buried, only spine tips sticking out, tag mia 3/98 & 5/98; tag and plant back, green, good 3/99 & 4/99; plant mia 2 & 4/00, 2 & 5/01
42.00	3	5.18	287	2.00	0	0	2.10	1fr+1A	2A	1.80	0	0	1.96	0	0	burned 1/96; OK 5/96; reddish, poor 3/97; good, green 5/97, 3/98, 5/98, 3/99, 4/99, 2 & 4/00; green, OK 2/01; geen, good 5/01
43.00	3	5.35	287	1.90	0	0	2.30	1	1A	2.10	1	1A	1.83	Ō	C	burned 1/96; OK 5/96 & 3/97; good 5/97, 3/98, 5/98 & 3/99; olive, OK 4/99; green, OK 2/00; green, good 4/00; hunkered, marronish, OK 2/01; green, OK 5/01
44.00	3	5.31	287	1.80	0 0	Ō	1.80	Ō	0) C				on left of 46.00; burned 1/96; OK 5/96 & 3/97; good 5/97, 3/98, 5/98 & 3/99; olive, OK 4/99, 2 & 4/00, 2/01; green, good 5/01
45.00) 3	5.32	287	2.30		0	2.30	1	1A	2.30			2.04	ц - О		 on right of 45.00; burned 1/96; OK 5/96; poor & reddish 3/97; OK, dull green 5/97; good 3/98, 5/98 & 3/99; olive, OK 4/99; reddish-green, OK 2/00; dull green, OK 4/00; hunkered, olive, OK 2/01; hunkered, reddish-olive, poor 5/01
										aples :						· · · · · · · · · · · · · · · · · · ·
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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
46.00		5.32	· ł		0	a contract and the	1.70	0	0	1.90	0	0	1.65	0	0	slightly burned 1/96; OK 5/96 & 3/97; good 5/97, 3/98, 5/98, & 3/99; olive, OK 4/99; green, good 2 & 4/00; hunkered, green, OK 2/01; green, good 5/01
47.00	3	5.37	286	2.40	0	0	2.80	2fr	2	2.50	1	1	2.18	0	Ō	burned 1/96; OK 5/96; poor, purplish 3/97; OK, dull green 5/97, 3/98, 5/98, 3/99 & 4/99; reddish olive green, OK 2 & 4/00, 2 & 5/01
47.01	3	5.41	286		,		0.80		0	1.10	0	0	1.04	0	C	at edge of 47.00 tag; discovered 5/97; OK 3/98 & 5/98; almost buried 3/99; coming out, dull green, OK 4/99; purplish, OK 2/00; olive, OK 4/00; plant mia 2 & 5/01
47.02	-3	5.35	286				0.50		0				mia			under rock; discovered 5/97; plant missing 3/98, 5/98, 3/99, 4/99, 2 & 4/00 (tag is here)
48.00	3	5.14	285	1.50	0	0	1.80	1	1A	1.70	0	0	1.44	0	() not burned 1/96; OK 5/96 & 3/97; good 5/97, 3/98, 5/98 & 3/99; green, good 4/99, 2 & 4/00, 2 & 5/01
49.00) 3	5.18	285	2.70	0	0	3.10	2îr	2	2.60	0	C				D not burned 1/96; OK 5/96 & 3/97; good 5/97; OK 3/98, 5/98 & 3/99; maroonish, OK 4/99; purplish; OK 2/00; olive, OK 4/00; body solid, COD unknown 2/01
50.00) 3	4.77	285	3.20	1	0	4.20	2+3fr	3+2A	4.20	2		3.77	3	3,	A burned 1/96; OK 5/96, 3/97, 5/97, 3/98; OK, olive green 5/98; flowers partially eaten, green, good 3/99; maroonish, OK 4/99; pale tan-green, OK 2/00; goldish, OK 4/00, 2/01; orangish-green, OK 5/01
50.0	1 3	4.79	285		+- ···					0.90) 0)	1.09	0		0 discovered 3/98; green, good 3/99, 4/99, 2 & 4/00, 2 & 5/01

										apica .						
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
51.00	3	5.94		2.30	1	0	3.00	0	4		2	2	3.15		1Â	badly burned 1/96; new growth, OK 5/96 & 3/97; in fire ant mound, tag mia, replaced, good 5/97; good, tag mia, replaced, fire ant mound moved 3/98 and 3/99; maroonish, OK 4/99; green with tan base, good 2 & 4/00; one tubercle gone, green with maroonish tubercle tips, OK 2/01; maroonish, OK 5/01
51.10	3	9.87	289				4.60	1B+1+1f	2+1A	4.90	1	1	3.90	3fr	3A	no fire scars, good 3/97, 3/98, 5/98 & 3/99; good, green 4/99, 2 & 4/00; some tubercle tips damaged, green, OK 2/01; slightly trampled, maroonish, OK 5/01
51.20	3	8.90	283							2.10	1	1A	2.03	2fr	24	discovered 3/98; OK 3/99; maroonish, OK 4/99; green, good 2 & 4/00; green with some maroonish tubercle tips, OK 2/01; green, good 5/01
51.30	3	9.93	289											-		left of 51.40, discovered 2/00; green, good 2 & 4/00, 2/01
51.40	3	9.94	289			· · · · · · · · · · · · · · · · · · ·										right of 51.3, discovered 4/00; green, good 4/00, 2/01; tag mia, replaced 2/01; apex detached, collected, green, with fruit forming, remaining body scarred over, new apex forming, green, OK 5/01
52.00	3	5.62	2 280	2.50		C	3,10	2		2 3.10			0 3.1() 2fr		2 burned 1/96; flower smashed 3/96; new growth, OK 5/96, 3 & 5/97; flower smashed, plant good 3/98; yellowish, OK 5/98; poor, yellow 3/99; OK, reddish 4/99 & 2/00; yellowish-red, poor 4/00; soft, olive-maroon, poor 2/01; weevil galleries, COD weevils 5/01

												laturai				
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
53.00	3	6.72	267	4.80	2	1	4.90	2+3fr	4+1A	5.00	4	4A	4.76	5	5A	burned 1/96; good 5/96; under rock, tag mia,
00.00	Ŭ	0														replaced, good 3/97; good 5/97; fantastic 3/98;
	ļ								1							good 5/98 & 3/99; tag mia, replaced, flowers
																partially eaten 4/99; green, very good 2 & 4/00;
									1							green with some maroonish tubercle tips, OK
						1										
1											1					2/01; green, good 5/01
						ļ					1					
54.00	3	178	260	3.30	सम्बद्धाः 🕄	0	3.70	1B+4	4+1A	3.20	2		3.12		0 1	burned 1/96; flower smashed 3/96; good 5/96 &
1 04.00	•	<i>.</i> , 0	200	0.00									- sie ?			3/97; a few orange tubercles, OK 5/97; dark dull
			1		alignation clara				19 21							green, OK 3/98; purplish 5/98; OK, purplish,
		in the second		Bayesin il		ALC SIDE			N 90 X				A respective	See 10	Add in Land	petals eaten 3/99 & 4/99; reddish, oK 2/00; olive;
									an 1997 - 1997					ane de		OK 4/00; large hole in top, but body solid, COD
										3991H						
			Server Server				Sector Sector						1211 000 000			unknown 2/01
55.00	3	3.47	256	1.90	0	0 0	2.80	0	0	3.30	0	0	3.45	0	0	slightly burned 1/96; good 5/96, 3/97, 5/97, 3/98,
	-				1											5/98, & 3/99; good, green 4/99, 2 & 4/00, 2 & 5/01
		ļ														
			1							ļ _			L			
56.00	3	3.38	256	2.20	0 0) 0	2.10	0	0	2.40	0 0	0	2.39	0	C	badly burned 1/96; new growth, OK 5/96; fire scar
																still visible at base, good, green 3/97, 3/98, 5/98,
			Í						ŝ						1	3/99 & 4/99; green, good 2 & 4/00, 2 & 5/01
										1						
															-	
									. _							
		1. · · · · · · · · · · · · · · · · · · ·			.			· · · · ·	÷ - ·	· ·			·			
				L						⊥			· ·			
Stake	4 is 27.5	52 m at	160 c	legrees	from Ca	amping	<u>Area siç</u>	n pole clo	osest to	road		ļ		+		
57.00			5 254) 2.60		r 2	2 2.80) 1	1	l∣ 2.84	i 1+1fr	1+1/	A burned 1/96; OK 4/96, 3/97, 5/97; a few dead
					1		1									orange tubercle tips, OK 3/98, 5/98; green, good,
		l									1				le la la la la la la la la la la la la la	flowers partially eaten 3/99; reddish, OK 4/99;
	•							Ì								purplish-green, tan at base, good 2/00; a few red
			1	1	1					1	1		5 		•	and tan tubercles, OK 4/00; large chunk eaten
	1							; ;					i			out of one side, plant green with some tan
		l İ		1	l	1						1				· · · · ·
	i							-					:			tubercles, OK 2/01; green, good 5/01
				1				1		1		1	ł			
		i									_					

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												State in				0050	NOTES
PL# 57.01	STAKE 4	DIST 1.28			96DM	96FL	96FR	97DM 2.80	<u>97FL</u> 1+1fr	97FR 1+1A	98DM 3.00	98FL 0	98FR 0	99DM 2.97	99FL 2fr	99FR 2	already tagged, OK 3/97; one tan tubercle, otherwise good 3/98; green, good, fruit partially
																	eaten 3/99; reddish, OK 4/99; purplish-green, tan at base, good 2/00; a few red and tan tubercles, OK 4/00; hole in side, green with tan tubercle tips, OK 2 & 5/01
58.00	4	1.1	0 24	46	2.90	Ö	0	3.00	3	3	2.90	2	2	2.0	9 2f	r 1A	burned 1/96; OK 4/96, 3/97; good 5/97; good, one brown tubercle tip 3/98; OK, shrinking 5/98; 2 fruit partially eaten 3/99; green, good 4/99; slightly purplish-green, good 2/00; green, good 4/00; sunken on one side, green, OK 2/01; green, good 5/01
59.00	4	1.3	3 2	45	3.10	2	2 2	4.00	1+2fr	2+1A	3.90	2	2	3.2	4 31	r 3A	not burned 1/96; OK 4/96, 3/97; good 5/97, 3/98; OK, shrinking 5/98; fruit partially eaten 3/99; reddish, OK 4/99: purplish, good 2/00; goldish, OK 4/00; maronish, OK 2 & 5/01
59.01	4	1.2	6 2	254	2.40	(0 0	2.20	1+1fr	2	2.30	0	(2.0	4	0 0	burned 1/96; looks OK 4/96 & 3/97; good 5/97, 3 & 5/98, 3/99; green, good 4/99, 2 & 4/00, 2 & 5/01
59.10) 4	2.4	16 2	245					··· ·					1.8	2	-	0 dull green, OK, discovered 4/99; green, good 2 & 4/00, 2 & 5/01
60.00	3 4	1.4	14 2	240	3.50		2 (9 4.30		ξ 	5 4.40		3 2+1/	3.5	56 1+3	ifr 4,	A burned 1/96; OK 4/96 & 3/97; fire scars still visible 3/97; fire scars no longer visible, OK 5/97; a few tan tubercle tips, good 3/98 & 5/98; fruit mostly eaten, very maroon, OK 3/99; very maroon, OK 4/99; lumpy, a little soft, purplish, OK 2/00; goldish, OK 4/00; purplish, OK 2 & 5/01

																99FR NOTES
PL# 61.00	STAKE 4	DIST 1.55		96DM 3.60	96FL 2		97DM 4.10	97FL	9 3	97FR 3	98DM 4.70	98FL 2	98FR 2	99DM 3.10	+	3A burned 1/96; OK 4/96 & 3/97; fire scars still
																visible 3/97; barely visible, good 5/97; a few tan tubercle tips, good 3/98; a few tan tubercle tips,
													1			OK 5/98; very maroon, OK, hunkered down 3/99
		1			i		ĺ									& 4/99; purplish, good 2/00; goldish, OK 4/00; purplish, OK 2 & 5/01
i		1									i	·				
		i	1							1						
62.00	4	1.55	234	2.40	ō - ō	0	2.60		2	1	2.50	0	0	2.49	0	0 not burned 1/96; OK 4/96; good 3/97;
		1														asymmetrical tip growth, loose spines nearby 5/97; good 3/98, 5/98 & 3/99; green, good 4/99, 2
	1															& 4/00, 2 & 5/01
	i															
63.00	4	2.29	231	2.50		0 0	2.70			0	2.90	0	0	2.56	3 0	0 burned 1/96; OK 4/96; good 3/97, 5/97, 3/98, 5/98
03.00		2.20	201	2.00										1		& 3/99; green, good 4/99; in grass, green, good 2 & 4/00, 2 & 5/01
														1		& 4/00, 2 & 3/01
63.10	4	2.22	233				1.80			0	1.70	0	0	1.5	3 0	0 discovered 5/97; good 3/98, 5/98 & 3/99; green, good 4/99, 2 & 4/00, 2 & 5/01
																9000 / 00, <u>-</u>
64.00) 4	2.8	3 226	2.70		j o	3.20		2	2	3.00	0	C	2.8	0 0	0 not burned 1/96; good 4/96; OK 3/97, 5/97, 3/98
											100					& 5/98; OK; maroon 3/99 & 4/99; olive green, OK 2& 4/00; body solid, COD unknown 2/01
1110110 1010		3.23	3 218	3.00)) (2.80		······································	<u>1</u>	2.80	0 0		<u>. 30.800 - 0</u>	2 0	
65.00) 4	0.2	210	0.00			2.00		'	,	2.00					& 3/99; green, good 4/99 & 2/00; olive, OK 4/00 &
																2/01; green, OK 5/01
	Ì			-		1 1										
66.00	0 4	3.2	4¦ 218	3 2.70	D	0 0	2.60		2	1 <i>A</i>	2.90	<u> </u>	1 A	2.5	6 1fi	r 0 burned 1/96; OK 4/96; flowers open even though overcast 3/97; good 3/97, 5/97, 3/98, 5/98 & 3/99;
						1 1		1						i	1	green, good 4/99; green, little brown at base,
							:					!				good 2/00; olive, OK 4/00, 2/01; reddish-green, OK 5/01
				!	!							:		i.	1	
					÷			! 							<u></u> .	

																NOTEO
PL#	STAKE	DIST			96FL	96FR		<u>97FL</u>				98FR			99FR	NOTES
67.00	4	7.45	240	2.60	0	0	2.80	0	* 0	2.30	0	0	2.53	0	0	not burned 1/96, OK 4/96, OK-poor 3 & 5/97, OK
						SET STA	382 382 384 384 384 384 384 384 384 384 384 384			100000			30 304 10 10 10 10 10 10 10 10 10 10 10 10 10 1			3/98; OK but getting burled in juniper litter 5/98; buried in juniper litter; poor, goldish 3/99 & 4/99;
																maybe dead, top flat and sunken, totally buried,
																no color, firmly rooted 2 & 4/00, body solid, COD
																unknown 2/01
							2.60	0	0	2.10	0	0	1.42	0	n 1225 1240 ∧	not burned 1/96; poor 4/96 & 3/97; OK 5/97, 3/98
68.00	4	8.58	241	2.30	0	0	2.60	U	0	2.10	0		1.42	0	0	& 5/98; almost buried 3/99; popping out, OK,
						ļ								Ì		goldish 4/99; dull green, OK 2 & 4/00, 2 & 5/01
																g
	ļ												1			
1																
	<u> </u>		0.10	<u> </u>									2.09		n	beside rock, measured in one direction only,
68.10	4	8.05	242										2.05		0	green, good, discovered 4/99; green, good 2 &
						:	1						1			4/00 & 2/01; green, OK 5/01
						ļ										
					-											
					- · · · · · · · · · · · · · · · · · · ·											discovered 2/00; green good 2 & 4/00, 2 & 5/01
68.20	4	8.27	245													discovered 2/00, green good 2 & 4/00, 2 & 5/01
													1			
						:									i	
69.00) 4	9 00	249	2.10	··· ··	0	2.10		o (2.20	0	0 0	1.55	0	(not burned 1/96; OK 4/96, 3/97, 5/97, 3/98 &
00.00	ή -	0.00														5/98; almost buried 3/99 & 4/99; partially buried,
																OK 2/00; coming out, goldish, OK 4/00;
						!										hunkered, greenish-gold, OK 2/01; hunkered,
					1	:							1			green, OK 5/01
						1										
		_												11.2. 16		not burned 1/96; reddish 3/96; OK, reddish 4/96;
70.00) 4	10.85	5 241	1.80		0 C	1.60		0	Deac						OK, green, but soil eroded at base 3 & 5/97; stem
							(a. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.									solid, spines all loose, fungal growth inside 3/98
			1 001	2.20		1 0	2.20	M	0	0 2.30		0 0	2.27	' C	 	0 not burned 1/96; flower smashed 3/96; good
71.00	0 4	5.24	4 261	2.20		. 0	2.20				΄					4/96, 3/97, 5/97, 3/98, 5/98 & 3/99; green, good
							1							1	1	4/99, 2 & 4/00, 2 & 5/01
					1					;				i i	ļ	
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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	9	97FR	98DM	98FL	98FF	3 99	9DM [99FL	99FR NOTES
72.00	4	5.95		3.20	0	0	3.40		1	1	3.20	0			3.11	0	0 burned 1/96; OK 4/96; fire scars still visible, OK 3/97; fire scars barely visible, good 5/97; yellowish at base, OK 3/98; maroonish, OK 5/98; yellowish-green, OK 3/99 & 4/99; slightly purplish, OK 2 & 4/00, 2/01; green, good 5/01
72.01	4	6.05	258	1.90		0	1.80		0	0	1.90	0		0	1.92	mia	0 not burned 1/96; discovered 4/96, good, beside rock; OK 3/97; good 5/97; OK 3/98 & 5/98; plant and tag mia 2/99; almost buried, green, OK 4/99; green, OK, partially buried in juniper needles 2 & 4/00; hunkered, green, OK 2/01; popping out, green, good 5/01
73.00	4	0.65	83	2.70	0	0	2.90		3	3	2.80	2		2	2.51	nd	mia burned 1/96; OK 4/96; good 3/97, 5/97, 3/98; olive green, OK 5/98; hunkered, green, good 3/99; ant mound, plant mia 4/99, 2 & 4/00, 2 & 5/01
73.01	4	0.72	78					·		 .	•			_			discovered 4/00; olive, OK 4/00, 2/01; olive, poor 5/01
74.00	4	~8.1	282	3.10	Ċ	0	3.50		1		4.00)	1	1	3.87	0	0 measured over mimosa; burned 1/96; OK 4/96; good 3/97, 5/97, 3/98, 5/98 & 3/99; green, good 4/99, 2 & 4/00, 2 & 5/01
74.10) 4	~7.87	285				0.60		Ō	0	0.7	0	0	0	0.80	0	0 measured over mimosa; not burned, OK 3/97, 3/98, 5/98 & 3/99; dull green, OK 4/99; green, good 2/00; olive, OK 4/00; spines all white, body green, poor 2 & 5/01

PL# STAKE DIST ANG 96FL 97FL 97FL 98FL 99FR NOTES 75.00 4 ~7.63 284 1.60 0 0 0 1.80 0 0 1.63 0 0 measured over mimosa; burned 1/96; go 3/97, 5/97, 3/98 & 5/98; poor, loose in so green, good 4/99; partially covered by jun litter, OK 2/00; popping out, OK 4/00; gre 2 & 5/01 75.10 4 11.29 284 1.60 0 2.10 1 1 1.90 0 0 1.98 0 0 burned 1/96; discovered 4/96, OK; origin tagged as 87.10; good 3/98 & 5/98; poor, loose in so green, good 4/99; partially covered by jun litter, OK 2/00; popping out, OK 4/00; gre 2 & 5/01 75.10 4 11.29 284 1.60 0 2.10 1 1 1.90 0 0 1.98 0 0 burned 1/96; discovered 4/96, OK; origin tagged as 87.10; good 3/98 & 5/98; poor, loose in so green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good 4/99; green, good	
75.00 4 -7.63 284 1.60 0 2.00 0 1.80 0 0 1.63 0 measured over mimosa; burned 1/96; go 3/97, 5/97, 3/98 & 5/98; poor, loose in so green, good 4/99; partially covered by junititer, OK 2/00; popping out, OK 4/00; gre 2 & 5/01 75.10 4 11.29 284 1.60 0 2.10 1 1 1.90 0 0 1.98 0 0 burned 1/96; discovered 4/96, OK; origin turned 3/96; poor 3/98 & 5/98; poor, good 3/99; partially covered by junitity covered by junitity covered by junitity covered by junitity covered by junitity covered by junitity covered 4/96, OK; origin turned 3/96; discovered 4/96, OK; origin turned 3/96; green, good 4/99; green, good 4/99; green, good 4/99; green, good 2 & 5/96; OK 3/96; poor 3/96 & 5/98; OK 3/96; OK 3/96; green, good 4/99; green, good 2 & 5/91 75.20 4 11.30 284 1 1 1.90 0 0 1.98 0 3-headed clump (75.20, 75.21, 75.22), units green, good 4/99; green, good 4/99, 2 & 4/00, 2 & 5/01 75.21 4 11.31 284 1 1 1 1 1 1 0 0 3-headed clump (75.20, 75.21, 75.22), units green, good 4/99, 2 & 4/00, 2 & 5/01 1 75.21 4 11.32 284 1 1	
75.10 4 -11.29 284 1.60 0 2.10 1 1 1.90 0 0 1.98 0 0 burned 1/96; discovered 4/96, OK; origin tagged as 87.10; good 3/98 & 5/98; OK 3; green, good 4/99; green, good 3/98 & 5/98; OK 3; green, good 4/99; green, good 3/98 & 5/98; OK 3; green, good 4/99; green, good 2 & 5/01 75.20 4 11.30 284 2.18 0 0 3-headed clump (75.20, 75.21, 75.22), u right, green, good 4/99, 2 & 4/00, 2 & 5/01 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), u green, good 4/99, 2 & 4/00, 2 & 5/01 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), u green, good 4/99, 2 & 4/00, 2 & 5/01 75.22 4 11.32 284 1.36 0 0 3-headed clump (75.20, 75.21, 75.22), u green, good 4/99, 2 & 4/00, 2 & 5/01	
75.10 4 11.29 284 1.60 0 2.10 1 1 1.90 0 0 1.98 0 0 burned 1/96; discovered 4/96, OK; origin tagged as 87.10; good 3/98 & 5/98; OK 3 green, good 4/99; green, good 4/99; green, good, buried, retag 2/00; green, good 4/99; green, good, buried, retag 2/00; green, good 4/99; green, good, buried, retag 2/00; green, good 4/99; 2 & 5/01 75.20 4 11.30 284 2.18 0 0 3-headed clump (75.20, 75.21, 75.22), uright, green, good 4/99; 2 & 4/00, 2 & 5/0 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), uright, green, good 4/99, 2 & 4/00, 2 & 5/0 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), uright, green, good 4/99, 2 & 4/00, 2 & 5/0 75.22 4 11.32 284 1.36 0 0 3-headed clump (75.20, 75.21, 75.22), uright, green, good 4/99, 2 & 4/00, 2 & 5/0	
75.10 4 11.29 284 1.60 0 2.10 1 1 1.90 0 0 1.98 0 0 burned 1/96; discovered 4/96, OK; origin tagged as 87.10; good 3/98 & 5/98; OK 3 green, good 4/99; green, good 3/98 & 5/98; OK 3 green, good 4/99; green, good 2 & 5/01 75.20 4 11.30 284 2.18 0 0 3-headed clump (75.20, 75.21, 75.22), u right, green, good 4/99, 2 & 4/00, 2 & 5/01 75.21 4 11.31 284 1 1 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), u green, good 4/99, 2 & 4/00, 2 & 5/01 75.21 4 11.31 284 1 1 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), u green, good 4/99, 2 & 4/00, 2 & 5/01 75.22 4 11.31 284 1 1 1.36 0 0 3-headed clump (75.20, 75.21, 75.22), u green, good 4/99, 2 & 4/00, 2 & 5/01	n, good
75.10 4 11.23 2.04 1.00 5 2.13 1.00 <td< td=""><td></td></td<>	
75.10 4 11.29 2.04 1.00 0 2.18 1.00 <td< td=""><td>1</td></td<>	1
75.10 4 11.30 284 2.18 0 0 3-headed clump (75.20, 75.21, 75.22), u right, green, good 4/99, 2 & 4/00, 2 & 5/01 75.20 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), u right, green, good 4/99, 2 & 4/00, 2 & 5/01 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), u right, green, good 4/99, 2 & 4/00, 2 & 5/01 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), u right, green, good 4/99, 2 & 4/00, 2 & 5/01 75.21 4 11.32 284 1.36 0 0 3-headed clump (75.20, 75.21, 75.22), u right, green, good 4/99, 2 & 4/00, 2 & 5/01	
75.20 4 11.30 284 2.18 0 0 3-headed clump (75.20, 75.21, 75.22), uright, green, good 4/99, 2 & 4/00, 2 & 5/0 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), uright, green, good 4/99, 2 & 4/00, 2 & 5/0 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), uright, green, good 4/99, 2 & 4/00, 2 & 5/01 75.21 4 11.32 284 1.36 0 0 3-headed clump (75.20, 75.21, 75.22), uright, green, good 4/99, 2 & 4/00, 2 & 5/01	
75.20 4 11.30 284 75.21 4 11.31 284 75.21 4 11.31 284 75.21 4 11.31 284 75.22 4 11.32 284 75.23 4 11.32 284	Jaceo
75.20 4 11.30 204 right, green, good 4/99, 2 & 4/00, 2 & 5/0 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), u 75.21 4 11.32 284 1.36 0 0 3-headed clump (75.20, 75.21, 75.22), u 75.22 4 11.32 284 1.36 0 0 3-headed clump (75.20, 75.21, 75.22), real	
75.20 4 11.30 204 right, green, good 4/99, 2 & 4/00, 2 & 5/0 75.21 4 11.31 284 1.85 0 0 3-headed clump (75.20, 75.21, 75.22), u 75.21 4 11.32 284 1.36 0 0 3-headed clump (75.20, 75.21, 75.22), u 75.22 4 11.32 284 1.36 0 0 3-headed clump (75.20, 75.21, 75.22), real	ner
75.21 4 11.31 284 75.21 4 11.31 284 75.21 4 11.32 284 75.22 4 11.32 284 1.36 0 0 3-headed clump(75.20, 75.21, 75.22), res	
75.21 4 11.31 204 green, good 4/99, 2 & 4/00, 2 & 5/01	
75.21 4 11.31 204 green, good 4/99, 2 & 4/00, 2 & 5/01	
75.22 4 11.32 284 1.36 0 0 3-headed clump(75.20,75.21,75.22), rea	per left,
	, green,
	-
	ſ
	ا
76.00 4 -7.66 284 170 0 0 1.60 0 mia mia in in in in in in in in in in in in in	- 14 - 14 - 13 -
5/97, 3/98 & 5/98; plant and tag ma 3/9	
76.10 4 ~7.60 285 0.60 0 0.50 0 0 0.53 0 0 measured in one direction only 3/98, 3/9	
measured over mimosa; under rock; go loose in soil, good 3/98; OK 5/98; good	
green, good 4/99; OK 2/00; green, OK 4	00,2&
5/01	
	<u></u>

									LOSUW	•						NOTES
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR			98FR			99FR	NOTES
76.20	4	~7.61	285				0.70	0	0	0.70	0	0	1.00	0	C	on right of 76.3, measured in one direction only 3/98, 3/99, 2/00; measured over mimosa; under rock; good 3/97, 3/98, 5/98, 3/99; green, good 4/99; OK 2/00; goldish, OK 4/00; green, good 5/01
76.30	4	~7.62	285				1.10	0	Ō	1.10	0	C	1.03	0	(0 on left of 76.2, measured in one direction only 3/99, 2/00; measured over mimosa; under rock; good 3/9, 5/98; good 3/99; green, good 4/99; OK 2/00; green, OK 4/00; green, good 5/01
76.40	4	~7.65	285				1.00	0	Ō	0.90	0	(1.06	0	(0 measured in one direction only, 3/99, 2/00; measured over mimosa; under rock; good 3/97 & 5/98; OK 3/99; olive, OK 4/99; OK 2/00; olive, OK 4/00; loose, green, OK 2 & 5/01
77.00	4	7.53	277	2.30)	o c	2.20	() 0	2.20) C		2.42	2 0		0 burned 1/96; good 4/96, 3/97, 5/97, 3/98 & 5/98; OK 3/99; OK, dull green 4/99; good 2/00; slightly goldish at base, OK 4/00, 2/01; green, OK 5/01
78.00	4	7.97	287	2.1()	0 (2.80	· · · · · · · · · · · · · · · · · · ·	1 1	2.40) (1.7	2 0		0 not burned 1/96; OK 4/96, 3/97, 5/97 & 3/98; good 5/98; OK 3/99; very red, poor 4/99; slightly damaged, purple and tan spots, OK 2/00; olive, OK 4/00; shrunken, purplish, poor 2/01; brownish purple at base, green above, OK 5/01
78.10) 4	8.00	286	 				· ·		1.10	0	0	0 1.2	5 0		0 discovered 3/98; good 5/98 & 3/99; green, good 4/99, 2 & 4/00; olive, OK 2 & 5/01
78.20	0 4	8.89	289) 		:	······			<u></u>			:			discovered 2/00; green good 2 & 4/00, 2 & 5/01

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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
79.00	4	9.09	292	2.90	0	· · · ·	3.20	2	<u> </u>	· · ·		1A	· †		:	burned 1/96; good 4/96, 3/97, 5/97, 3/98; OK, something took a bite & spit it out beside the plant 5/98; green, good 3/99 & 4/99, 2 & 4/00, 2 & 5/01
79.10	4	1.35	290					,					1.12			green, good, discovered 4/99; buried, green, OK 2/00; popping out, green, OK 4/00; eroded out, green, OK 2 & 5/01
80.00	4	6.80	288	1.90	Ō	0	2.20	0	C) 1.60	0	Ō	1.35	0		not burned 1/96; OK 4/96; buried in juniper needles, OK 3/97, 5/97, 3/98, 5/98, 3/99 & 4/99; dull green, OK 2 & 4/00; hunkered, olive, OK 2 & 5/01
80.10	4	12.12	289				1.60	C) 1.70) C	0	1.30	0		fire scars, looks OK 3/97; originally tagged as 87.20; fire scars no longer visible, good 3/98; light green, OK 5/98; green, good 3/99 & 4/99; green, good 2/00; tannish at base, OK 4/00; green, good 2/01; olive, OK 5/01
81.00	4	6.76	284	1.40		D O	1.50	(5	0 1.60) (1.19	0	0	not burned 1/96; looks OK 4/96 & 3/97; buried in juniper needles, looks good 5/97, 3/98 & 5/98; almost totally buried 3/99 & 4/99; green, OK 2 & 4/00; hunkered, green, OK 2 & 5/01
81.10	4	6.85	300				1.80		0	0 1.70		0 0) 1.47	7 0	0	no fire scars, OK 3/97; good 5/97; orangish on one side, OK 3/98; green, OK 5/98, 3/99 & 4/99; reddish, OK 2/00; olive, OK 4/00; reddish-green, OK 2 & 5/01
81.20) 4	0.35	5 302							1.5	0	0 (1.4	1 C		discovered 3/98; poor 3/99; olive, OK 4/99; green OK 2 & 4/00; bite out of side, green, OK-poor 2/01; green, OK 5/01
			1					<u>i</u>						:		and and an and an and an and an and an and an and an and an and an and an and an and an and an an an an an an a

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	OTH				00DM			07014	97FL					99DM 9		99FR	NOTES
PL# 82.00	STAK 4			81	96DM 4.50	96FL 4	· · · · ·	4.30	97FL 6+1fr			90FL 4	3A	4.81	1		burned 1/96; reddish, ~ OK 4/96; fire scars still visible, good, green 3/97, 5/97, 3/98, 5/98,3/99, 4/99, 2 & 4/00; green with some pale red tubercle tips, OK 2 & 5/01
82.10	4	2	.79	96				1.50	0	0	mia			mia			fire scars, OK 3/97; good 5/97; ant mound in area, tag & plant mia 3/98, 5/98, 3 & 4/99; resurfaced, green, good 2/00; ant mound in area, plant and tag mia 4/00; green, OK 2 & 5/01
82.20	4	2	2.63	79							=						discovered 2/01; green, good 2/01; olive, OK 5/01
82 30) 4	2	2.66	79													discovered 2/01; green, good 2 & 5/01
83.00	0 4	5	5.25	112	1.70) (o ō	1.60	1	1	1.70		0 0	1.76	0		0 burned 1/96; OK 4/96; good 3 & 5/97, 3 & 5/98, 3/99; green, good 4/99 & 2/00; pale green, OK 4/00; yellowish-green, OK 2 & 5/01
83.0	1 4		5.26	112	1.50)	0 0 	1.30			0 1.40			1.53	0		0 burned 1/96; OK 4/96; good 3/97, 5/97, 3/98, 5/98, 3/99; green, good 4/99, 2 & 4/00; yellowish- green, OK 2 & 5/01
84.0	0 4	1	1.70	140	3.50		0 0	3.80		3 1+2	4.40	D		3.67	2		0 badly burned 1/96; with bizarrely deformed pup 3/96; OK, new growth, pup rock-like, spineless, & yellow 4/98; fire scar still visible, good, pup a green nub 3/97; pup white 5/97; pup gone, other plant good 3/98, 5/98 & 3/99; good, green 4/99; green, good 2 & 4/00, 2 & 5/01

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PL# S	TAKE	DIST	ANG	96DM	96FL	96FR 9	97DM	97FL	97FR	98DM				99FL	<u>99FR</u>	NOTES
85.00	4		145	4.30	0		4.20	2	3	4.80	0	0	3.99	0		0 burned 1/96; good, new growth, very green 4/96;
00.00																flowers open in rain, in little bluestem clump,
																good 3/97, 5/97, 3/98, 5/98, & 3/99; green, good
		C														4/99, 2 & 4/00; body hollow, COD Monellema
									講主型							2/01
86.00	4	15.66	1/15	3.00	0	0	3.20	1+1fr	2	3.10	1	1	2.90	1		1 burned 1/96; OK 4/96; fire scars still visible, OK
00.00	4	10.00	140	0.00	Ū					ļ				i :		3/97; fire scars gone, good 5/97, 3/98 & 5/98;
												-				hunkered 3/99; maroonish, OK 4/99; partially
									1							buried, purplish, dull, OK 2/00; goldish, OK 4/00;
1																sunken, purplish-olive, poor 2/01; dark olive, OK
														i. 1		5/01
													<u> </u>			
87.00	4	15.42	144	3.00	1	0	3.30	1	1	nd	Ind	Dead		86.		burned 1/96; OK 4/96; fire scars still visible, OK
												PLATE AT				3/97; fire scars just barely visible, OK 5/97; just
N. Contraction			222.23										Tiflau Asi			spines left, COD unknown 5/98
·····	<u></u>						1						ļ			
						<u> </u>			l				<u> </u>	ļ		
Refere	nce Po	int 5 is (31.25r	n at 256	6 degree	es from	'No Col	lecting' sig	gn, post	closes	t to roa	id, left o	of junipe	er, over	agaritas	and mountain laurels; Stake 5 = GPS5; R0302?2A
						ated fro	m 88.3	1 and 92.0)1	0.00				0		0 burned 1/96; good 4/96 & 3/97, edge of little
88.00	5	6.91	41	1.70		0	2.00	0	0	2.30		ין ^ע	1.75			bluestem clump; buried in clump, good 3/98 &
						-			1							5/98; poor 3/99; green, OK 5/99;green good 2 &
		1												ļ	Ì	4/00; green, OK 2/01; green, good 5/01
						ł										
										1					1	
	. <u> </u>	4 20	~68	2.80	+		3.10	1+1fr	2	2.40	l	<u></u>	2.13	3 1fr		1 burned 1/96; discovered 4/96, OK, originally
88.10	5	4.68	~00	2.00	'		0.10									tagged as 343; fire scars still visible, at base of
	ļ									:						fire ant mound, OK 3/97; ant mound gone, plant
										1						OK 3/98; mound back, partially covering plant
	1			1						:					}	and completely covering tag 5/98; ant mound
										:			1			gone, green, good 3/99 & 5/99; green, good,
															ł	partially buried 2/00; popping out, green, good
		i I				1										4/00, 2 & 5/01
							ļ								1	
			_					ļ						+ -		discovered 5/98; tag and plant mia 2 & 4/00, 2 &
88.11	5	4.68	64							0.30	ו		0 mi	a		biscovered 5/98; tag and plant mia 2 & 4/00, 2 &
		1		1										1		
			ļ	i		l									1	
		1		1		1		1					i			
											<u>.</u>					

						÷		,	Ancistro Lost N							27 of 96
			ANO	OCDM		96FR	OZDM	97FL		•			99DM	Q QFI	99FR	NOTES
PL# 88.20	STAKE 5	5.09	75	96DM 3.00	96FL	0		97FL 1+2fr	· • •			2	2.36	1fr	1 disp	burned 1/96; OK, reddish 4/96, originally tagged as 344; old fire scars still visible, OK, reddish 3/97; fire scars barely visible, good 5/97; a little yellow-orange on a few basal tubercles 3/98; ants swarming plant, OK 5/98, 3/99 & 5/99; partially buried, misshapen, reddish, tan at base, OK 2/00; reddish-orange green, OK 4/00; green with red tubercle tips 2 & 5/01
88.30	5	3.61	52				3.60	3	2	3.80	Ō	0	2.76	3	1+2A	fire scars at base, good 3/97; sort of lop-sided, good 3/98; a few yellowish tubercle tips, OK 5/98; hunkered, OK 3/99; hunkered, OK, orangish 5/99; partially buried, green, good 2/00; hunkered, red, OK 4/00 & 2/01; tubercles misshapen, reddish- green, OK 5/01
88.31	5	3.54	52											<u>.</u>		discovered 2/00; green, good 2 & 4/00, 2 & 5/01
88.40	5	4.14	56				3.60	3+3fr	4	2.70		C	2.40	1	1Ā	no fire scars, good 3/97; flowers fallen off, good 3/98; poor, shrunken, spines loose 5/98; maroonish, OK 3/99; getting covered 5/99; beside rock, green, good 2 & 4/00; covered with debris, purplish, OK 2/01; uncovered, dark green, OK 5/01
88.41	5	3.81	68										1.19	9	Ċ	pedasteled, olive green, OK, discovered 5/99; green, OK 2 & 4/00; tag loose, replaced, plant green, OK 2/01; green, good 5/01
88.42	. 5	4.39	62					· · ·					1.9	2		0 green, good 5/99, 2 & 4/00 & 2/01; green, OK 5/01

									LOSU	Aaples	State	atura	Alea			
	CTAKE	DIST	ANG	96DM	96FI	96FB	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
				50DW				· · · · · · · · · · · · · · · · · · ·			<u>.</u>	· · · · · · · · ·	·	1		discovered 2/01; green, good 2 & 5/01
88.43	5	4.50	62											:		
											ĺ			:		
						1									·	
88.50	5	4.30	63		·		2.70	1	1	2.60	1	1	2.41	1	-	no fire scars, good 3/97, 3/98, 5/98 & 3/99; dull
00.00	5	4.50	00			5			1		1					green, OK 5/99; green, good 2 & 4/00, 2 & 5/01
		1				1										3 , , , , , , , , , , , , , , , , , , ,
										1						
		i i														
]				
88.60	5	4.95	71			· · · · · · · · ·	2.10		1	2.00	1	1	1.36	0	I	0 no fire scars, good 3/97, 3/98; pulling into soil, OK
00.00	5	4.33										1		i		5/98 & 3/99; popping out, green, OK 5/99; green,
1							1									good 2 & 4/00; maroonish, OK 2/01; dull reddish-
											1					green, OK-poor 5/01
													İ.			green, OK-pool sidi
88.70	5	5 60	71				2.70	2	2	2.20	C	nc	1.36	6 0		0 fire scars at base, OK 3/97, 3/98; hunkered, OK 3
00.70	5	0.00								-						& 5/99; partially buried, green, basally discolored
					1						1		1			2/00; goldish-green, OK 4/00, 2 & 5/01
			i													
		1			1					· ·						
1		1	ĺ.								1					
		4											_			
88.80	5	5.96	53										1			discovered 2/00; green, good 2/00; olive, OK
00.00		0.00														4/00; green with tan tubercle tips, OK 2 & 5/01
								l l								
1																
			1		1			1	1						1	
									_		1					
88.81	5	5.89	53							1	ļ					discovered 2/00; hunkered, green, OK 2 & 4/00,
00.01		0.00	. 00									Ì	1			2/01; coming out, green, OK 5/01
1	1		1					1			1					
1				1												
		Ì	1					1		ļ	1					
00.00	5	E C	5 79	2.40	<u></u>	0	0 2.70		2	2 2.7	0	1 1/	A 1.9	6 1fr	-	A not burned 1/96; good 4/96; reddish at base, OK
89.00	1 5	5.6	- 1 9	2.40		۲ I	U 2.70		-		-				1	3 & 5/97; reddish at base, good 3/98; a little
						ļ										orangish, OK 5/98, 3/99 & 5/99; green, good
		ĺ		l						· i	Ì			Ì	1	
				÷		1								Ì		2/00; olive, OK 4/00; green with a few red
1				•						-					-	tubercle tips, OK 2 & 5/01
Ì		!												:	.i	: :
1													i.	i		
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										laples						
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
89.01	5	5.64		0.70	0	0	0.80	0	0						1	not burned 1/96; good 4/96, to the left of 89, behind 89.02 & 89.03; good 3/97, 5/97, 3/98, 5/98, 3/99 & 5/99; green, good 2 & 4/00, 2 & 5/01
89.02	5	5.63	79	0.80	0	0	0.90	0	0	1.00	0	ō	1.05	0		not burned 1/96; good 4/96, left of 89.00, in front of 89.01; good 3/97, 5/97, 3/98, 5/98, 3/99 & 5/99; green, good 2 & 4/00, 2 & 5/01
89.03	5	5.64	79	0.90	Ō	0	1.20	0	ő	1.10	· 0	0	0.92	Ō	1	not burned 1/96; good 4/96; to the left of 89.01 and behind 89.04;good 3/97, 5/97, 3/98, 5/98, 3/99 5/99; green, good 2 & 4/00, 2 & 5/01
89.04	5	5.63	79	0.80	0	0	1.20	0	0	1.10	Ō	C	1.18	<u> </u>		not burned 1/96; good 4/96; left of 89.02 and in front of 89.03; good 3/97, 5/97, 3/98, 5/98, 3/99 & 5/99; green, good 2 & 4/00, 2 & 5/01
90.00	5	4.82	85	2.90	2	2	3.50	2+2fr	4	1 3.40		3 3	3 2.50) 2fr		not burned 1/96; reddish at base 3/96; good 4/96, 3 & 5/97; by rock, yellowish at base, tag loose, by 91.00 3/98; OK 5/98, 3/99 & 5/99; purplish, tan at base, OK 2/00; olive green, OK 4/00; olive with some red tubercle tips, OK 2/01; green with darker tubercle tips, OK 5/01
91.00	5	5.00	5 90	2.20	1	1	2.90	2		2 2.30)	1	1 1.7	8 0	Ō	not burned 1/96; good 5/96, 3 & 5/97, 3/98; pulling into soil, OK 5/98 & 3/99; green, good 5/99; partially buried, green, good 2 & 4/00, 2 & 5/01
92.0			8 94 5 94	3.70		2	2 4.70	3+21		5 2.4		2 Dea	d 1 2.3	1 0	C	not burned 1/96; good 5/96, 3 & 5/97, 3/98; root solid, dry, COD unknown 5/98 good, discovered 5/98; good 3/99, 5/99; green, good 2/00; partially in ant dirt, green, OK 4/00; out, green, good 2 & 5/01

99FR NOTES 97FR 98DM 98FL 98FR 99DM 99FL PL# STAKE DIST ANG 96DM 96FL 96FR 97DM 97FL discovered 4/00; one measurement only 4/00; 95 92.02 5 4.71 green, good 4/00, 2 & 5/01 3+1A+ burned 1/96; OK 5/96; fantastic 3 & 5/97; tag 5.00 3+2fr 7 6.00 0 0 5.10 3 1 5.80 4+4fr 93.00 5 4.86 105 1disploose, by 92, yellow at tubercle bases, OK 3/98; good 5/98, 3/99 & 5/99; green, good 2/00; a few orange tubercle tips, OK 4/00; green with a few orange tubercle tips, good 2/01; green, good 5/01 1+2disp burned 1/96; OK 5/96; good 3 & 5/97; tag mia, 3.34 4fr 3.60 1+2fr 3 3.00 1 1 94.00 5 5.19 108 2.60 0 0 replaced, good 3/98; OK 5/98; green, good, hunkered 3/99; maroonish, OK 5/99; slightly reddish, OK 2/00; reddish-orange at base, OK 4/00; green with red tubercle tips, trampled? In path, OK 2/01; maroonish, OK 5/01 Reference point 6 is 30.30m at 326 degrees from 20mph sign; Stake 6 = GPS6; R030215A 5 OK 3/96; good 5/97, 3/98; getting buried 5/98 & 3.60 2+3fr 1A 5fr 5 4.60 3 3.70 6 0.91 270 3.30 0 0 95.00 3/99; popping out, green, good 4/99; slightly purplish-green, OK 2 & 5/00; body hollow, COD 6.6 Moneilema 2/01 good 5/97, 3/98, 5/98, 3/99 & 4/99; reddish-2.19 1fr 1fr 2.50 1 1 2.30 3.74 270 95.10 6 green, OK 2/00; olive, OK 5/00; green, good 2 & 5/01 $\overline{2}$ 3.47 3 3 OK 3/96; good 5/97, 3/98, 5/98, 3 & 4/99; 2 3.90 3.60 4.26 338 3.30 3 2 1fr 1A 96.00 6 purplish, OK 2/00; misshapen (stepped on in past?), olive, OK 5/00; some tubercle damage, otherwise green, good 2/01; green, good 5/01

PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FF		9DM	99FL	99FR	NOTES
<u>96.01</u>	6	6.45		50.0.0						3.60		· · · · · · · · · · · · · · · · · · ·	0	3.95	0	Ő	good, discovered 5/98; good 3/99, 4/99; green, good 2 & 5/00, 2 & 5/01
96.10	6	10.02	345				3.80	1fr	1	5.10	1	 1 1 1	1	4.95	1	<u>1</u>	good 5/97; in small fire ant mound, good 3/98 & 5/98; slightly buried, good 3/99 & 4/99; green, good 2 & 5/00; olinve, OK 2/01; slightly maroonish, OK 5/01
96.20	6	10.02	345				4.20	2fr	2	4.80	3	3	3	3.65	0	Ō	to right of 96.30; good 5/97; fire ants, good 3/98 & 5/98; slightly buried, yellowish, OK 3/99; coming out, green, good 4/99; green, good 2 & 5/00, 2 & 5/01
96.30	6	10.01	345				3.60	0	Ċ	4.30		3	3	3.53	0		good 5/97, 3/98, 5/98, 3 & 5/99; green, good 2 & 5/00, 2 & 5/01
96.40	6	10.35	5 348				3.70	C) (0 3.40		C	0	2.49	0		Closest to stake; OK 5/97, 3/98; good 5/98; almost buried in juniper litter, OK 3/99 & 4/99; green-yellow, OK, partially buried in juniper litter 2 & 5/00, 2 & 5/01
96.50) 6	10.39	348				3.10	()	0 3.70)	0	Ō	2.67	0		0 left of 96.60 & behind 96.40; OK 5/97, 3/98; good 5/98; almost buried in juniper litter, OK 3/99 & 4/99; partially buried in juniper litter, green, good 2 & 5/00; partially buried in juniper litter, yellow- green, OK 2 & 5/01
96.60	0 6	10.3	8 348	3			2.50		0	0 3.00		0	Ö	2.58	0	· · · · · · · · · · · · · · · · · · ·	0 right of 96.50 & behind 96.40; OK 3/98; good 5/98; almost buried in juniper litter, OK 3/99 & 4/99; partially buried in juniper litter, green, good 2 & 5/00, 2 & 5/01

								ļ	Ancistro Lost M						32 of 96
PL# 97.00	STAKE 6	DIST 9.95		96DM 3.30	<u>96</u> FL 0	96FR 0		97FL 2fr	97FR 1+1A	98DM 4.10		98FR 0		99FL 0	99FR NOTES 0 good 3/96 & 5/97; purplish, OK 3/98; green, good 5/98 & 3/99; slightly buried in juniper litter, popping out, green, good 4/99; purplish green, good 2/00; green, good 5/00, 2 & 5/01
98.00	6	9.94	354	3.30	0	Ō	4.00	0	0	4.00	0	0	2.93	0	0 good 3/96; purplish, OK 3/98; green, good 5/98 & 3/99; green, good 4/99; dull green, good 2/00; some orange tubercle tips, body green, good 5/00; some tubercle damage, green, good 2/01; green, good 5/01
99.00	6	10.24	334	2.10	0	0	2.50	2fr	2	3.10	2	2	2.42	1fr	1 OK 3/96, 3/98, 5/98, 3 & 4/99; olive green, OK 2/00; green, good 5/00; olive, OK 2/01; green, OK 5/01
100.00	6	9.63	337	2.70		0	2.90	1	1A	3.00	C		2.66		disp? OK 3/96, 3/98, 5/98 & 3/99; dull green, OK 4/99; dark green, good 2/00; green, good 5/00; reddish- orangish gold, poor 2/01; bottom root rot; collected for weevil study 5/01
100.10	6	9.34	340				2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			2.50			2.35	5 0	0 good, discovered 3/98; maroon, OK 5/98; green, good 3 & 4/99; green, good 2 & 5/00, 2/01; dull green, OK 5/01
101.00	6	9.65	333	2.40)) 3.10	2f	r 2	2 3.30)		2.75	5 3fr	r 2+1A OK 3/96; a few tubercles yellow-green 3/97; a few purplish tubercles, good 3/98; being buried in ant mound 5/98; slightly buried, OK 3/99; maroonish, OK 4/99; purplish green, good 2/00; orangish at base, OK 5/00; green with some red and tan tubercle tips, OK 2 & 5/01
102.0	0 6	10.10	332	2 2.60)	1	1 3.50	2f	r - :	2 3.30	D :	2	2 2.7	0 1fr	r OK 3/96; good 3 & 5/97; a little purplish, OK 3/98 5/98 & 3/99; green, good 4/99; olive green, OK 2 & 5/00; greenish-yellow, poor 2/01; olive, OK 5/0

										viapies						10750
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
103.00			334	2.70	1	1	2.80	1fr	1A	3.30	2	2	2.27	1fr	1	OK 3/96; good 5/97, 3/98, 5/98 & 4/99; green, good 2 & 5/00, 2 & 5/01
104.00	6	10.39	332	2.30	0	0	2.90	1+1fr	2	2.90	1	1	2.39	. 1fr	1	good 3/96; a little yellowish, OK 3/98, 5/98 & 3/99; tag mia, replaced, OK 4/99; yellow, OK 2/00; olive, OK 5/00; yellow-green, OK 2 & 5/01
104.10	6	10.82	336							1.60	0	ō	1.16	Ō	0	discovered 3/98; good 3/98& 5/98; tag loose, plant almost buried 3/99; popping out, dull green, OK 4/99; dull green, OK 2/00; green, good, OK 5/00; partially buried, green, OK 2 & 5/01
104.20) 6	10.85	336		-	· · · · · · · · · · · · · · · · · · ·				0.70	C		0.52	Ō	(discovered 3/98; OK 3/98 & 5/98; totally buried, tag chewed, replaced 3/99; almost buried, purplish, OK 4/99; buried, green, OK 2/00; coming out, reddish, OK 5/00; buried, green, OK 2 & 5/01
105.00	6	10.39	333	2.10) ()	2.20	()	0 2.30	1	1	2.02	2 0		D good 3/96; purplish, OK 3/98 & 5/98; very purple, poor 3/99; purplish, OK 4/99; reddish, OK 2 & 5/00; green with some reddish tubercle tips, OK 2 & 5/01
106.00	0 6	10.40	333	2.00)		0 2.50	: 		0 2.50) (0) 1.6	7 ō		0 OK 3/96; between rocks 3/97; good 5/97; a few yellowish tubercles, OK 3 /98 & 5/98; poor, yellow green 3/99; olive, OK 4/99; reddish, OK 2/00; a few orangish tubercle tips, OK 5/00, 2 & 5/01

PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR '	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
107.00	6	10.28	and a second second second second	2.90		0		0	0	3.40	1	1	2.85	0	0	OK 3/96; good 3 & 5/97; yellowish, OK 3/98, 5/98, 3 & 4/99; seedling in front of plant (107.01), dull green, good 2 & 5/00; pale green, OK 2/01; olive, OK 5/01
107.01	6	10.27	332								· · · · · · · · · · · · · · · · · · ·				<u> </u>	seedling at base of 107; green, OK, not tagged 2 & 5/00; olivish-red, poor 2/01; olive, OK 5/01
107.02	6	10.31	332				1									discovered, not tagged, behind 107 5/00; green, good 5/00; partially buried in juniper litter, green, OK 2 & 5/01
107.03	6	10.29	336							 						discovered 5/01; not tagged, at left upper corner of 107.00 tag; green, OK 5/01
107.10	6	10.87	334			-				2.40			1.91	Ō	(discovered 3/98; good 3/98 & 5/98; good, slightly buried in juniper litter 3/99; coming out, green, good 4/99; olive green, OK 2/00; green, good 5/00, 2 & 5/01
108.00) 6 	9.18	333	1.50) 0	Ō	1.70	() C	1.60	5 () () 1.82	Ō	(OK 3/96; by rock, measured in one direction only 3/97; good 5/97, 3/98; olive green, OK 5/98; edge of ant mound, green, OK 3 & 4/99; green, reddish tubercles, OK 2/00; green, good 5/00, 5/01
109.00) = 6	9.94	L 337		0 0	C	2.90	36		3 2.90			1 2.24	1		OK 3/96; good 3/98 & 5/98; flower partially eaten, almost buried in ant mound, tag buried 3/99; out of mound, green, good 4/99; green reddish tubercle tips, OK 2 & 5/00; body with galleries and small exit hole, COD weevils? 2/01

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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR		98FL	98FR			99FR	NOTES
110.00	6	9.55	332	2.90	2	2	3.10	2fr	2	3.40	1	1	3.20	1+2fr	3	OK 3/96; good 5/97, 3/98; yellow, OK 5/98; green, good 3 & 4/99; green, good 2/00; basally yellow, OK 5/00; some tubercle damage, green, good 2 & 5/01
110.01	6	9.46	332				0.70		0	0.90	0	0	0.32	0	(seedling, discovered 5/97; good 3/98; buried, good 5/98, 3 & 4/99; buried, green, good 2 & 5/00, 2 & 5/01
110.02	6	9.52	334				· · ·									discovered 5/00; not tagged, between 110 and its tag; green, OK 5/00, 5/01
111.00	6	9.22	332	2.80	2	2	3.00	4fr	4	3.20	2	2	2.83	3 3fr		2 OK 3/96, 3/98 & 5/98; good 3 & 4/99; green, good 2/00; some yellowish tubercle tips, OK 5/00; green, good 2/01; pale green, OK 5/01
112.00	6	9.33	336	2.00)	0	mia			mia			mia	a 1923 1923 1924 1925		a good 3/96; plant & tag mia 3/97 & 5/97; ant mound in vicinity, plant & tag mia 3/98, 5/98, 3/99 & 4/99
112.10	6	9.90	336	1.60))	0	~2.4	0	0	2.30	C) (2.4	2 0		0 good, discovered 5/96; to the left of 112.2; measured in one direction only 3/97; good 3/98 & 5/98; good, slightly buried 3/99; good 4/99; green, good 2 & 5/00, 2 & 5/01
112.20) 6	9.90	0 336	1.80	D) ~2.3	C) <u> </u>	2.10)	0 2.6	5 1fr		1 discovered 5/96, good; to the right of 112.2; measured in one direction only 3/97; good 3/98, 5/98, 3/99 & 4/99; green, good 2/00; some slightly reddish tubercle tips, good 5/00, 2 & 5/01
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										ahies					
PL#	STAKE	DIST	ANG.	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR NOTES
113.00	6	10.15	A second second second second second	3.50		, 3		4fr	4	4.70	3	3	3.74	1+2fr	2+1A OK 3/96; a little yellowish, OK 3/98; green, good 5/98; OK, yellow-green 3/99; olive, good 4/99; little yellowish at base, good 2/00; green, good 5/00, 2/01; a few yellow tubercle tips at base, otherwise green, good 5/01
114.00	6	10.47	326	3.20	0	0	3.80	2fr	-2	3.90	0	0	3.38	0	0 good 3/96, 3/98, 5/98, 3/99 & 4/99; partially buried, reddish, OK 2/00; maroonish, OK 5/00; reddish-gold, poor 2/01; reddish-olive, OK 5/01
115.00	6			 											not assigned in 1996, 1997, 1998, 1999
116.00	6	7.85	334	2.20	ĪA	0	3.10	1+2fr	2+1A	3.10	0	0	2.59	2	2 good 3/96; a little yellowish, OK 3/98, 5/98, 3/99 & 4/99; tubercle tips reddish, OK 2 & 5/00; some tubercle damage, green, good 2 & 5/01
116.10	6	7.73	338							·					discovered 2/01; green, good 2 & 5/01
117.00	6	7.40	336	2.20	, c	C	3.20	C	0	3.40	2	2	3.07	3 fr	3 OK 3/96; a little reddish 3/97; good 3/98, 5/98, 3/99 & 4/99; reddish tubercle tips, good 2 & 5/00; green, good 2 & 5/01
117.01	6	7.40	336			· · · · ·	1.40) 0	1.20)C		1.12	2 0	0 seedling, measured in one direction only 3/97; OK 5/97; good 3/98, 5/98, 3/99 & 4/99; green, good 2 & 5/00, 2 & 5/01
118.00	6	7.07	333)		0 2.50		ř 1 A	2:70			2.1:	3 0	0 fire scars at base, OK 3/96; fire scars barely visible 5/97; no fire scars visible, slightly yellowish, OK 3/98; 2 spine clusters & tubercles pulled off, small digging beside, OK 5/98; green, OK 3/99; green, good 4/99; green, OK 2 & 5/00; looks dead, but firmly rooted, collected 2/01

				_										2051		NOTES
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97 D M	97FL	97FR		98⊦L	98FH	99DM		99FR	
118.10	6	7.25	332				2.80	0	0	2.40	0	0	2.28	0	U	od 5/97, 3/98, 5/98, & 4/99; green, good 2 & 10, 2 & 5/01
118.20	6	7.79	347				1.80	0	0	1.60	0	0	1.25	0		od 5/97, 3/98, 5/98, 3/99 & 4/99; dark green, od 2/00; purplish, OK 5/00; green, good 2 &)1
119.00	6	~6.81	333	1.60	0	0	2.30	C	0	2.20	0	O I	1.90	0	me 5/S of	o'clock position in cluster, good 3/96; easured in one direction only 3/97; good 3/98 & 98; good, almost buried in ant mound 3/99; out mound, green, good 4/99; body solid, dry, wdery, COD unknown 2/00.
120.00	6		333	1.60			2.40	1		2.30	O	0	2.05	0	in go ma po	5'clock position in cluster, good 3/96; measured one direction only 3/97; good 3/98 & 5/98; od, almost buried in ant mound 3/99; out of bund, green, good 4/99; body solid, dry; wdery, COD unknown 2/00
121.00	6	~6.81	333	1.40		0	1.70) 0	1.70			1.82	0	in go mu pc	o'clock position in cluster, good 3/96; measured one direction only 3/97; good 3/98 & 5/98; od, almost buried in ant mound 3/99; out of, ound, green, good 4/99; body solid, dry, owdery, COD unknown 2/00
122.00	6	- 6.81	333	1.80) 0	240	21	r 2	2.50) 2.02		in gc m	o'clock position in cluster, good 3/96; measured one direction only 3/97; good 3/98 & 5/98; ood, almost buried in ant mound 3/99; out of ound, green, good 4/99; body solid, dry, owdery, COD unknown 2/00
123.00	6	~6.81	333	1.30) (O	2.00)) 1.70) 1.54	0	5/ of	Do'clock position in cluster, good 3/96, 3/98, 98; good, almost buried in ant mound 3/99; out mound, green, good 4/99; body solid, dry, owdery, COD unknown 2/00
	Plants	119.00	throu	gh 123.	00 were	all one	plant									
124.00	12	2.5 2.25	331	د منفد تسمیت یکدن بی		1 1	2.30) 3	r (3 3.1() (0 (0 2.82	2 1+1fr	gr	K 3/96, 3/98; good 5/98, 3/99 & 4/99; olive reen, OK 2/00; yellowish at base, OK 5/00 & /01; reddish basally, otherwise green, OK 5/01

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PL# S 124.10 125.00	6		· !	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR		199FI	99FR	NOTES
	6	6.75						· • • • •					5550101			
105 00			334													discovered 2/01; green, OK 2 & 5/01
125.00	6	6.75	328	3.50	4	4	4.10	5fr	5	3.60	2	3	2.89	3+1fr	4	good 3/96; a few orange tubercles, OK 5/97, 3/98 & 5/98; green, good 3/99, 4/99 & 2/00; yellow at base, OK 5/00; some tubercle damage, green, OK 2 & 5/01
125.10	6	5.38	331				3.30	- 3fr	3	3.10	Ō	O	2.51	1+1fr	1	good 5/97; very yellow-orange, poor 3/98; orange, OK 5/98; olive green, few orange tubercles, OK 3/99, 4/99 & 2/00; slightly orangish at base, otherwise green, OK 5/00; ants swarming, pale green, OK 2/01; some yellow tubercle tips, OK 5/01
126.00	R	6.50	328	2.20	0	0	4.00	0	0	3.90	Ō	C	3.56	5 1fr	1	good 3/96, 3/98 & 5/98; good, dead bee on plant 3/99; green, good 4/99, 2 & 5/00 & 2/01; maroonish at base, otherwise, green, good 5/01
127.00	6	6.98	323	2.70	C	Ō	3.20	1A+2fr	2	3.50	3		2.91	1 1+1fr		OK 3/96; under rock, measured in one direction only 3/97, 3/98; good 5/97, 3/98; OK 5/98; good 3/99 & 4/99; green, good 2 & 5/00 & 2/01; green, OK 5/01
127.01	6	6.81	325					· ·							· ·	discovered 5/01; green, OK 5/01
127.10	6	7.53	3 324				2.00	 	 	1.80)		1.7	2 0		0 good 5/97, 3/98, 5/98, 3 & 4/99; green, good 2 & 5/00, 2 & 5/01

										hapies :						
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
127.20	6	6.97														discovered 2/01; green, good 2 & 5/01
	-								 							
127.30	6	6.78	321													discovered 2/01; yellow-green, OK 2 & 5/01
127.40	6	6.61	320													discovered 2/01; green, OK 2 & 5/01
127.50	6	6.59	320			· · · ·										discovered 2/01; a few damaged tubercles, green, OK 2 & 5/01
127.60	6	6.67	320										 		· · · · ·	discovered 2/01; hunkered, green, OK 2/01; popped out, green, good 5/01
128.00	6	7.15	317	3.40	2	2 1	5.30	5fr	5	4.80	3	3 3	4.6*	4+1fr		5 good 3/96; a little yellowish, OK, fruit already dispersing 5/97; very yellowish near base, OK 3/98, 5/98, 3/99, 4/99, 2 & 5/00; green, OK 2/01; green, good 5/01
128.10		6.63 6.62	312 312				3.30	21		2 3.00) 2.4	2 2 2 2 0 0		0 good 5/97; new apical growth, several tubercles reddish, OK 3/98 & 5/98; yellow-green, OK 3/99 & 4/99; hollow chambers, weevils? 2/00 seedling of 128.10, discovered 2/00; OK 5/00; plant mia 2 & 5/01
128.20) 6	7.30	312					· · · · · · · · · · · · · · · · · · ·		2.00)		2.4	9)	0 discovered 5/98, good 3/99 & 4/99; green, good 2 & 5/00, 2 & 5/01

											<u> </u>					
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
128.30		7.37				<u></u>	· · · · · ·			1.90		0	2.21	1		1 discovered 5/98, good 3/99 & 4/99; green, good 2
120.30	0	1.01	012									Ĩ				& 5/00; geen with some yellowish tubercles, OK 2
	1				İ											& 5/01
j					 ;											
					ĺ											
						∤				-	-					discovered 2/01; a few damaged tubercles,
128.40	6	6.31	317		i					Ì						
1									i i							green, OK 2/01; reddish-green, OK 5/01
				1	1		1				1					
			1			I				1]			
									1					{		
										1						
128.50	6	6 25	318	·		·!							T			discovered 2/01; green with some red tubercle
120.00	0	0.00	310													tips, OK 2 & 5/01
																(ips, or 2 a or)
1								1			1	ļ				
	1								ļ				1			
						1										
129.00	6	7.50	312	2.40		1 · · ·	2.70	1+1fr	2	2.50	0		2.46	0	· · · ·	0 OK 3/96; a little reddish, OK 3/98, 5/98, 3/99 &
129.00	o l	7.50	312	2.40		' '	2.70	1 1 1 1	1 -							4/99 & 2/00; dull green, OK 5/00& 2/01; olive, OK
			İ													
																5/01
			ł	1												
										Í				1		
130.00		7.45	308	2.20	stra - 7	o o	2.20	1fi	1	2.40) (2.44	Ō		0 good 3/96; rock flipped on top, partially covering
130.00	6	/ 7.45	300	2.20		0	2.20	'''		L 2.70	/					plant, rock removed, plant good 3/98, 5/98, 3/99
	1										i i					
						1										& 5/99; dark green with some purplish tubercle
]								tips, OK 2 & 5/00 & 2/01; maroonish-green, OK
		1														5/01
1															1	
									-				0.00		· · · · · · · ·	1 OK 3/96, 3/98 & 5/98; good 3/99 & 5/99; green
131.00	6	7.41	330	2.70) ₁	1 1	3.40	3f	r 2+1/	۹ 3.30	נ	1 '	1 2.88	3 1		
						1										with a few orange tubercle tips, good 2/00; green
		1			1							1				with a few orange tubercle tips, OK 5/00; tag mia
									[ļ					replaced, plant green with a few yellow tubercle
			1				İ		1	1			1			
																tips, OK 2/01; green, good 5/01
			1								1			ł		
		· · - · ·		-				+				· - · ·		1		discovered 2/01; green, good 2 & 5/01
131.10	6	7.55	5 330)	:	1		1		•		l.				usuvered 2101, green, guod 2 & 0101
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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
132.00	6	9.45		3.00	0	0	3.70	3fr	2	4.20	1	1	3.51	3	3	old fire scar at base, OK 3/96; scar barely visible, good 5/97; fire scar no longer visible, good 3/98, 5/98, 3 & 4/99; green, good 2 & 5/00; tag mia, replaced, plant green, good 2 & 5/01
133.00	6	9.71	331	3.80	3	3	4.90	5fr	5	5.00	4	4	4.03	5fr	4+1Ă	OK 3/96; turning red 3/97; seedling (133.01) at base 5/97; totally maroon, good 3/98; maroon, OK 5/98; maroon, OK, shrunken on one side 3/99 & 4/99; mostly purplish, but good 2/00; dark green, good 5/00; slightly purplish-green, good 2 & 5/01
133.01	6	9.68	331						·	1.20	0	0	1.42	0	Č	seedling of 133, 1st seen 5/97, 1st measured & tagged 3/98; good 5/98, 3/99 & 4/99; green, good 2 & 5/00, 2 & 5/01
i34.00	6	8.85	331	2.40	0	0	2.90	1A	1A	3.30	2	2	2.76	5 1	14	OK 3/96; good 5/97, 3/98; a few yellow & red tubercles, OK 5/98, 3 & 4/99; mottled green, OK 2 & 5/00; some damaged tubercles, green, good 2/01; maroonish-green, OK 5/01
135.00	6	10.20	327	4.10	2	0	5.30	1+5fr	nd	5.30	3	4	4.92	2 2+1fr		3 OK 3/96; turning red 3/97, 3/98 & 5/98; getting buried 3/99; coming out maroonish, good 4/99; totally out, dark green, good 2/00; orangish- green, OK 5/00; purplish-green with some orange tubercle tips 2/01; purplish-green, good 5/01
136.00	6	9.67	7 323	2:50		Q	3.00	2fr	2	3.00		2	2.8	7 3		3 good 3/96; OK, dullish green 3/97; good 3/98; getting buried, good 5/98 & 3/99; reddish, OK 4/99; green with reddish tubercle tips, good 2/00; green with reddish tubercle tips, OK 5/00; large chamber in body, COD Moneilema? 2/01

															0050	NOTES
PL#	STAKE			96DM	96FL	96FR	97 <u>DM</u>			98DM	<u>98⊢</u>	98FH	99DM		99FR	
137.00	6	9.80	323	3.00	1	1,	3.20	2fr	2	3.10	1	1	2.71	0	U	OK 3/96; a little reddish, OK 3/98; green, good 5/98, 3/99, 4/99, 2 & 5/00, 2 & 5/01
137.01	6	9.15	326													discovered 5/01; green, OK 5/01
138.00	6	9.90	323	2.50	0	0	3.60	3fr	3	4.00	3	3	3.09	3		to the left of 139, good 3/96, 3/98, 5/98, 3/99 & 5/99; green, good 2 & 5/00; green with some purplish tubercle tips, good 2 & 5/01
139.00	6	9.92	323	2.00	2	2	3.80	3fr	3	4.20	2	2	4.62	5	<u></u>	5 to the right of 138, good 3/96, 3/98, 5/98, 3/99 & 5/99; green, good 2 & 5/00, 2 & 5/01
140.00	6	9.90	320	2.10	0	ē č	2.00	0	0	1.80	C) (2.10	0		0 good 3/96 & 3/97, 3/98 & 5/98; good at edge of little bluestem clump & ant mound 3/99; green, good 4/99, 2 & 5/00, 2 & 5/01
141.00	6	10.71	323	5.20	2+1fr	1	6.00	7fr	5+2A	6.30		3 2+14	5.63	4fr		4 OK 3/96; good 5/97; a little reddish, OK 3/98 & 5/98; a few spines loose, a little reddish, OK 3/99; green, good 4/99; green with reddish tubercle tips, OK 2 & 5/00; green with reddish tubercle tips, good, one flower partially eaten 2/01; green, good 5/01
141.01	6	10.68	323	1.60) () C	2.60	0	с С	2.80) (D	2.48	2fr		1 good 3/96, 3/98, 5/98, 3/99 & 4/99; green, good 2 & 5/00, 2 & 5/01
141.02	2 6	10.66	323		** **	-	1.40) – C) (5 1.70)	0	0 1.57	0		0 good 3/98, 5/98, 3/99 & 5/99; green, good 2 & 5/00, 2/01; partially buried in juniper litter, green, OK 5/01

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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
141.10	6	10.85					3.20	1fr	1	3.10	0	0	3.52	0		OK 5/97, 3/98; gray overall, buried in Juniper needles, poor 5/98 & 3/99; coming out, good 4/99; coming out, green, good 2 & 5/00; olive, OK 2 & 5/01
142.00	6	11.57	323	3.40	1	1	3.90	Зfr	3	4.00	2	2	3.70	0		OK 3/96; good 3/98, 5/98, 3/99 & 4/99; caving in on one side, green, OK 2/00; new apical growth, green, good, old body poor 5/00; old body bearly visible, new growth green, OK 2 & 5/01
143.00	6	10.73	315	2.80	2	2	3.80	3fr	3	3.70	3	3	3.49	2+1fr	3	good 3/96, 3/98; dull green, OK 5/98 & 3/99; green, good 4/99, 2 & 5/00, 2 & 5/01
144.00	6	11.73	317	2.80	1+1fr	2	3.40	3fr	3	3.40	Ō	0	3.14	1fr		good 3/96; OK, dull reddish green 5/97, 3/98 & 5/98; OK, dull reddish-green, getting buried 3/99; coming out, green, good 4/99, 2 & 5/00; out, green, good 2 & 5/01
144.10	6	13.31	321		- 					4.10	2	3	3.57	' 1fr	- 1	discovered 3/98, reddish, OK & 5/98; reddish, OK, ants in soil cracks and holes around plant 3/99; reddish, OK 4/99 & 2/00; brownish-green, OK 5/00; reddish, OK-poor 2 & 5/01
145.00	6	10.95	318	2.60) (<u> </u>	3.20	2f	r 2	3.70) 2	2 2	2 3.07	7 2+1fr	;	3 OK 3/96; good 3/98 & 5/98; OK, spines dull gray, body yellow-green 3/99; dark green, good 4/99, 2 & 5/00; blue-green, good 2/01; green, good 5/01
146.00	6	5.51	319	2.30)		2.80			3.00			2.7	1 0	(0 good 3/96, 3/98; OK 5/98; good 3 & 4/99; green, good 2 & 5/00, 2 & 5/01
			:			<u> </u>					•	-		i		

									Lost N	laples	State N	Vatural	Area		
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR		99FL	99FR NOTES
147.00	6	4.95					2.80	2fr	1+1A	2.90	1	1	2.51	1fr	0 OK 3/96, 3/98 & 5/98; OK, maroonish 3 & 4/99, 2 & 5/00; olive with some yellow tubercles, OK 2 & 5/01
147.10	6	4.83	319			· ···· · ·	1.20	0	0	0.80	0	0	1.10	0	0 maybe double headed 3/97; OK 5/97; definitely double-headed, the left head of 147.10 & 147.11, OK 3/98; good 5/98, 3/99 & 4/99; misshapen, green, OK 2/00; olive, OK 5/00; green, OK 2 & 5/01
147.11	6	4.83	319					· · · · · · · · · · · · · · · · · · ·		0.70	Ō	0	0.61	0	0 the right head of 147.10 & 147.11, not tagged, OK 3/98 & 3/99; good 4/99; green, OK 2/00; olive, OK 5/00, 5/01
147.20	6	4.85	321										1.81	0	0 edge of rock, green, good 3 & 4/99; old fire scar at base, green, OK 2 & 5/00; olive, OK 2/01; green, good 5/01
147.30	6	4.93	313										2.79) 0	0 green, good 3 & 4/99, 2 & 5/00, 2 & 5/01
147.40) 6	4.71	316					· · · ·							green, good 2 & 5/00, 2 & 5/01
147.50	0 6	4.74	316					: : :							green, good 2/00; yellowish-green, OK 5/00; green, good 2 & 5/01

LLL Dist <thdist< th=""> Dist Dist D</thdist<>																		0050	NOTES
148.10 6 5.70 209 2.20 0 2.20 0 0 1.90 0 0 1.90 0 0 1.90 0 0 1.90 0 0 1.90 0 0 1.90 0 0 1.90 0 0 1.90 0 0 1.90 0 0 1.90 0 0 0 1.90 0 0 0 1.90 0 0 0 1.90 0 0 0 0 1.90 0 0 0 0 1.90 0 0 0 0 1.90 0 0 0 0 1.90 0 0 0 0 1.90 0 0 0 0 0 0 0 1.90 0 <td></td> <td></td> <td></td> <td></td> <td>4 · · ·</td> <td></td> <td>· -· · ·</td> <td></td> <td>97FL</td> <td></td> <td></td> <td>···</td> <td>· · · · · · · · · · · · · · · · · · ·</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>					4 · · ·		· -· · ·		97FL			···	· · · · · · · · · · · · · · · · · · ·						
149.00 6 11.04 316 1.70 0 0 180 0 0 1.30 0 0 1.13 0 Dead poor 3/96; red, spines gray 3 & 5/97; dark 5 149.00 6 11.04 316 1.70 0 0 180 0 0 1.30 0 0 1.13 0 Dead poor 3/96; red, spines gray 3 & 5/97; dark 5 150.00 6 10.96 316 2.30 0 0 2.30 1 1 2.06 0 1 old fire scars, OK 3/96; good 3/97; OK, dull 5/97; good 3/97; OK, dull 5/97; good 3/99; no fire scars visible, dull gr OK 5/98; green, good 3/99, 4/99; a 2 & 5/00, i 5/01 150.00 6 11.04 316 2.60 0 0 2.30 1 1 2.06 0 1 old fire scars, OK 3/96; good 3/97; OK, dull 5/97; good 3/99; 4/99; a 2 & 5/00, i 5/01 151.00 6 11.04 316 2.60 0 0 3.00 1 1 2.06 0 0 5/97; good 3/99; 4/99; a 2 & 5/00, i 5/01 152.00 6 11.45 316 1.60 0 3.00 1<	148.00	6	5.25	308	1.90	0	0	1.90		0	0	2.10	0	(1.73	0	(dead 3/97; yellowish-gray, firmly rooted, not dead
150.00 6 11.04 0.0 11.05 0.0 11.05 0.0 0 0.0	148.10	6	5.70	309				2.20	·		0	2.20	0		0	1.90	0		0 discovered 5/97; OK, 3/98 & 5/98; poor 3/99; green, good 4/99; yellowish, OK 2 & 5/00; olive, OK 2/01; green, OK 5/01
1500 0 110 00 110 00 110 00	1 10 00		11.04	016	1 70	0	6	1.90			<u> </u>	1 30	<u> </u>		0	113	0	Dea	d noor 3/96 red spines gray 3 & 5/97, dark body.
Image: state Image: state<	149.00	o	1-1.04	010		0		1.00			v				V				という、この時期の11日には、1日にしていたり、11日におりがあり、19時期の11日時間に、「この時期にいい」、「おりまでは11日には、19月1日の時間時間の時期時間の時期間の時間にある。
150.00 6 10.96 316 2.30 0 0 2.20 0 0 2.30 1 1 2.06 0 1 old fire scars, OK 3/96; good 3/97; OK, dull 5/97; good 3/97; OK, dull 5/97; good 3/98; no fire scars visible, dull gr OK 5/98; green, good 3/99, 4/99, 2 & 5/00, 1 151.00 6 11.04 316 2.60 0 0 3.00 1/r 1 2.70 0 0 Dead OK 3/96; 1/3 of stem caved in, poor 3/98; misshapen, maroonish, OK 5/98; just spine clusters left, COD unknown 3/99 152.00 6 11.45 316 1.60 0 0 2.00 0 0 1.77 0 0 by rock, to the right of 153, OK 3/96; measu one direction only, OK 3/98; green, Good 4/99; green, OK 2 & 1 152.00 6 11.45 316 1.60 0 1.80 0 0 1.77 0 0 by rock, to the right of 153, OK 3/98; maroon OK 3/99; green, OK 2 & 1 152.00 6 11.45 316 1.30 0 0 1.20 0 0 0 to the left of 152, OK 3/96, 3/98; buried, pool OK 3/99; gree																			probably dead 5/98, 3/99, 4/99; measured in one
150.00 6 10.96 316 2.30 0 0 2.30 1 1 2.06 0 1 old fire scars, OK 3/96; good 3/97; OK, dull 5/97; good 3/97; OK, dull 5/97; good 3/98; no fire scars visible, dull gr OK 5/98; green, good 3/99, in office scars visible, dull gr OK 5/98; green, good 3/99, 4/99, 2 & 5/00, 3 151.00 6 11.04 316 2.60 0 0 3.00 11fr 1 2.70 0 0 Dead OK 3/96; 1/3 of stem caved in, poor 3/98; misshapen, maroonish, OK 5/98; just spine; clusters left, COD unknown 3/99 152.00 6 11.45 316 1.60 0 1.80 0 2.00 0 1.77 0 0 by rock, to the right of 153, OK 3/96; massu one direction only, OK 3/98 & 5/98; maroon OK 3/99; green, God 4/99; green, OK 2 & 1.50 153.00 6 11.45 316 1.30 0 0 1.20 0 0.88 0 0 to the left of 152, OK 3/96; 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; buri						Anna anna anna anna anna anna anna anna								11300 X.14					
150.00 0 10.00 0												Neu 1					(Class)		
151.00 6 11.04 316 2.60 0 0 3.00 1fr 1 2.70 0 0 Dead 2 OK 3/96; 1/3 of stem caved in, poor 3/98; misshapen, maroonish, OK 5/98; just spiner clusters left, COD unknown 3/99 152.00 6 11.45 316 1.60 0 0 2.00 0 0 1.77 0 0 by rock, to the right of 153, OK 3/96; measu one direction only, OK 3/98 & 5/98; maroon OK 3/99; green, OK 2 & 1 153.00 6 11.45 316 1.30 0 0 1.20 0 0.88 0 0 to the left of 152, OK 3/96; 3/98; buried, poor 3/98; buried, poor 3/98; buried, poor 3/98; context	150.00	6	10.96	316	2.30	0	0	2.20	<u>1919/06hertbybern</u>	0	0	2.30	1	141.0512	1	2.06	0	and the print of the	1 old fire scars, OK 3/96; good 3/97; OK, dull green
13100 0 100 00 100 00 100 00 100 00 100 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>OK 5/98; green, good 3/99, 4/99, 2 & 5/00, 2 &</td>																			OK 5/98; green, good 3/99, 4/99, 2 & 5/00, 2 &
13100 0 1.00 0.00 2.00 0 1.77 0 misshapen, maroonish, OK 5/98; just spiner clusters left, COD unknown 3/99 152.00 6 11.45 316 1.60 0 0 1.80 0 0 2.00 0 0 1.77 0 0 by rock, to the right of 153, OK 3/96; measu one direction only, OK 3/98 & 5/98; maroon OK 3/99; green, good 4/99; green, OK 2 & 9 153.00 6 11.45 316 1.30 0 0 1.20 0 0 0.88 0 0 to the left of 152, OK 3/96, 3/98; buried, por								13152-11-14-14		3			un distriction				The second second		
152.00 0 11.40 010 11.00 010	151.00) 6	11.04	316	2.60	0) 0	3.00		1fr		2.70			U	Dead			misshapen, maroonish, OK 5/98; just spines clusters left, COD unknown 3/99
0K 3/99; green, good 4/99; green, OK 2 & 9 0K 3/99; green, good 4/99	152.00) 6	11.45	316	1.60) 0) C	1.80		0	0	2.00	0		0	1.77	0		0 by rock, to the right of 153, OK 3/96; measured in
			· ·																OK 3/99; green, good 4/99; green, OK 2 & 5/00, 2
	153.00) 6	11.45	5 316	1.30) () 1.30)	0	0	1.20) C)	0	0.88	Ō		0 to the left of 152, OK 3/96, 3/98; buried, poor 5/98; popping out, maroonish green, OK 3/99 & 4/99; hunkered, green, OK 2 & 5/00, 2 & 5/01
		:					l			:									

												0055	00014	0051		NOTEO
PL# 154.00	STAKE 6	DIST 11.77	ANG 314	96DM 3.10	96FL 0	96FR 0	97DM 3.90	97FL 0		98DM 3.90	98FL 0		99DM 3.66	99FL 0	99FR 0	NOTES good 3/96; shaded 3/97, 3/98, 5/98, 3/99; green,
				-												good 4/99, 2 & 5/00, 2 & 5/01
155.00	6	11.84	314	2.40	0	0	2.10	0	0	2.10	0	0	1.99	0		OK 3/96; shaded 3/97, 3/98 & 5/98; shaded, yellow-green, OK, almost buried 3/99; coming out, goldish, OK 4/99, 2 & 5/00, 2 & 5/01
								19 131 1971 - 124				1942 1998 - 199 1997 - 1998 - 199				dead 3/96 & 5/96; COD unkknown, just spines
156.00	6 -	10.70	316	3.50	0	0	Dead									left 3/97
157.00	6	10.90	317	2.70	0	0	2.70	1f	1A	2.80	1	1	2.23	1fr	0	OK 3/96; good 3/98; getting buried, good 5/98; OK, squishy 3/99; olive, OK 4/99; green, good 2 & 5/00; olive, OK 2 & 5/01
157.10	6	10.99	316		· · · · · · · · · · · · · · · · · · ·	<u> </u>	3.00		1	2.70	1	1+1A	2.58	2+1fr	2	OK 5/97; in grass clump, good 3/98; in grass clump & ant mound, good 5/98 & 3/99; one flower eaten, green, good 4/99; dark green, good 2/00;
158.00	6	10.18	314	2.50	C		3.10	- 	1	3.40) 1		3.52	3	3	maroonish, OK 5/00; slightly maroonish-green, good 2 & 5/01 good 3/96, 3/98, 5/98, 3/99 & 4/99; yellowish dull green, OK 2 & 5/00; green with basal yellow
																tubercles, OK 2 & 5/01 discovered 5/96, good, 3/98; OK 5/98 & 3/99;
158.10	6	4.56	313	1.30	na na		1.40			1.30			1.26	5 O		green, good 4/99; pulled into soil, green, good 2 & 5/00, 2 & 5/01
159.00	6	10.37	311	2.70			3.00	1+2	fr :	3 3.20	<u> </u>	3	3 3.12	2 3	3	3 OK 3/96, 3/98; good 5/98 & 3/99; reddish-orange at base, OK 4/99; reddish, OK 2 & 5/00 & 2/01, red with new green apical growth, OK 5/01
L				·	1				-						 	

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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
159.01		10.60	314										0.95			discovered 5/99; green, OK 5/99; green, OK, hunkered 2 & 5/00; olive, OK 2 & 5/01
160.00	6	10.00	308	2.60	Ō	0	3.40	2	2	3.30	1	1Ā	3.42	2	5	OK-poor 3/96; good 3/97; OK, yellowish green 5/97; good 3/98, 5/98, 3/99; good, green 4/99; light purplish at base, OK 2/00; yellowish at base, OK 5/00; green with some red tubercle tips, OK 2 & 5/01
161.00	6	10.10	305	3.30	0	0	3.90	2	1+1A	3.70	0	1	3.25	0		poor 3/96; OK, maroonish green 5/97, 3/98, 5/98, 3/99; dark green, slightly red, good 4/99, 2 & 5/00, 2/01; reddish-green, OK 5/01
162.00	6	11.06	307	2.80	0	0	2.90	Ċ	0 0	2.70	0	0	2.43	0	1	OK 3/96, 3/98, 5/98, 3/99, 4/99 & 2/00; dull grean, OK 5/00, 2/01; grayish-green, poor 5/01
162.10	6	10.88	305													discovered 2/01; yellowish-green, OK 2 & 5/01
163.00	6	10.46	302	2.30	C) 0	3.20)) (3.30)) 1A	Dead		39 909 M 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	OK 3/96; good 5/97, 3/98 & 5/98; huge larva (probably Moneilema) collected 3/99
164.00	6	11.89	302	2.60) 0	3.00)) () 3.10					0	good 3/96, 3/98, 5/98, 3 & 4/99; light green, a few orangish tubercle tips 2/00; orangish, OK 5/00; tag mia, plant dead, just spines left, COD unknown 2/01
165.00	6	5.52	2 290	1.90) (0 0	2.20		0 0	2.40)	1 1	1.89	0		to the left of 166 & 167, OK 3/96, 3/98, 5/98; maroon, OK 3 & 4/99; one measurement only, green, good 2 & 5/00, 2/01; dark green, OK 5/01
													: 			

									Lost N	laples	State N	latural	Area			
PI #	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
165.10	+	4.41	296				4.50	1+4fr	5	4.60	1	1	4.00	1+2fr	3	good 3/97; a few orangish tubercle tips, OK 3/98 & 5/98; green, good 3 & 4/99; reddish , good 2/00; a few orangish tubercle tips, OK 5/00; purplish-green, OK 2/01; olive, OK 5/01
166.00	6	5.47	290	1.60	0	0	1.80	0	0	2.00	0	Ō	1.82	0	0	in between 165 & 167, OK 3/96; good 3/98, 5/98, 3/99 & 4/99; dull green, OK 2 & 5/00; maronish, OK 2/01; sunken, maroon, poor 5/01
167.00	6	5.47	290	1.30	0	0	1.40	0	ō	1.40	0	0	1.34	0	<u>C</u>	to the right of 165 & 166, OK 3/96; good 3/98, 5/98, 3/99 & 4/99; reddish-green, OK 2/00; green, good 5/00, 2 & 5/01
167.10	6	5.51	285				1.90		0	1.70	C	Ô	1.22	2 0		Old fire scar (white tubercles) visible at base, OK, discovered 3/97; OK 3/98; 5/98 & 3/99; maroonish, OK 4/99; gr.3en, OK 2 & 5/00; just spines left, COD unknown 2/01
167.20	6	4.44	287				2.30		0	2.50		C	2.03	3 1fr		1 discovered 5/97, good, 5/97, 3/98, 5/98, 3/99 & 4/99; green with reddish tubercle tips 2/00; green with yellowish tubercle tips, OK 5/00; rock flipped on, removed, green, OK 2/01; green with some yellow tubercle tips, OK 5/01
167.30 167.40		4 32 3.50) 1.10 						 discovered 5/97; ant mound, tag mia, replaced, good 3/98 & 5/98; OK, 3/99; green, good 4/99 & 2/00; split across top, some dead spines, green, OK 5/00; just spines left, COD unknown 2/01 discovered 3/98, good 5/98; green, good, 4/99, 2 & 5/00; two flowers partially eaten, plant green, good 2/01; green, good 5/01

Ancistrocactus tobuschii Data for

		DICT	ANIC	96DM	96FL		97DM	97FL	07FR	98DM	98F1	98FB		99FI	99FR	NOTES
PL# 167.50	STAKE 6		285	900101	JOLL	9011	37 Divi	5771	57111	JODIN	0011		<u>555</u>			discovered 2/01; green, good 2/01; reddish- orange, poor 5/01
168.00	6	5.33	273	3.00	4	3	4.00	4fr	4	3.50	2	2	3.11	2fr	2	OK 3/96; very orangish-red, OK 3/98 & 5/98; maroonish-green, OK 3 & 4/99; reddish, OK 2/00; yellowish at base, otherwise green, OK 5/00; maroon, OK 2 & 5/01
169.00	6	4.32	274	3.20	2	2	4.10	3fr	3	4.00	2	2	2.88	1+2fr	2+1A	good 3/96; OK, yellowish green 3/97, 3/98; pulling into ground, yellowish, OK 5/98; green, OK, sinking into ground on one side 3/99; no longer sinking, green, good 4/99; green, good 2 & 5/00; dull green with purplish tubercles, OK 2 & 5/01
169.10	6	4.52	287				4.00	3fr	÷ 3	3.60	1		2.94	l 1fr	1	1 good 5/97, 3/98 & 5/98; green, good 4/99, 2 & 5/00; hunkered, loose spines, green, OK 2/01; green with tannish tubercles at base, OK 5/01
170.00	6	5.77	273	4.30)) 3	3 3	5.50	2+2f	r 2	5.60		2	2 5.3 ⁻	1 1+2fr		3 good 3/96; fantastic 3/98 & 5/98; good 3 & 4/99; green, good 2 & 5/00, 2/01; dark bluish-green, good 5/01
171.00	6	4.65	268	2.90		1 1	3.40	2f	r :	2 3.20)	D	2.74	4 1fr	1,	A good 3/96; one fruit missing top 3/97; OK, dull green 5/97; very reddish, poor 3/98; reddish, OK 5/98; yellow-green, OK 3 & 4/99; purplish, OK 2/00; orangish, OK 5/00; green with red tubercles, OK 2/01; maroonish, OK 5/01

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PL# S	STAKE			96DM	96FL	96FR		97FL	97FR						99FR	NOTES
172.00	6	3.41	265	2.80	1	0	3.60	3fr	3	3.50	3	3	1.95		dead	plant smashed 3/96; OK 5/96; reddish tubercle tips, OK 3/98 & 5/98; looks dead, but firmly, rooted 3/99; probably dead 4/99; collected by WHC 5/6/99; COD unknown; no evidence of weevils
173.00	6	2.65	264	3.10	1+2fr	3	3.70	4fr	4	3.90	3	3	3.39	3	2+1À	OK 3/96; red 3/97; gold-yellow, poor 5/97; totally maroon with a few tan tubercle tips, OK 3/98 & 5/98; goldish, poor 3/99; OK, yellow on one side 4/99; purplish, slightly shrunken, OK/poor 2/00; orangish at base, OK 5/00; purplish, OK 2/01; green with some purplish tubercles, OK 5/01
174.00	6	4.67	266	2.90	1+2fr	2	3.40	Эfr	3	3.10	0	0	2.71	1fr	1	good 3/96; turning red 3/97; some orangish tubercles 5/97; reddish with some orangish tubercle tips, OK 3/98 & 5/98; green, good 3/99 & 4/99; purplish, OK 2/00; slightly purplish green, OK 5/00; green, good 2 & 5/01
174.10	6	4.62	264													discovered 2/01; purplish-green, OK 2 & 5/01
175.00	6	5.09	266	3.00	3?	2	3.60	3fr	3	3.40	1	1	2.82	2 2fr		flowers smashed 3/96; OK 5/96; a little reddish 3/97; a little reddish, OK 3/98, 5/98, 3 & 4/99; orangish, OK 2 & 5/00; olive with reddish tubercle tips, OK 2/01; dull green, OK 5/01
175.01	6	5.07	266	0.60	(0.90	C	0	0.90	(0.47	7 0		good 3/96, 3/98 & 5/98; very poor, just a tubercle left 3/99; green, good 4/99; dull green, OK 2 & 5/00, 2/01
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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR		98FL	98⊦H				
176.00	6	4.82	268	2.80	1+1fr	2	2.60	0	0	2.70	0	0	2.30	0	0 good 3/96, 3/98; shaded but good 5/98; green, good 3 & 4/99, 2 & 5/00, 2 & 5/01	
177.00	6	ä.85	268	2.70	1	1	3.60	3fr	3	3.20	Ō	Ō	2.36	1fr	1 good 3/96; shaded but good 3/98, 5/98 & 3/99; green, good 4/99; buried in grass clump, green, good 2 & 5/00, 2 & 5/01	
178.00	6	4.88	268	3.40	0	0	4.20	2fr	1+1A	4.20	0	0	3.21	2	2 good 3/96; one fruit may be aborted 3/97; good 3/98, 5/98 & 3/99; green, good 4/99, 2 & 5/00; pill bug eating plant, plant purplish-green, OK 2/01; 10% chunk gone, scarred over, green, OK 5/01	
178.01	6	4.73	273										2.95		0 discovered 5/99; green, good 5/99, 2 & 5/00; blue green, OK 2/01; purplish-green, OK 5/01	
179.00	6	4.95	268	3.20	0	0	4.20	2fr	2	4.40	2	2	2.85	0	0 good 3/96, 3/98, 5/98, 3 & 4/99; green, good 2 & 5/00; purplish-green, OK 2 & 5/01	
180.00) 6	5.72	268	1.20	C) – o	1.40	0	0	1.40) 1.42	2 0	0 almost buried, OK 3/96; popping up through crustose lichens, measured in one direction only 3/97; popped out 5/97; good, 3/98; OK 5/98; hunkering down 3/99; coming out, green, good 4/99 & 2/00; hunkered, green, OK 5/00; coming out, dull green OK 2/01; green, OK 5/01	
181.00) 6		3 268	2.40			2.70	21	2	2.80			1 2.30	5 1fr	1 OK 3/96; reddish, OK 3/98, 5/98, 3 & 4/99; slightly soft, reddish-green, OK 2 & 5/00; orange, poor 2/01; root rot, collected for weevil study 5/01	

										apies						
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR		98FL	98FR	99DM		99FR	NOTES
182.00	6	6.37	268	1.80	0	0	1.90	0	0	2.40	0	0	1.89	0	0	OK 3/96; almost buried 5/96; coming out 5/97; above ground, good 3/98 & 5/98; almost buried 3/99; coming out, green, good 4/99; green, good 2 & 5/00; pale green OK 2/01; green, good 5/01
182.01	6	6.18	269													discovered 5/01; green, good 5/01
183.00	6	6.25	268	0.80	0	0	0.80	0	0	1.00	0	C	0.99	0	C	OK 3/96, 3/98; pulling underground, OK 5/98; poor, hunkered 3/99; coming out, dull green, poor 4/99; dull green, OK 2 & 5/00; hunkered, green with gold and orange tubercles, OK 2/01; buried, very poor 5/01
183.10	6	6.32	268					 - -		1.20	0	(1.15	0	(discovered 3/98, good 5/98; hunkered, OK 3/99; green, good, popped out 4/99; nalf-buried, green, good 2 & 5/00; almost buried in juniper litter, olive, OK 2 & 5/01
184.00	6	5.90	256	3.00	1	0	3.90	5fi	6	4.90) 3	3	4.10) 4fr	3+1/	A OK 3/96; buried in fire ant mound, OK 5/97; out of mound, good 3/98; getting buried again 5/98, 3/99; totally out, green, good 4/99, 2 & 5/00; all flowers and some tubercles partly eaten, but plant green, good 2/01; green, good 5/01
185.00	6	4.82	249	3.10) 2	2 2	3.90	4f	r 3+1Ã	3.80) 2	2	3 2.57	7 2+2fr	1+1dis	p good 3/96; a few reddish tubercle tips, OK 3/98, 5/98, & 3/99; hunkered, maroonish, OK 4/99; purplish, OK 2/00; light purplish-green, OK 5/00; one flower partly eaten, purplish, OK 2/01; purplish-green, OK 5/01

									LOSCI	lapies						
PL# S	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
185.10	6	3.73	253				3.40		3	3.30	1	1	2.83	2fr	2	good, discovered 5/97; a few yellowish tubercle tips, partially buried in ant mound, OK 3/98, 5/98; green, good, out of mound 3/99 & 4/99; slightly purplish, OK 2/00; yellowish pale green, OK 5/00; body pale green, tubercles dark green, OK 2/01; maroonish tubercle tips, body pale green 5/01
105:00	C	3.50	245								18 - 12 - 15 18 - 18 - 18 - 15 18 - 18 - 18 - 18 - 18 - 18 - 18 - 18 -					discovered 5/00; misshapen, yellowish basally,
185.20	6	5.50	245													otherwise green, OK 5/00; body hollow, COD 4 Moneilema 2/01
186.00	6	4.78	249	3.10	2	2	3.60	1 fr	1	3.30	1	1	3.15	1	1	good 3/96; a little reddish, OK 5/97; good 3/98, 5/98, 3 & 4/99, 2 & 5/00, 2/01(tag mia, replaced); green, good 5/01
187.00	6	4.80	249	1.60	0	0	2.70	1fi	1	2.30	0	0	2.03	0	Č	good 3/96; a few orangish tubercles, OK 5/97, 3/98 & 5/98; green, good 3 & 4/99, 2 & 5/00, 2 & 5/01
187.10	6	5.15	245												·	discovered 2/01; green, good 2/01; plant mia 5/01
188.00	6	9.87	269	3.20) C	3.40			3.40) C) (3.18	3 0		O OK 3/96; good 3/98 & 5/98; getting buried by juniper litter, OK 3/99; tag uprooted and chewed, replaced, plant coming out, green, OK 4/99; green, good 2 & 5/00, 2 & 5/01
189.00	6	10.09	264	2:50) () 	2.50) Dead	 					OK-poor 3/96; reddish, hunkered down, bad 5/97; stem solid, dry, COD unknown 3/98
189.10	6	6.00) 262				2.70))	0 (2.80) (2.5	3 2f	1,	A yellowish green, OK 5/97, 3/98, 5/98, 3/99 & 4/99 olive green, OK 2/00; yellowish, OK 5/00; pale green with reddish tubercle tips, OK 2 & 5/01
		1	1					.							:	

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											apies						NOTES
PL#	STAK				96DM	96FL	96FR		97FL	97FR	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · ·				99FR	
189.20	6	6.4	15	262				2.90	1fr	1	2.70	0	1	2.28	1fr	1	very dark green, OK 5/97; very dark green, good 3/98 & 5/98; good, hunkered 3/99; coming out, green, good 4/99; purplish, good 2/00; dark green, few spines, good 5/00; one flower partly eaten, plant blue-green, good 2 & 5/01
189.21	6	6.	48	262		· · · · · · · · · · · · · · · · · · ·						· · ·			 		not tagged, behind on right of 189.20, discovered 2/01; green, good 2 & 5/01
189.30	6	6	53	264				6.20	6fr	6	5.80	2	1	Dead			great 5/97, 3/98 & 5/98; stem not hollow or dry
103.00				204													solid, COD unknown 3/99
189.40	6	6.	90	264		-		2.70	2fr	2	2.60	1	1	2.10	2fr	1	good 5/97, 3/98; shrinking into ground, OK 5/98 & 3/99; coming out, green, good 4/99; green, good 2 & 5/00, 2 & 5/01
189.50	6	7.	76	258						- -	·						left of 189.6, discovered 2/01, greer., good 2 & 5/01
189.60) 6	7	77	258													right of 189.5, discovered 2/01; green, good 2 & 5/01
190.00	6	10	.51	264	2.50)	0	3.10	2fr	2	3.20) 1	C	2.60	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	(OK 3/96, 3 & 5/98, 3/99; maroonish, OK 4/99; olive green, good 2/00; dark green, good 5/00; green with maroonish tubercle tips, good 2 & 5/01
191.00	0 6	10	.17	264	2.70) (3.00	2	24	3.40) () () 2.39	9 (0 OK 3/96, 3 & 5/98, 3/99; green, good 4/99; olive green, OK 2/00; slightly reddish at base, OK 5/00; green with some reddish tubercle tips, good 2 & 5/01

			4110					070	97FR				0000		99FR	NOTES
	STAKE			96DM	90FL	96FR	97.DM	<u>97</u> FL	9/FR	90DIM	90FL	90FN	99010	99FL		discovered 2/01; hunkered, green, good 2 & 5/01
191.10	6	10.17	262													
192.00	6	11.50	259	2.40	0	0	3.10	1A+1fr	1	3.20	1	1	2.73	2fr	1+1A	OK 3/96; good 3/98; pulling into soil, OK 5/98; green, good 3/99 & 4/99; purplish, good 2 & 5/00; pale purplish-green, good 2 & 5/01
193.00	6	10.52	260	2.90	1	1	3.70	2fr	2	3.90	1	1A	2.65	2fr	2	reddish, OK 3/96; maroon, OK 3 & 5/97, 3/98; buried, poor 5/98; resurfacing, OK 3/99; reddish, OK 4/99; soft, olive green, OK 2/00; orangish, OK 5/00; green with orangish tubercle tips, OK 2 & 5/01
194.00	6	9.98	260	2.30	0	0	2.40	0	0	2.60	0	0	2.16	0	0	old fire scar, OK 3/96; very reddish, very poor 3/98, 5/98, 3/99; yellowish, OK 4/99; fire scarred, purplish-yellowish, fair/OK 2/00; maroonish basally, OK 5/00; maroonish basally, good 2 & 5/01
195.00	6	8.88	3 259	3.30	2	2 2	4.40	1A+2f	2	4.00	3	3 3	3.80	2	2	good 3/96; getting slightly yellow, OK 5/97, 3/98, 5/98, 3/99 & 4/99; tubercle tips slightly purplish- green, good 2/00; tubercle tips slightly purplish- yellowish, OK 5/00; green with purplish tubercle tips, OK 2/01; yellowish-green, OK 5/01
195.10	6	8.46	5 264				3.10			2.70)	1 0	2.32	2.0	(good 5/97; a few yellowish tubercle tips, getting buried in juniper litter, OK 3/98; poor 5/98 & 3/99; yellow-green, OK 4/99; green, good 2 & 5/00, 2/01; partly eaten, scarred over, green, OK 5/01

	STAKE	DICT	ANG	96DM	96FL	96FR		97FL	97FR		98FI	98FB	90		99FI	99FR	NOTES
PL# 195.20			260	300101			2.20			2.60	···· ··· ··· ··· · ··· · · · · · · · ·			1.96	0		good, discovered 5/97; good 3/98 & 5/98; almost
195.20		0.23	200														buried in juniper litter, poor 3/99; reddish, OK
													N HX				4/99; solid, dry, hard as a rock; COD unknown
																	2/00
196.00	6	8.92	258	2.70	1A	0	3.30	2fr	2	3.00	0	()	2.48	0	0	OK 3/96, dead plant between 196 & 196.01; dead
100.00	Ũ	0.0-													:		plant gone, poor, orangish 5/97; slightly reddish,
																	OK 3/98, 5/98 & 3/99; yellow-green, OK 4/99;
																	slightly reddish, OK 2/00; orangish tubercle tips, OK 5/00; green with maroonish tubercle tips, OK
																	2 & 5/01
							i										2 & 5/01
					ļ								i				
196.01	6	8.95	258	1.60	0	0	2.10	0	0	2.30	1	1/	1	2.13	1fr	1	good 3/96, dead plant between 196.01 & 196;
	_				1		ĺ										dead plant gone 5/97; good 3/98; buried, poor
																	5/98; yellow-green, OK 3 & 4/99; green, OK 2 &
																	5/00, 2 & 5/01
	l				1												
197.00	6	8.72	258	1.20	t c	0 0	1.50	0	0	1.90	0	1	0	1.16	0	0	good 3/96, 3/98 & 5/98; yellow-green, squishy,
																1	OK 3/99; firm, green, good 1/99; green, good 2 &
		1							ļ		1						5/00, 2/01; slightly reddish-green, OK 5/01
										Ì					1		
	1												_	1		• 	
198.00	6	9.43	259	2.50	1 1	0	3.10	2	2 2	2.90	C	2	0	2.38	0	- C	OK 3/96; turning red & yellow 3/97 & 5/97;
											ł]					tubercle tips reddish, OK 3/98, 5/98 & 3/99;
												ļ					yellow-green, OK 4/99; green, good 2/00; a few reddish tubercle tips, OK 5/00, 2 & 5/01
		1							1								
199.00	6	9.49	259	1.30) (D ⁱ Ö	2.10	C	0 0	2.30	(0	0	1.95	0) (good 3/96, 3/98 & 5/98; OK 3/99; green, good
					1								ļ				4/99; half buried in juniper needles, lumpy, green,
						;									-		good 2 & 5/00; coming out, green, good 2/01;
						i											olive, OK 5/01
				1											1		
200.00	6	10.07	259	2.20			2.60	2f	ri 2	2.30)	0	1.96	ί r) ¹	good 3/96; OK, turning a little orangish 5/97; a
200.00	0	10.07	200			0 U	2.00		' ~						:		few reddish tubercle tips, good 3/98; OK 5/98;
		1	1														good 3/99; green, good 4/99; green, good,
	4						1	1					!			1	partially buried in ant mount 2 & 5/00; green with
											Ì					1	some orange tubercle tips, OK 2 & 5/01
											 	!					
		1	1				1		1								

									LOSUM	upico		aturai	Alca		
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR NOTES
201.00		10.25		1.40	0		1.70	0	0	1.50	0	0	1.11	0	0 OK 3/96; old fire scar at base; OK 3/98, 5/98, 3/99 & 4/99; dull green, OK 2 & 5/00; green good 2 & 5/01
202.00	6	8.36	256	2.90	1	1	3.10	2fr	2	3.10	0	0	2.75	2fr	2 OK 3/96; reddish 5/96, smaller dead one beside; dead one gone, live plant reddish 3/97; yellowish, poor 5/97; reddish, poor 3/98; reddish, OK 5/98, 3/99; goldish, OK 4/99; olive green, OK 2/00; goldish, OK 5/00; some tubercles damaged, plant maroonish-orangish-green, OK 2 & 5/01
203.00	6	8.90	253	3.00	2	2	3.20	2fr	1	3.20	1	1	2.73	2	2 smashed 3/96; OK 5/96; poor, orangish tubercles 5/97; tubercle tips orangish, OK 3/98, 5/98, 3/99 & 4/99; stepped on 5/99; purplish, OK 2/00; almost totally red, new green apical growth, OK 5/00; purplish-green, OK 2 & 5/01
203.10	6	7.50	254				3.50	1fr	1	3.40	1	1	2.92	1	1 good 5/97, 3/98, 5/98, 3/99; green, good 4/99; tubercles purplish, good 2 & 5/00, 2/01; green, good 5/01
203.20	6	8.93	254				2.30	0	0	2.30	0	0	2.35	0	0 good 5/97, 3/98, 5/98, 3 & 4/99; green, good 2 & 5/00, 2 & 5/01
203.30	6	7.99	254												discovered 5/01; green, good 5/01
203.31	6	7.92	254												discovered 5/01; green, good 5/01

PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM		99FR NOTES
204.00	6	8.69	246	2.90	1+1fr	2	4.10	1+2fr	3	3.50	2	2A	3.36	3	3 good 3/96; a few yellowish tubercle tips, OK 3/98 & 5/98; green, good, hunkering 3/99; coming out 4/99; green, OK, probably stepped on 2/00; green, good 5/00; purplish-green, OK 2/01; green, good 5/01
205.00	6	8.19	246	2.00	0	0	2.90	1	1	3.20	0	0	3.58	3	4 old fire scar, good 3/96, 3/98, 5/98, 3/99; good, green 4/99, 2 & 5/00, 2 & 5/01
206.00	6	8.08	246	1.00	0	0	1.50	0	0	1.70	O	0	1.63	0	0 OK 3/96; old fire scars; OK 3/98; totally buried in ant mound 5/98; mound gone, maroon, OK 3/99; orangish, OK 4/99; slightly purplish, good 2/00; olive, OK 5/00; slightly purplish-green, good 2/01; purple, becoming misshapen, OK 5/01
206.10	5	4.87	230	·			•			2.90		0	3.88	2	2 good, discovered 5/98; good 3/99; green, good 4/99, 2 & 5/00; green with a few yellow tubercle tips, good 2 & 5/01
206.20	6	2.49	183	• • • • • • • • • • • • • • • • • • • •		· · · · · · · · · · · · · · · · · · ·	• • •			· · ·			3.83	3 4	4 discovered 3/99; good, green 4/99; dark green, good 2 & 5/00, 2 & 5/01
206.30) 6	4.35	193								*		· - · ·		discovered 5/00; green, good 5/00; dull green OK 2/01; slightly reddish-green, OK 5/01
Refere 207.00			in th <u>e</u> 197		ening d	own the	e main <u>i</u>) 2.40	road from 2f	Referer r 1+1/	ce poir 3.00	11 6. St	ake 7 =	- GPS7) 2.29	; R0303 5 3	315A 3 good 3/96, 3/98, 5/98, 3/99; a few tan tubercles, OK 4/99 & 2/00; a few orange tubercles, otherwise green, good 5/00; green, good 2 & 5/0

											State N		···· ·· ···			
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR		· · · · · · · · · · · · · · · · · · ·	99FR	NOTES
208.00	7	0.59	197	1.30	0	0	2.20	tfr	1	2.60	. 1	1	2.66	3	175762- Store 11129 11	good 3/96, 3/98, 5/98, 3/99; maroonish 4/99;
				242			*2.45	The second							main conservation by hearing a service	maroonish, OK 2/00; orangish, OK 5/00; body
									1412			andra Maria			Sector Sector 1. The	solid, COD unknown 2/01
209.00	7	0.44	186	3.50	1	1	3.70	3fr	3	4.30	*⊤ 3	2+1A	2.67	0	Dead	OK 3/96; purplish green, OK 3/98; orangish, OK
									20. M		ander of the second second second second second second second second second second second second second second		- 1941ar			5/98; shrinking into and pulling away from soll
			New Street				Applement				NOIME RULE					3/99: COD unknown 4/99
209.10	7	0.59	170	2.40		0	2.70	2A	0	3.20	1	1	3.03	2	2	OK, discovered 5/96; orangish at base, OK 3/98, 5/98 & 3/99; maroonish, OK 4/99 & 2/00; light green with yellow splotches, OK 5/00; tag mia, replaced, plant purplish-green, OK 2/01; slightly misshapen, green, OK 5/01
209.20	7	2.32	181										1.15		U	discovered, green, good 4/99; dark green, OK 2/00; green, good 5/00, 2 & 5/01
	7	4.87	174	2.40		0	3.40	2fr	1+1A	3.10	 		3.10	3fr		OK 3/96; measured in one direction only, under
210.00		4.07	174	2.40	2	U	0.40			0.10			0.10		Ū	rock 3/97; measured in one direction only, OK 3/98, 5/98, 3/99; getting buried in ant mound, green, good 4/99; out of ant mound, green, OK 2 & 5/00; green, good 2 & 5/01
211.00	7	4.67	169	4.40	1+2fr	0	4.70	1A+4fr	3+2A	4.60	2	2	4.28	Зfr	1+2A	OK 3/96; very purplish-gold, poor 3/98, 5/98, 3/99; goldish, OK 4/99; goldish-red, OK 2/00; orangish, OK 5/00; olive, OK 2 & 5/01
211.10) 7	4.87	167			25.1X 19 25981 11				T. Surruk						discovered under rock 5/00; one measurement
																only, green, good 5/00; just spines left, COD unknown 2/01
212.00) 7	4.87	176				2.40	0	0	2.60	0	0	2.10	0	C	OK 3/98, 5/98 & 3/99; green, good 4/99 & 2/00; purplish green, OK 5/00, 2/01; yellowish-green, OK 5/01
212.10	7	3.49	178				 					 	1.12	0	C) loosely rooted on litter & soil, reddish green, OK 3/99, 4/99 & 2/00; olive, OK 5/00, 2 & 5/01
	1															

									LOST							
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
212.20	7	4.23	181													discovered under rock 2/00; green, OK 2/00; grayish base, apically green, OK 5/00, 2 & 5/01
213.00	7	4.89	176	2.10	2	2	2.30	0	Ō	2.60	0	Ō	1.98	1	0	OK 3/96; measured in one direction only 3/97; OK 3/98, 5/98, 3/99; green, good 4/99; dark green, OK 2 & 5/00; purplish-green with some red tubercle tips 2/01; yellowish-green, OK 5/01
214.00	7	5.61	174	:3.70	0	0	3.70	4fr	4	3.90	2	2	3.14	3fr		OK 3/96; tubercle tips maroon, OK 3/98; 5/98 & 3/99; tag mia, replaced 3/99; green, good 4/99; fungus?, dry, powdery, dead 2/00
215.00	7	5.38	160	3.30	1+1fr	2	4:30	3fr	3	4.20	2	2	Dead			OK 3/96; a little orangish 5/97; orangish & reddish; OK 3/98 & 5/98; solid, dry, corky inside; COD unknown 3/99
215.10	7	5.30	150							2.60	0	0	1.99	0	(discovered 3/98, a few tubercle tips orangish 3/98 & 5/98; olive green, OK 3/99; green, good 4/99; dull green, some reddish tubercle tips, OK 2 & 5/00; partly covered in old ant litter, yellow-green, OK 2/01; green, good 5/01
215.20	7	5.50	152	• •						1.00) C) C	0.97	0	(0 discovered 3/98; good 3/98 & 5/98; good, totally buried 3/99; popping out, green, good 4/99, 2 & 5/00; green, OK 5/01
215.30	7	5.22	144							2.70))) 2.45	Ö		0 OK 3/98, 5/98, 3/99, 4/99, 2/00; dull green, OK 5/00; orangish-olive, poor 2/01; collected for weevil study, COD - rot 5/01
215.40	7	5.38	148					4 . <u> in n</u> iii								discovered 2/01; green, OK 2/01; green, good 5/01
216.00	7	5.31	164	2.70) . () (3.20) is the second se		Dead	4			·····		OK 3/96; stem solid & dry, COD unknown 3/98
216.10		5.84	165							1.20) (Dead			discovered 3/98; on left of pair 216.10 & 216.20; good 3/98; reddish, OK 5/98; spines loose, body solid 3/99, COD unknown

										iapies .						
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
216.20	7	5.84	165			- 1				1.60	0	0	1.06	0	0	discovered 3/98; on right of pair 216.10 & 216.20;
																good 3/98; reddish, OK 5/98 & 3/99; green, good
																4/99, 2 & 5/00, 2 & 5/01
	I															
														1		
												· •				discovered 0/01, groop, good 2,8 5/01
216.30	7	6.52	170											Ì		discovered 2/01; green, good 2 & 5/01
													;			
		l														
														1		
1	··	0.47	100										i i i	·		discovered 2/01; green, good 2 & 5/01
216.40	7	6.17	168													
		1			1							1				
				1												
	- <u> </u>				ļ	ļ				0.00	a			0.44	0.1.	and 2/00 a little reddich OK 2/00 8 5/09; groop
217.00	7	1.79	128	2.80	1	1	3.40	2+1fr	3	3.60	3	3	3.99	2+1fr	2+Taisp	good 3/96; a little reddish, OK 3/98 & 5/98; green,
											1					good 3/99, 4/99, 2 & 5/00, 2 & 5/01
															1	
			[ļ											
11111 - 11111 - 1111	<u> </u>		and the second				0.00	11-12-13-13-1-12-14					1.93	0		OK 3/96, 3/98 & 5/98; poor, hunkering, maroon
218.00	7	1.33	159	2.30	() ((((((((((((((((((0	2.30	0	0	2.10	. 0	0	1.93	U U		
								24.01 Bright In								3/99; green, good 4/99; maroonish, OK 2/00;
1100-0120 10-0120 10-0120																hunkering, green, OK 5/00; body dry, powdery,
																COD unknown 2/01
219.00	7	1.82	121	3.00	1	1	3.30	2	2	2.90	1	0	2.95	0) c) OK 3/96, 3/98, 5/98, 3/99; green, good 4/99; very
											1					dark green, OK 2 & 5/00; green, good 2 & 5/01
											i					
Į																
]				1										
1]		1							
220.00	7	217	121	3.20)) o	3.30	2+1fr	1	B Dead		an shirt in t			- 3 1 2 4 .	OK 3/96; fungus inside 3/98
220.00		2.30			1		4.00	and the second second second second second second second second second second second second second second second	al animiteren en el est	نفر شعب المغانية المعالية الم		3 3	4.48	0	(good 3/98 & 5/98; a few brown tubercle tips, good
~~····		2.00	04		1						1					3/99; green, good 4/99, 2 & 5/00, 2 & 5/01
1																
		l	1						1			1				
		1		1							1					
1	1	1														

									Ancistro Lost N			schii Da Iatural				62 of 96
PL# 220.20	STAKE 7	DIST 4.21	ANG 125	9 <u>6DM</u>	96FL	96FR	97DM 2.10	<u>97FL</u>					99DM 2.05	99FL 0	ec 3/ 3/	NOTES bod, being covered by crustose lichen on one dge, pushing lichen away 5/97; popped out, OK /98 & 5/98; tag chewed, replaced, maroon, OK /99 & 4/99; olive green, OK 2/00; green, good /00; maroonish, OK 2 & 5/01
220.21	7	4.06	126				2.80		0	2.20	Ō	0	2.08	0	3/ h	ood 5/97; OK 3/98 & 5/98; poor, sunken, grayish /99; maroonish, OK 4/99; green, good 2 & 5/00; unkered, green, OK 2/01; popped out, green, oK 5/01
220.30	7	4.57	125				2.40		0	2.60	Ō	0	2.11	0	g	0K 5/97; good 3/98, 5/98 & 3/99; tag loose 3/99; reen, good 4/99, 2/00; maroonish, OK 5/00; reen, OK 2 & 5/01
220.40	7	4.51	123				2.10		0	2.30	Ō	0	2.04	0	lo	DK 5/97; purplish, OK 3/98, 5/98 & 3/99; tag bose 3/99; olive, OK 4/99; green, OK 2/00; elongating, green, OK 5/00, 2 & 5/01
220.50	5 7	4.37	120				1.70		0	Dead					# C/ 1998 1. 27 1997 1. 2011 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	old fire scars at base, OK 5/97; stem solid, COD:
221.00) 7	1.21	128	2.90	C) C	2.90	<u>11</u>	r 1	3.00) C) 0	2.74	0		DK 3/96; purplish 3/97; green with a few brown ubercles 5/97, 3/98; mostly red, OK 5/98; olive green, OK 3/99 & 4/99; very dark green, OK 2/00; slightly misshapen, green, OK 5/00; blue-green, good 2 & 5/01
	0 7	0.86	.~126	3. 10) 3.90	2f		2 3.90		2	4.14			OK, discovered 5/96; a few tan tubercle tips, OK 3/98 & 5/98; slightly maroon, OK 3/99; maroon, OK 4/99; dark green, a few tan tubercle tips 2/00; green with a few tan tubercle tips, good 5/00; just spines left, COD unknown 2/01

PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
222.00	31ANC	1:10		2.20) 		T			2.60				2	2	OK 3/96; partially buried; OK 3/98 & 5/98;
																maroon; OK 3/99; maroonish green, OK 4/99, 2/00; hunkering, green, OK 5/00; red, orange, and green tubercles swollen and bloated, about to pop, weird 2/01; one large chamber, COD Moneilema 5/01
223.00	7	1.22	115	1.50	0	0	1.90	1+1fr	2A	2.20	1	1	2.28	2		good 3/96, 3/98; withdrawing, OK 5/98; OK, maroon, edge of ant mound 3/99; green, good, ant mound gone 4/99; very dark green, OK 2 & 5/00; dark green good 2 & 5/01
224.00	7	0.96	100	3.20	2	2	3.50	3fr	1+2A	3.50	2	2	3.14	3		OK 3/96, 3/98, 5/98 & 3/99; OK, maroonish 4/99; edge of ant mound, tag mia, replaced, green, good 2 & 5/00; slightly maroonish-green, good 2 & 5/01
225.00	7	1.24	100	2.90	2	2 1	3.00	2fr	2	2.90	0	(2.79	3	3	OK 3/96; partially buried, OK 3 & 5/98; slightly buried, green, good 3 & 4/99; dull green, OK 2 & 5/00; green, good 2 & 5/01
225.01	7	1.23	3 100	1.20) 		0 1.00	0	0	1.40	0	() 1.16	8 0	0	OK 3/96; buried 5/96; measured in one direction only 3/97 & 3/99; above ground 5/97; OK 3/98 & 5/98; buried, ~10 o'clock on 225, out of ground, OK 4/99; green, OK 2/00; almost buried, OK 5/00; popped out, green good 2 & 5/01
226.0) 7	1.32	2 100	2.80)	1	1 2.80	1+1fr	2	3.10) 2	2	2 2.64	4 2	2+1A	good 3/96, 3/98, 5/98 & 3/99; light green, OK 4/99 & 2/00; green, good 5/00, 2 & 5/01
227.Ö) 7	1.3	3 88	2.60)	1	1 2.70) 1fr	1	2.80)		1 2.43	3 2	- 2	2 good 3/96; a little purplish, OK 3/98, 5/98 & 3/99; green, good 4/99; light green, a few tan tubercle tips, OK 2/00; getting misshapen, green, OK 5/00; green, good 2 & 5/01

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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR			98FR	99DM	99FL	99FR	NOTES
228.00	7			1.80	0		1.70		0	1.50		0	mia			OK 3/96; old fire scars, yellowish, poor 3 & 5/97; almost buried, few spines, green, OK 3 & 5/98; 2mm seedling in area 3/99; mia 4/99; dry, powdery, fungus? 2/00
228.10	7	4.11	104				2.30		1	2.40	0	0	1.94	0	0	good, discovered 5/97; a little smashed by rock flipped on top, rock removed, green, OK 3/98, 5/98, 3/99; green, good 4/99, 2 & 5/00, 2/01 (accidently sat on) & 5/01
228.20	7	4.65	105				2.50		0	2.60	Ō	0	2.17	0	0	old fire scars at base, OK, discovered 5/97; good 3/98, 5/98 & 3/99; green, good 4/99 & 2/00; yellowish, OK 5/00; green apically, yellow at base, OK 2 & 5/01
228.21	7	4.68	105				0.60		0	0.70	Č) C	0.53	0	C	OK, discovered 5/97; root exposed on one side, plant OK 3/98; root not exposed, plant OK 5/98; hunkered, OK 3/99; popping out, green, OK 4/99, 2 & 5/00; spineless, blue-green, poor 2/01; new spine growth, green, OK 5/01
228.22	7	4.68	109													discovered 2/00; hunkered 2/00; green, OK 5/00; popped out, blue-green, OK 2 & 5/01
228.24	7	4.90	105										··· · · ·			discovered 2/01; green, OK 2/01; green, good 5/01
228.30) 7	4.80	6 105				1.40) 1.40		0	0 1.28	3 0		D slightly buried in juniper needles, good, discovered 5/97; popping out, good 3/98 & 5/98; pulling back in, OK 3/99; green, good 4/99, 2 & 5/00; red, orange, and green, OK 2/01; COD root rot 5/01

	· · · · · · · · · · · · · · · · · · ·		<u> </u>	i		1 -										0050	NOTES
PL#	STAKE			96DM		96	SFR 9	97DM	97FL				1	99DM		99FR	
229.00	7	5.25	112	1.30			0	1.40	0	0	1.20	0	0	0.84	0	0	OK 3/96; almost buried 5/96 & 3/97; coming out 5/97; almost buried, OK 3/98 & 5/98; buried, OK 3/99; popping out, OK 4/99; buried, OK 2/00; hunkered, green, OK 5/00; buried, green, OK 2 & 5/01
300 00		0000	107	200		7	~~~	2.60	<u> </u>	0	2.60		Dead				good 3/96; tubercle tips yellow 3/97; poor; new
230.00	7	6.66	104	3.00			U	2.00			2:00		- Dead				growth 5/97; OK 3/98; red & mushy inside, COD unknown 5/98
231.00	7	5.91	101	2.50)	0	0	3.00	0	0	2.90	• 0	0	1.83	0	0	good 3/96; almost buried in juniper litter 5/96,
										496.137						The second second	3/97, 5/97, 3/98, 5/98, 3/99, 4/99, 2/00, almost
																	buried in juniper litter, green, OK 5/00, 2/01, COD root rot 5/01
232.00	7	5.85	101	2.80)	0	0	2.80	÷ 0	0	2.60	0	0 10	1.95	. 0		good 3/96; OK 3/98 & 5/98; poor, gray, loose
																deac	3/99; almost buried in juniper litter 4/99; dead, removed by WHC 5/6/99; COD unknown, no evidence of weevils
	7	6 00	2 101	2.4(0	0	2.60	<u>0</u>	0 * 1	2:50		0 2	2.40	0		old fire scars, reddish, poor 3/96; red, spines gray
233.00	1	0.34		2.40	11 (102) 1	U.	v	2.00		185560							3/97 & 5/97; red, OK 3/98 & 5/98; poor, maroon,
								1.1.1									gray spines 3/99; goldish, OK 4/99; solid, dry,
							17.2786.27 27.2786.21 27.2786.21 28.278								i Marine San		hard as a rock, COD unknown 2/00
234.00	7	5.2	7 -101	2.0	n -	õ	0	Dead					11 (1992) 19 - (1992)				old fire scars 3/96; dead/5/96; COD unknown
234.00	<u></u> .	3.6	St 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19				<u>- 1945</u> ,	4.20	1+2fr	3	3.80	1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	1	3.58	0	("floating" in little bluestem clump, good 3/97,
234.10		3.0	55					7.20	1,21								5/97, 3 & 5/98, 3/99; green, good 4/99, 2 & 5/00, 2 & 5/01
		ļ .									0.70						good 3/98, 5/98 & 3/99; green, good 4/99, 2 &
234.20) 7	3.0	108	3				3. 30	1	: 1	3.70		1+1A	3.69	0	ļ	5/00, 2 & 5/01
											1						3/00, 2 & 3/01
	-	-						0.70	···		:	+	<u> </u> ;	3.90	0 0	 	0 good 3/98, 5/98, 3/99; green, good 4/99, 2 &
234.30) 7	3.0	1 108	3				3.70		- - -	3.80			5.90]	5/00, 2 & 5/01
									,	i	:					 	discovered 2/01; green, OK 2/01; tag loose,
234.40	7 0	3.9	7 100)													green, good 5/01
	!												!				

		DIOT 1		00014			07041	0751	97FR			98FR		QOEL	99FR	NOTES
1				96DM	96FL	96FR				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		30FN	12010-00			OK 3/96; mia 3/98, 5/98, 3/99, 4/99, 2 & 5/00;
235.00	7	5.28	104	0.60	0	0	0.90	0	Ô	mia		0.1	mia			dead plant uprooted next to tag, dry powdery.
							670 B									inside, COD unknown 2/01
									0	1.30		0	0.81	0		0 good, discovered 5/97; getting covered by
235.10	7	4.73	105				1.10		0	1.30	0	0	0.01	v		crustose lichen, OK 3/98 & 5/98; buried by lichen,
																OK 3/99; popping out, green, good 4/99, 2 &
																5/00, 2 & 5/01
		1														
									I							
236.00	7	5.05	100	2.90	0	0	2.80	0	0	2.80	ō	0	2.14	Ō		0 OK 3/96, 3/98 & 5/98; hunkered, OK 3/99; back
		0.00									1					out, olive, OK 4/99; green, good 2/00; green, OK
																5/00, 2 & 5/01
							i		1							
				·]							- :		<u> </u>	
236.10	7	5.13	~104	1.20		0	1.50	0	0	1.20	0	0	1.16	0		0 OK, discovered 5/96; buried 3/97; coming out 5/97; covered by flipped rock, rock removed,
					-								ļ			good 3/98; OK 5/98; buried in juniper litter, OK
					ĺ											3/99 & 4/99; green, OK 2/00; coming out, green,
		1														good 5/00; almost buried in juniper litter, green,
]										1					OK 2 & 5/01
												1	1			
					L							<u> </u>				
237.00) 7	3.87	84	3.10	2	2 2	3.50	1+1fr	2	3.70	2	2 2	3.60) 3	2+1	A OK 3/96; good 3/98, 5/98 & 3/99; green, good
																4/99, 2 & 5/00; floweres partly eaten, one tubercle damaged, ants swarming, green, good 2/01;
]												green, good 5/01
		ł												i .		
													+			
238.00) 7	3.96	79	2.80)	1 0	3.30	3	3	2.90			2.82	2 2		2 good 3/96; a few reddish tubercles, good 3/98; OK 5/98 & 3/99; green, good 4/99; solid, dry,
NRC STR																COD unknown 2/00
5 MININ								AL.	0.04	4.70		<u>)</u> (maritari) 3 3	1 5'	2 3+1fr	<u>ie in 198</u>	3 good 3/96, 3/98, 5/98 & 3/99; green, good 4/99,
239.00	7 (2.96	86	3.90) 2	2 2	2 4.30	4fr	2+2A	4./U	7 3	5 C	4.02	- J+ IH		2/00; a few tan tubercle tips, otherwise green,
		1	1			I i						1				good 5/00; small chunk eaten out, green, good
1					1				1				 			2/01; green, good 5/01
								<u> </u>					·]	:

									LUSTIN			00ED	00014	0051		NOTES
PL# 240.00	STAKE 7	DIST 3.47	ANG 82	96DM 4.60	96FL 9	96FR 2	97DM 4.70	97FL 4fr	97FR 3+1A	98DM 4.50	98FL 2	98FH 2		99FL 1+2fr	99FR 3	OK 3/96; good 5/97; a little reddish, OK 3/98 &
																5/98; green, good 4/99, 2 & 5/00, 2 & 5/01
241.00	7	1.09	82	2.20	0	0	2.50	1fr	1	2.70	1	1	1.56			good 3/96; getting a little reddish, OK 5/97, 3/98; pulling into soil, OK 5/98 & 3/99; green, good 4/99; slightly buried, green, OK 2 & 5/00; out, purplish-green, good 2/01; green, OK 5/01
242.00	7	1.00	69	3.30			4.30	4fr	3+1A	4.00	3	1+2A	3.47	3fr		good 3/96; getting orange tips on tubercles, OK 5/97, 3/98; smashed, OK 5/98; OK, purplish 3/99; goldish 4/99; probably dead 2/00; looks like just spines, Dead? 5/00; just spines left; COD trampling 2/01
243.00	7	0.98	69	2.20	1	0	2.60	Зfr	1	3.10	1	1A	2.90	3fr		good 3/96; getting orange tips on tubercles, OK 5/97, 3/98; smashed, OK 5/98; OK, purplish 3/99; some orange tubercle tips, OK 4/99 & 2/00; covered with ant litter, probably dead 5/00; tag and plant mia 2 & 5/01
244.00	7	0.97	64	2.30	1	0	2.90	1fr	1A	2.90	O	0	2.54	1fr		OK 3/96, 3/98, 5/98, 3/99; some tan tubercle tips, OK 4/99 & 2/00; pale green, OK 5/00; green, good 2 & 5/01
245.00		1.35		3.80	2	1	4.10	4fr	4	4.10	3	3 3	3.58	3 1+4fi		OK 3/96; good 3/98; OK 5/98; good 3/99; green, good 4/99, 2 & 5/00, 2 & 5/01
245.0		1.31		2.30	0	C	3.10)) 1f	- 1	mia			i mia			not tagged, in front of 245 tag, discovered 5/01; green, good 5/01 good 3/96; mia 3/98 & 5/98; a few old spine
246.0	0 7	2.2	סס כ	2.30	U											clusters in vicintiy 3/99; no trace 4/99, 2 & 5/00
247.0	0 7	2.2	7 68	3.20	1+1fr	2	2 3.70) 3f	r 3	B Dead	1			4		old fire scars, good 3/96; fungus inside 3/98

										apies				· ·	
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM		99FR NOTES
248.00	7	2.93	66	2.60	1+1fr	2	3.10	3fr	2	3.30	2	1	2.45	2fr	2 OK 3/96, 3/98 & 5/98; hunkered, tag pulled off nail, digging in vicinity, OK 3/99; a few orange tubercle tips, OK 4/99; green, good 2 & 5/00, 2 & 5/01
248.10	7	3.15	73	· · · · · · ·			2.00	0	Ö	1.90	Ō	0	1.30	0	0 OK 3/98, 5/98 & 3/99; hunkered, maroonish 4/99; hunkered, green, OK 2 & 5/00; maroonish-green, OK 2 & 5/01
248.20	7	2.58	80							1.70	0	Č –	1.11	0	0 discovered 3/98; good 3/98 & 5/98; totally buried, poor 3/99; coming out, green, good 4/99, 2/00; hunkering, green, OK 5/00; coming out, green, OK 2/01; green, good 5/01
248.30	7	2.10	75						· · · · · · · · · · · · · · · · · · ·	5.70	6	5+1A	6.27	7	7 discovered 3/98; great 3/98, 5/98, 3 & 4/99; tag mia, replaced 2/00; great, green 2 & 5/00, 2 & 5/01
249.00	7	3.15	65	3.00	0	0	3.50	Зfr	2+1A	3.70	2	2	3.36	3 2fr	 2 OK 3/96; blackish-green, good 5/97; tag moved, replaced, purplish, OK 3/98; yellow tubercle tips, OK 5/98; very purple, OK 3/99; orangish 4/99; purplish, OK 2/00; orangish, OK 5/00; blue-green, OK 2/01; reddish-green, OK 5/01
249.10	7	3.22	67										: .		discovered 2/01; green, OK 2 & 5/01
250.00	7	3.02	2 63	1.60	Ō	0	2.00	1fi	- 1	2.00	0) 1.59	9 Ō	0 OK 3/96, 3/98 & 5/98, 3/99; olive, OK 4/99; purplish, OK 2/00; dull green, OK 5/00; green OK 2 & 5/01

									Ancistro Lost N							69 of 96
PL# 251.00	STAKE 7	DIST 3.01	ANG 63	96DM 2.90	96FL 0	96FR 0	97DM 3.60	97FL 2fr	97FR 2	98DM	98FL	98FR			99FR	NOTES reddish 3/96; greening up, OK 5/96; maroon 3/97; getting orangish 5/97; maroon, OK 3/98, 5/98 & 3/99; green with few orange tubercle tips 4/99; purplish, OK 2/00; yellowish-purplish- green, OK 5/00; purplish-green, good 2 & 5/01
252.00 253.00	7	2.99 3.49	56 73	2.20	0	0	2.70 3.00	3fr 2fr	2	Dead 3.00			2.99	1+1fr		 good 3/96; old fire scars; light green, OK 5/97; only a few spines left; COD unknown 3/98 OK 3/96; a few red tubercle tips, OK 3/98 & 5/98; goldish, OK 3/99 & 4/99; dull green with a few tan tubercle tips, OK 2 & 5/00; green, good 2 & 5/01
253.01	7	3.51	73	1.30	0	ō	1.80	Ō	0	1.70	0	0	1.90	0		0 old fire scars, OK 3/96; originally tagged as 355; OK 3/98, 5/98 & 3/99; green, good 4/99, 2 & 5/00, 2 & 5/01
254.00	7	3.64	66	2.10	0	0	2.60	0	0	2.70	0	0	2.43	0		0 good, dead plant nearby 3/96, 3 & 5/97; dead plant gone, live plant looks good 3/98; OK 5/98; green, good 3/99, 4/99, 2 & 5/00, 2 & 5/01
255.00	7	3.72	67	2.40	0	0	2.90	C	0	3.00	1	1	2.66	5 O		0 good 3/96 & 3/98; good, edge of fire ant mound 3/99; mound gone, plant green, good 4/99; slightly reddish, good 2/00; green, good 5/00; slightly purplish, good 2 & 5/01
256.00	7	3.80	67	2.00	0	0	1.80	с С		2.10) (0 0	1.65	5 0		0 OK 3/96; sort of buried, good 5/97, 3/98; OK 5/98; good, buried in edge of fire ant mound 3/99; on left, mostly out, green, good 4/99, 2 & 5/00, 2 & 5/01
256.01	7	3.83	69			· · ·						· · · · · · · · · · · · · · · · · · ·				discovered 2/00; green, good 2 & 5/00; partly buried, green, OK 2 & 5/01

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PL.#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	· · · · · · · · · · · · · · · · · · ·	98FL	98FR	99DM	·	99FR NOTES
257.00	7	3.80	67	2.30	0	0	2.60	0	0	2.30	0	0	2.26	0	0 OK 3/96, 3/98; good 5/98; good, buried in edge of fire ant mound, tag mia, replaced, small 2mm seedling between 256 and 257 tags 3/99; seedling mia, mostly out, on right, green, good 4/99; pale green, OK 2/00; green, good 5/00, 2 & 5/01
258.00	7	3.75	62	3.70	0	0	3.70	2fr	2	3.90	0	ō	3.23	0	0 OK 3/96; red tips 3 & 5/97, 3/98 & 5/98; OK 3/99; goldish at base, OK 4/99; green, good 2 & 5/00, 2 & 5/01
259.00	7	3.52	46	2.40	1	0	2.70	0	0	2.60	0	0	2.22	2fr	2 OK 3/96; getting dull reddish 5/97; reddish tubercle tips, OK 3/98 & 5/98; almost buried, OK 3/99; coming out, olive, OK 4/99 & 2/00; green with a few orangish tubercle tips, OK 5/00; green, good 2 & 5/01
260.00	7	3.87	45	2.30	0	0	2.90	2fr	2	2.90	2	2	3.08	0	0 good 3/96; a few orangish tubercle tips, OK 3/98 & 5/98; almost buried in soil & litter, OK 3/99; popped out, green, good 4/99, 2 & 5/00; yellowish green, OK 2/01; green with some reddish tubercle tips, OK 5/01
261.00	7	3.73	44	2.80	2	2	2.90	3fı	3	3.20	2	2	2.70	2fr	2 reddish 3/96; turning green, OK 5/96; reddish- green 3 & 5/97; reddish, flowers & one tubercle tip stepped on (deer or dogs?), poor 3/98 & 5/98; puplish green, in ant bed, OK 3/99; out of ant mound, maroonish, OK 4/99 & 2/00; orangish basally, green above, OK 5/00; purplish-green, OK 2 & 5/01

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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
262.00	7	3.60	40	2.10	1	1	2.40	1fr	1	2.70						0 reddish, OK 5/96; light green 5/97; a few reddish tubercle tips, OK 3/98 & 5/98; green, good, almost buried in ant bed 3/99; ant bed gone, popped out, green, good 4/99; green with some tan tubercles, OK 2 & 5/00; green, good 2/01; partly covered with ant dirt, green, good 5/01
263.00	7	4.78	41	3.30	2	2	3.90	1	1	4.20	1	1	4.04	0		0 good 3/96; shaded, good 5/97, 3/98 & 5/98; OK, almost buried, only spines above soil 3/99; coming out, green, good 4/99, 2 & 5/00, 2 & 5/01
264.00	7	4.39	42	3.40	1+1fr	1	3.70	1	1	3.60	2	2	3.59	2fr	1+1	A OK 3/96, 3/98, 5/98 & 3/99; olive, OK 4/99; green, good 2 & 5/00, 2 & 5/01
265.00	7	4.51	41	4.00	0	0	4.40	2fr	2	3.90	0	C	3.54	1fr		1 OK 3/96, 3/98, 5/98, 3/99; olive, OK 4/99; green, good 2 & 5/00, 2/01; getting misshapen, green, good 5/01
265.10	7	4.19	33				1.60	0	0	1.50) () 1.79	0		0 good 5/97, 3/98; almost buried 5/98; almost buried, good 3/99; popping out, green 4/99; popping out, green, good 2/00; hunkering, green, good 5/00; green, OK 5/01
265.20	7	4.41	31				2.00	0	0	1.70) (0 1.73	3 0		0 good 5/97, 3/98; getting buried, good 5/98, 3/99; green, good 4/99; getting buried, green, good 2 & 5/00, 2 & 5/01
266.00	7	3.05	44	2.20	1	 1 	3.10	2fr	2	3.60)	1	1 3.7	5 4fr		4 good 3/96; getting a few orange tubercles, OK 5/97; good 3/98, 5/98 & 3/99; green, good 4/99, 2 & 5/00, 2 & 5/01

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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
267.00		3.30	44	2.60	1	+	3.10	3fr	3	3.30	2	2	2.18	0		0 OK 3/96, 3/98 & 5/98; olive green, OK 3/99 & 4/99; green, good 2 & 5/00, 2/01; covered with deer shit, green, good 5/01
268.00	7	3.31	44	2.00	0	0	2.70	2fr	2	2.90	2	2	1.97	ō		0 OK 3/96; good 3/98 & 5/98; olive green, OK 3/99 & 4/99; green, good 2 & 5/00, 2/01; getting covered with ant dirt, green, good 5/01
269.00	7	2.97	48	2.40	C	0	mia	mia	Dead							OK 3/96; COD unknown, loose spine clusters in vicinity, tag removed 5/97
270.00	7	3.18	40	1.60	C	0 0	2.20	1fr	1	2.70	1	1	1.98	2fr		2 good 3/96, 3/98, 5/98; measured in one direction only, good 3/99; green, good 4/99; pale green, OK 2/00; green with some orange tubercle tips, OK 5/00, 2 & 5/01
271.00		3.28	38	3.10) 0	3.20	21r	2	3.10	2	1+1A	2.92			1 OK 3/96, 3/98, 5/98 & 3/99; olive, OK 4/99; pale green, Ok 2/00; green with some orange tubercle tips; OK 5/00; dry, powdery inside, COD unknown 2/01
272.00	7	3.26	38	2.00	(0 0	2.60	1fr	1	2.30	0	0	1.99	0		0 OK 3/96, 3/98, 5/98 & 3/99; OK, maroonish 4/99 & 2/00; olive, OK 5/00; purplish-green, OK 2 & 5/01
273.00	7	3.45	35	1.70		D C	2.50	1fr	1	2.70	2	2	2.40	0 0		0 good 3/96; getting a little orangish 5/97; good & green 3/98 & 5/98; buried in ant mound & grass clump, OK 3/99; coming out, green, good 4/99, 2 & 5/00, 2 & 5/01
273.10	7	3.73	32				4.40	5fr+1A	Ę	5 4.40) 2	4 3+1A	3.89) 4fi		4 purplish, OK 3/98, 5/98, 3/99, 4/99, 2/00; orangish, OK 5/00; maroonish-greenn good 2 & 5/01

											State I					
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
273.11	7	3.65	37	· · · · · · · · · · · · · · · · · · ·								 			di	iscovered 5/01; green, good 5/01
273.12	7	3.83	32									: 				iscovered 5/01; green, good 5/01
274.00	7	3.39	33	1.90	0	0	2.40	C) () 2.50	0	0	2.31	1fr	h 5	0K 3/96; good 5/97, 3/98, 5/98; OK, 3/99; unkered, green 4/99; hunkered, green, good 2 & /00; flowers partly eaten, plant green with some an tubercle tips, OK 2 & 5/01
274.10	7	3.36	32				1.20	() () 1.60	0	0	1.43	0	3 5	OK 5/97; good 3/98 & 5/98; practically buried, OK /99; tag and plant gone without a trace 4/99, 2 & /00; plant slightly covered with ant gravel, green, OK 2 & 5/01
275.00	7	5.27	39	2.40	C	Ō	2.20		0 1	0 2.40) C	2.83	3 0	3	good 3/96; shaded, dull green, OK 5/97; good 3/98, 5/98 & 3/99; olive, OK 4/99; green, OK 2/00; getting buried in juniper needles, green, OK 5/00; new apex coming out, green, OK 2 & 5/01
276.00	7	496		1.70			0 1.70			0 2.00) 1.62		r (DK 3/96, 3/98, 5/98, 3/99; olive, OK 4/99; poor, shrunken, missing spines, orangish at base, emoved by WHC 5/6/99; no weevil damage, COD unknown DK 3/96; almost buried, OK 5/97, 3/98, 5/98, 3/99
276.01 276.02	7	4.96 5.11		130) 1.20		0	0 1.2) 1.0) 1.1		8 0 0 0	& 4/99; removed at same time as 276.00 by WHC 5/6/99; no weevil damage, COD unknown discovered 5/98, good; OK, almost buried 3/99; coming out, maroonish, OK 4/99; green, OK 2 & 5/00, 2 & 5/01
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PL#	STAKE				96FL	96FR		97FL		1 1 1 1 1 1 1 1 1 T			99DM	·	99FR	NOTES
277.00	7	5.03	34	2.80	1	0	3.40	Зfr	3	3.40	0	0	2.86	0		0 good 3/96, 3/98 & 5/98; OK, hunkered 3/99; popped out, green, good 4/99, 2 & 5/00, 2/01; green with red spots, OK 5/01
278.00	7	5.01	30	2.90	1	1	3.40	1fr	1A	3.10	0	Ō	2.19	0		0 good 3/96; shaded, good 5/97; partially buried, good 3/98; OK 5/98, 3 & 4/99; green, good, partially buried 2 & 5/00, 2 & 5/01
278.10	7	5.31	31		· · · · · · · · · · · · · · · · · · ·		1.90	0	0	1.70	0	ō	1.48	0		0 OK 5/97; almost buried, OK 3/98, 5/98 & 3/99; coming out, green, good 4/99; almost buried, green, OK 2 & 5/00, 2 & 5/01
278.20	7	5.44	31		· ·		_			1.00		0	1.03	0		0 discovered 5/98, buried, good 5/98 & 3/99; totally buried in juniper litter, green, OK 4/99 & 2/00; almost totally buried, green, OK 5/00; plant mia 2 & 5/01
279.00	7	3.86	28	1.00	0	0	1.70	0	0	1.90	0		1.52	0		0 OK 3/96; good 5/97, 3/98; partially buried, OK 5/98 & 3/99; popped out, green, good 4/99, 2 & 5/00; partly buried, green, OK 2 & 5/01
280.00	7	4.17	28	1.90	- <u>C</u>) 0	2.00	Ċ) C	2.10	C) C	2.24	0		0 in fire ant mound 3/96 & 5/97; OK 5/96; good 5/97; totally covered by fire ant mound, tag mia, replaced, good 3/98, 5/98 & 3/99; coming out green, good 4/99, 2 & 5/00, 2 & 5/01
281.00	7	5.00	20	2.20	o C	0 0	2.10)) (2.20) (1.87	/ 0		0 OK 3/96; almost buried, OK 3/98; coming out, OK 5/98; under edge of rock, OK 3/99; green, good 4/99; mia 2/00; totally buried, only spines visible, may be dead, no diameter taken, poor 5/00; plant mia 2 & 5/01
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PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR NOTES
282.00		5.19		2.20	0	0	1.70	0	0	2.40	0	0	1.71	0	mia good 3/96; buried 3/97; almost buried, OK 5/97, 3/98; buried 5/98 & 3/99; gone without a trace 4/99, 2 & 5/00, 2 & 5/01
282.10	7	7.73	11							2.50	0	0	1.62	0	0 in rock crack, almost buried in juniper needles, OK 3/98, 5/98, 3/99, 4/99, 2 & 5/00; only spines showing, green, OK 2/01; coming out, green, OK 5/01
282.20	7	7.69	10												discovered 5/00; almost buried in juniper litter, green, OK 5/00; only spines showing, green, OK 2/01; buried, green, OK 5/01
283.00	7	4.98	20	2.30	0	0	2.70	0	0	2.40	0	ō	1.57	0	0 good 3/96; completely beneath rock 3/97; very pale green, OK 5/97, 3/98 & 5/98; almost buried, OK 3/99; coming out, olive 4/99; green, OK 2 & 5/00; buried, green, OK 2 & 5/01
284.00	7	4.67	21	2.10	0	0	2.00	0	0	Dead					poor, shriveling 5/96; old fire scars at base, shrunken & very bad 3 & 5/97; fungus inside 3/98
285.00	7	4.61	21	2.10	0	0	3.00	0	0	2.90	0	0	2.19	0	0 OK 3/96, 3 & 5/98; almost buried, OK 3/99; coming out, OK 4/99; tag mia, replaced 2/00; partially buried, green, OK 2 & 5/00; only spines showing, yellow-green, OK 2/01; coming out, green, OK 5/01
286.00) 7	4.49	20	2.90	с С	0	3.10	0	O	3.20	- C) — C) 2.48	3 O	0 OK 3/96; getting buried 5/97, 3/98, 5/98; getting buried, OK 3/99; getting buried, green, good 4/99 2 & 5/00; partly buried, olive, OK 2 & 5/01

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	STAKE			96DM		96FR			· · · · · · · · · · · · · · · · · · ·				99DM		99FR NOTES
287.00	7	4.01	24	2.00	0	0	2.30	1A	0	2.30	0	0	2.16	0	0 good 3/96, 3/98 & 5/98; measured in one direction only, OK 3/99; green, good 4/99; pale green, OK, 2/00; almost buried in litter, green, OF 5/00; coming out, yellowish-green, OK 2/01; covered by dirt and litter 5/01
288.00	7	4.04	24	2.00	0	0	2.60	0	0	2.70	1	1	2.12	0	0 OK 3/96, 3/98, 5/98 & 3/99; green, good 4/99, 2 8 5/00, 2/01; mostly covered by juniper litter, green OK 5/01
289.00	7	2.78	18	2.90	3	3	3.30	3fr+1A	3	3.40	3	2+1A	2.92	3fr	1 good 3/96; tag removed or lost in ant mound, replaced, a few orange tubercle tips, OK 3/98 & 5/98; tag mia, replaced, green, good 3/99, 4/99, 2 & 5/00; flowers partly eaten, green, good 2 & 5/0
289.10	7	3.20	18				1.70	0	0	2.10			2.11	Ō	0 good 5/97, 3/98; getting buried, good 5/98, 3/99; good, green, getting buried 4/99, 2 & 5/00; partly covered with ant gravel, OK 2/01; out, green, OK 5/01
290.00	7	2.99	33	1.00	Ō	0	1.20	0	0	1.30) 1.49	0	0 OK 3/96; good 3/98 & 5/98; buried, misshapen, OK 3/99; almost buried, green, OK 4/99; coming out, green, good 2 & 5/00, 2/01; almost spineles green, OK 5/01
291.00	7	1.96	28	2.40		1	3.20	3fr	3	3.20		2 2/	4 2.86	3fr	r 3 OK 3/96; reddish 3 & 5/97, 3/98 & 5/98; poor, pulling into soil, shrinking, yellow-green 3/99; popping out, yellowish, OK 4/99; olive, OK 2/00; green, good 5/00; green with purplish and reddis tubercle tips, OK 2/01; green with a few yellow tubercle tips, good 5/01

											-	vatura				
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
292.00	7	2.07	29	2.20			3.20	1A+1fr	1+1A	3.10	1	1	2.34	2fr	1 gc	ood 3/96, 3/98; OK 5/98; green, good 3/99, 4/99,
															2	& 5/00, 2 & 5/01
																,
		!														
										0.50		+	0 70	04-	1 ~	ood 3/96, 3/98; OK 5/98, & 3/99; olive, OK 4/99;
293.00	7	2.08	29	1.70	0	0	2.70	2fr	2	2.50	1	1	2.70	2fr		
														i l		een with a few tan tubercle tips, OK 2 & 5/00;
															flo	ower partly eaten, plant green, good 2 & 5/01
													ĺ			
		1]				1	i l		
293.10	7	2.16	42		+ · ·				†	4.20	3	3	4.04	3	4 gr	reat, discovered 3/98; grayish, poor 5/98; green,
200.10	: '	2.10				1	i				_					reat 3/99, 4/99, 2 & 5/00; flowers partly eaten,
														1		ant green, good 2 & 5/01
									1						P	an groon, good E a oron
	i			ļ												_
293.11	7	1.94	50						1						di	scovered 5/01; green, OK 5/01
200.11		1.04		i i					1							, 0
						1										
		1			1.				1							
293.20	7	2.31	33							1						iscovered 5/00; green, OK 5/00, 2/01; green,
								-							l g	ood 5/01
										1						
293.30	7	2.59	34	+					† .					1	d	iscovered 5/00; green, good 5/00, 2 & 5/01
200.00	•	1 2.00												İ		
														Ì		
									L							
293.40	7	2.65	5 33			Ì									d	liscovered 5/00; green, good 5/00, 2 & 5/01
														1		
			1								1					
			1													
		1			L			ļ	1 .	ļ	1			 	1	
293.50) 7	2.66	34			ł								i		ight of 293.60; discovered 5/00; green, good
						i	}								5	5/00, 2 & 5/01
		1														
						1	l		ł					1	ļ	
				1		ł	1	1	1						1	

									LOSU	haples	State r	vatura	Area			
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES left of 293.50; discovered 5/00, OK 5/00, 2 & 5/01
293.60	7	2.67	35													leit of 293.50, discovered 5/00, OK 5/00, 2 & 5/01
293.70	7	2.96	37													discovered 2/01; green, good 2 & 5/01
294.00	7	0.82	2	2.70	1+1fr	1	3.40	2fr	. 2	3.30	2	2	3.27	7 3fr	1+2A	reddish, OK 3/96 & 5/97, 3/98, 5/98 & 3/99; green, good 4/99; slightly reddish, OK 2/00; olive green, OK 5/00; green, good 2 & 5/01
294.01	7	1.17	7													discovered 5/01; green, good 5/01
294.10	7	1.12	~26	1.20		0	1.60	Ċ		2.30) 2	2	2 2.1	2 2fr		discovered 5/96, good, 3/98, 5/98 & 3/99; goldish at base, OK 4/99, green, good 2 & 5/00; two flowers partly eaten, plant green with gold tubercle tips, OK 2 & 5/01
294.20	7	2.00	7				1.20			0 1.50	0	D	0 1.5	2 0		D good, discovered 5/97; measured in one direction only, good 3/98; OK 5/98; maroon, OK 3/99; dull green, OK 4/99; green with slightly purple tubercle tips, OK 2/00; pale green, OK 5/00; purplish green, good 2 & 5/01
294.30	7	1.8	5 9							2.0	0	1	0 1.9	92 1fr		0 discovered 3/98, originally tagged as 294.1, retagged, good 5/98 & 3/99; green, good 4/99, 2/00; dull green, OK 5/00; green, good 2 & 5/01
295.0	0 7	3.6	1 34:	3 2.3	Ō	0	3.00	2	fr	2 2.8	0	0	0 2.:	37 ()	0 good 3/96; dull green, OK 3/98, 5/98, 3/99, 4/99, 2/00; green, good 5/00; getting buried in juniper litter, green, OK 2 & 5/01
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PL# S	TAKE	DIST	ANG	96DM	96FL	96F	RS	7DM	97FL					98FR	99DM	99FL	_	99FR	NOTES
296.00	7	3.19	336	2.30)	0	2.80	nd 👘		5 1 -	2.90	0 0	0 11 12	1.73)	0	0	OK 3/96; totally shaded by grass, OK 3/98, 5/98 &
						30													3/99; grass dying, popping out, dull green, OK
								4. 607											4/99; body solid, COD unknown 2/00
296.10	7	3.19	356	<u>(1996) (</u>)				2.70	2fi		1	2.90	1	1	2.46	6 (0		good 3/98, 5/98 & 3/99; good, green 4/99, 2 &
230.10	1	0.10	000			1	l					1							5/00; pale green, OK 2/01; partly covered by
				1										1					juniper litter, green, OK 5/01
				1			1												
	ł				1			[discovered 2/00; green, good 2 & 5/00, 2 & 5/01
296.20	7	2.60	7							1					1				discovered 2/00, green, good 2 & 5/00, 2 & 5/01
								1			1					1			
							ļ	ļ											
													_				-		OK 3/96; good 5/97, 3/98; OK 5/98 & 3/99; green,
297.00	7	3.12	321	2.10		0	0	2.60	ť	וֹנ	0	2.30	1	1A	1.6	0	0	U	
	i				1														good 4/99, 2 & 5/00, 2 & 5/01
						1		ļ											
			ļ			1	I			1									
								294 2 · 2 · 2 · · 2 · · · · ·			35 7 a 2 a		1.120.0012						OK 3/96; under rock 3/97, 3/98 & 5/98; solid, dry,
298.00	7	2.24	299	3.60		1	0	3.90	3A+1	1	1A	4.60		3 1+2A	Dea	U			COD unknown 3/99
						3		U.S.3411		i Cillera Light				1.1.1			2fr		a little yellowish, OK, discovered 5/97; tag mia,
298.10	7.8	1.92	283					3.10		10	3	3.10		l , ; = 1	1 3.4	4	211		replaced, plant purplish, OK 3/98 & 5/98; goldish,
			Sec. 1											and the second					OK 3/99; body green, orangish tubercle tips, OK
												NAME OF	с. С.	a state					4/99; slightly purple, OK 2/00; green with some
	1	dia a											100 200	NAME		1960-177			orange tubercle tips, OK 5/00; just spines left;
				and the second												2			COD unknown 2/01
					- 1 <u>6</u> -				Creates 12		1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.				1 2.7	70	1fr		OK 3/96, 3/98, 5/98 & 3/99; dull green at base,
299.00	7	4.23	3 261	2.20	2	1	1	2.70	2	fr	2	2.90	}	1	1 2.7	o	111		OK 4/99; edge of ant bed, green, good 2 & 5/00;
				1															flower peaking out of ant gravel, plant covered,
																ĺ			green, OK 2/01; ant gravel almost gone, apex
							:	1											sunken, plant green, OK 5/01
				Ì	1			l i		i				1	i i		1		sunken, plant green, OK 5/01
		ł																	
				,				2.00	· · · ·	fr	1	1.70	ייייי יו ר	0	ō 1.	50	ō		discovered 5/96, old fire scars, good; dull green,
299.10	7	4.2	1 ~26	6 1.7	U	na	U	2.00			1	1.7		-			-		OK 5/97, 3/98, 5/98, 3/99, 4/99; green, good 2 &
				ļ						1						1		1	5/00; only spines showing thru ant gravel 2/01;
		1						1											ant gravel almost gone, apex shifted and sunken,
		1			ļ														plant green, OK 5/01
				ļ				l					1	ļ		1			
			!					<u> </u>					<u>.</u>					<u> </u>	

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PL# 299.20	STAKE 7	DIST 3.91		96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM 2.30	99FL	99FR 0	NOTES discovered 5/99; green, good 5/99; pale green, OK 2/00; olive, OK 5/00; covered with ant gravel, green, OK 2/01; uncovered, apex sunken but with new growth, tubercles reddish, OK 5/01
299.30	7	3.75	249													discovered 2/00; green, good 2/00; olive, OK 5/00, 2/01; misshapen, olive, OK 5/01
300.00	7	0.40	265	3.60	4	0	5.10	1+5fr	5	5.00	5	5	5.26	2	2	smashed 3/96; good 5/96, 3 & 5/97, 3/98, 5/98 & 3/99; green, good 4/99, 2 & 5/00; flowers partly eaten, plant green, good 2/01; covered with ant dirt, green, OK 5/01
301.00	7	3.52	211	3.70	4	4	4.40	3fr	1+2A	4.20	2	2	3.78	0	(good 3/96, 3/98, 5/98 & 3/99; green, good 4/99, 2 & 5/00, 2/01; mostly covered with ant gravel, green OK 5/01
302.00	0 7	3.13	3 204	2.50)) C	3.30	111+1 1	1+1A	3.40		2	2.10	0	Dea	to the left of 303; OK 3/96; purplish, OK 3/98, 5/98 & 3/99; dead 4/99; removed by WHC 5/6/99; no weevil damage, COD unknown
302.10) 7	1.94	1 236							3.70		3 3	3 3.19	Зfr		2 discovered 3/98; OK 5/98 & 3/99; green, good 4/99, 2 & 5/00; one flower eaten, plant green, good 2 & 5/01
303.0	7	3.1:	3 204	2.20)	0	2.60)	2.60			0 1.44	0		d to the right of 302; OK 3/96; purplish, OK 3/98, 5/98 & 3/99; Dead 4/99; removed by WHC 5/6/99; no weevil damage, COD unknown
303.1	0 7	2.0	2 205	5									2.87	7		0 discovered 4/99; green, good 4/99, 2 & 5/00, 2 & 5/01
304.0	0 7	9.0	0 220	2.40	0	0	0 2.30) 11	r 17	A 2.30	0 C	0	0 Dead			OK 3/96, 3/98 & 5/98; hard, dry, solid, COD unknown 3/99

Ancistrocactus tobuschii Data for

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PL#	STAKE	DIST	ANG	96DM	96FL	96FR 9	97DM	97FL	97FR	98DM		· +			99FR	
304.10	7	9.34	251	2.10		0	2.60	1fr	1	2.50	0	0	2.52	0		discovered 5/96, good, 3/98, 5/98, & 3/99; green, good 4/99; reddish green, OK 2/00; green, OK 5/00; olive, OK 2 & 5/01
304.20	7	9.55	247	2.50		1	3.10	1fr	1A	3.00	1	1A	2.84	0		discovered 5/96, old fire scar at base, good; purplish, OK 3/98 & 5/98; dull green, OK 3/99 & 4/99; yellowish-green with some red tubercle tips, poor 2/00; purplish, OK 5/00; light olive, OK 2 & 5/01
304.30	7	8.95	~248	2.80		0	2.80	0	0	2.70	0	0	2.60	0		discovered 5/96; poor, shriveling; very bad 3/97; old fire scars, OK 5/97, 3/98 & 5/98; poor 3/99; OK, new green growth 4/99; a little new growth, otherwise gray, poor 2 & 5/00; gray, poor 2 & 5/01
305.00	7	8.44	279	2.50	Ċ	0	Dead	NEW PARTY AND								good 3/96; dead, 3/97, COD unknown
305.00		8.53	ist of an and a strength	at the state of a grant and			1.30		0	Carlot a land			mia			edge of fire ant mound, good 5/97; no mound, no plant 3/98, 5/98, 3/99, 4/99, 2 & 5/00
306.00	7	8.36	5 280	2.80) <u>1968</u> 4, <u>191</u> , <u>19</u>) 1	0	2.90	1	0	3.00	2	2	2.68	8 0	0	OK 3/96; becoming ayssmetrical 5/97, 5/98; OK 3/99 & 4/99; reddish green, OK 2 & 5/00; partly eaten, green, OK 2/01; green, good 5/01
306.10	7	3.52	2 280	1.30		O	mia			mia			mia	1		discovered 5/96, OK; originally tagged as 360; plant & tag mia 3/97, 5/97, 3/98, 5/98, 3/99 & 4/99
306.20) 7	8.2	5 ~270	6 2.70)	0	3.30	1+2fr	3	3 3.40	0	(3.7	1 0	0	discovered 5/96, good, 3/98, 5/98, & 3/99; green, good 4/99, 2 & 5/00, 2 & 5/01
307.00	7	8.5	0 283	3 2:80	D	0 0	Dead									reddish, poor 3/96; COD unknown, just spines left, tag removed 3/97

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						OOF D	07014	075		98DM					99FR	NOTES
<u>PL#</u> 308.00	STAKE 7	9.42		96DM 3.60	<u>96FL</u>		9 <u>7DM</u> 4.00	97FL 4fr	4	· ··· · · · · · · · · · · · · · · · ·	1	1	3.50	· · · · · · · · · · · · · · · · ·	0	reddish, poor 3/96; reddish, OK 5/97, 3/98; orange, sinking in the center, poor 5/98; olive green with a few orange tubercles, OK 3/99; orange, OK 4/99, 2 & 5/00; olive with pale red tubercles, OK 2/01; green with reddish tubercles, OK 5/01
309.00	7	8.61	282	2.50	0	0	2.90	1fr	1	Dead					r 1. januar - Ling Afr	good 3/96; dead, fungus inside 3/98
310.00	7	11.70		2.10	2000 - 10 TH		mia			2.60	1	1	2.21	0		through juniper; good 3/96; plant & tag mia 3 & 5/97; relocated, good 3/98; OK 5/98; green, good 3/99 & 4/99; pale green with a few gold and red tubercle tips, OK 2/00; olive, OK 5/00; green, good 2 & 5/01
311.00	7	9.55	262	2.60	0	0	2.40	c) (2.40	0	ō	1.88	0		OK 3/96, 3/98 & 5/98; poor, almost buried 3/99; coming out, green, OK 4/99 & 2/00; purplish, OK 5/00; green, OK 2 & 5/01
311.10	7	10.80	267				2.80) (2.80	0	0	2.85	5 0	0	good 3/98, 5/98 & 3/99; green, good 4/99; olive, OK 2 & 5/00; pale green, OK 2/01; green, OK 5/01
312.00	7	11.92	276	2.70) () C	3.30	()	0 2.70	0 0		2.7	e c	0	OK 3/96; shaded in the afternoon; reddish, poor 3/98 & 5/98; goldish, OK 3/99 & 4/99; reddish- yellowish green, OK 2/00; maroonish, OK 5/00; green with maroonish tubercle tips, OK 2/01; maroonish, OK 5/01
313.00	7	7.09	305	2.70	0) (3.20)	ō	0 2.90	p c		2.5	2 (C	OK 3/96, 3/98; grayish, poor 5/98 & 3/99; green, OK 4/99; green, good 2 & 5/00, 2 & 5/01
314.00	7.	7.1	2 305	5 2.5	0	0 (2.90)	0	0 2.7	0 0	ō	2.4	8 () C	0 OK 3/96; grayish, poor 3/97, 5/97 & 3/99; green, few orange tubercle tips, OK 4/99; green, OK 2 & 5/00, 2 & 5/01
					-		!	· ·			_,,				 	

										iapies .						
PL#	STAKE	DIST	ANG	96DM	96FL	96FR		97FL					99DM		99FF	
315.00	7	9.93	304	3.10		i 1	3.30	3fr	3	3.00	• 0	0	Dead			reddish, OK 3/96, 3 & 5/97; reddish, poor 3/98;
																OK 5/98; solid, dry, COD unknown 3/99
316.00	7	10.06	306	2.70		1	4.20	4fr	4	4.40	3	3	3.63	0		0 discovered 5/96; good 5/96 & 5/97, 3/98; OK
																5/98; green, good 3/99.& 4/99, 2 & 5/00; partly
					!											covered with ant dirt, green, good 2 & 5/01
				·												0 good 3/96, 3/98; OK 5/98 & 3/99; green, good
316.01	7	9.98	306	1.40	0	0	2.00	0	0	2.20	0	0	2.34	0		4/99, 2 & 5/00; partly covered with ant dirt, green,
														:		1/99, 2 & 5/00, parity covered with and dirt, green, good 2/01; out, green, OK 5/01
														1.		good zion, out, given, or or or
							i									
017 00	7	10.22	308	3.70		0	4.40	5fr	4+1A	4.60	4	4	4 58	1+2fr		3 good 3/96, 3/98, 5/98 & 3/99; green, good 4/99, 2
317.00	/	10.22	300	3.70	•	Ŭ	4.40	01		4.00				1		& 5/00, flowers partly eaten, plant green, good
									ļ							2/01; partly covered with ant dirt, green, good
																5/01
212 22		10.07	000				0.60	0		0.70	- n) mia	TIME STATE		good 5/97, 3/98 & 5/98; plant mia 3/99, 4/99, 2 &
317.01		-10.07	300						- 0							5/00,218,5/01
	7	9.79	309	2.70	0	0	3.10	2fr		1.14.2.2	1	-	3.02	0		0 OK 3/96, 3/98, 5/98 & 3/99; tubercle tips goldish,
318.00		9.79	309	2.70	0	U U	5.10	20	1.1.17	0.00	•		0.01			OK 4/99; reddish green, OK 2/00; yellowish
										l.			1			green, OK 5/00; partly covered with ant dirt,
	1															yellow-green, OK 2/01; out, green, OK 5/01
		1														
		1					1									
319.00	7	10.02	311	2.60	C) 0	mia	mia	3ft	3.70) C)	3.29	9 0		0 OK 3/96; plant & tag mia 3/97; relocated in shade
015.00		10.01								i						5/97; good 3/98, 5/98 & 3/99; green, good 4/99, 2
											1				:	& 5/00; covered with juniper litter, green, OK
																2/01; covered with juniper litter, only spines
											Ì					visible 5/01
		1									1					
320.00) 7	7.96	5 197	2.40		0 0	3.00	1A+1f	rt -	1 2.80	5	5	0 1.7	1 0	C C	Dead OK 3/96, 3/98 & 5/98; poor, hunkered 3/99; dead
															r 5 Å gi	4/99; removed by WHC 5/6/99, no evidence of
			·· • · · · · · · · · · · · · · · · · ·						:						· · · · · · · · · · · · · · · · · · ·	weevils, COD unknown
321.00) 7	3.60	333	2.80)	1 1	3.00	2f	r 2	2 Dead	J [™]					good 3/96; fungus inside 3/98

								1	Ancistre Lost N							
PL#	STAKE		ANG	96DM	96EI	96EB	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
321.10			332	2.30		0		0		2.50				0	C	discovered 5/96, OK 5/96; good 3/98 & 5/98; OK, loose spines in vicinity & new apical meristem forming 3/99; green, good 4/99; dull green, OK 2/00; green, good 5/00, 2 & 5/01
321.20	7	2.82	332	2.00		1	2.50	2fr	2	2.70	2	1+1A	2.74	3fr	1	discovered 5/96, good, 3/98; OK 5/98 & 3/99; maroonish 4/99; maroonish, OK 2/00; green with some orangish tubercles, OK 5/00; flowers peaking out of ant gravel, one flower partly eaten, plant green, OK 2/01; plant out of ant gravel, green, good 5/01
321.30	7-7-	3.79	331						- ·				2.02	- õ		0 discovered 3/99, dull green, OK 3/99, 4/99, 2/00; olive, OK 5/00; maroonish, green, OK 2/01; green, OK 5/01
321.40	7	3.96	291													discovered 2/00; green, good 2 & 5/00; partly covered with ant gravel, green, good 2/01; out, green, OK 5/01
- · · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · ·													· · · · · ·	
							nager's I	residence	Stake a	8 = GP	58; RU	303217				OK 3/96; COD unknown
<u>322:00</u> 323.00		7:76	233			Los) <u>Dead</u>) 2.90) C) 3.30) (<u> () </u>	2.24	0		0 OK 3/96 & 3/97, shaded; OK 3/98 & 5/98; tag loose, 3/99; goldish at base, OK 4/99; totally buried, almost spineless, green, OK 2 & 5/00; popping out, a few spines, green, OK 2/01; buried in juniper litter, almost spineless, orangish-green, poor 5/01
323.1	0 8	7.53	3 230							3.5	0	0	2.46	5 O		0 discovered 3/98; almost buried, shaded, OK 3/98, 5/98, 3/99 & 4/99; mia 2 & 5/00, 2 & 5/01

Ancistrocactus tobuschii Data for

								·	Ancisu Leeta	laples						
	·									-					0050	NOTES
PL# 324.00	STAKE 8	DIST 7.22		96DM 3.20	96FL 1	96FR 1	97DM 3.10	_97FL 0	· · · · · · · · · · · · · · · · · · ·				99DM 3.18	<u>99FL</u> 0	3/99 8	96; almost buried, shaded, OK 3 & 5/98, & 4/99; above green, green, good 2 & 5/00; OK 2 & 5/01
324.10	8	7.30	234										3.80	0		vered 3/99, dull green, OK 3/99, 4/99, 2/00; I, good 5/00; olive, OK 2 & 5/01
325.00	8	7.67	243	2.70	0	0	2.90	1	1	3.30	1	1	2.97	0		3/96 & 3/97, 3/98; OK 5/98 & 3/99; green, 4/99, 2 & 5/00, 2/01; green, OK 5/01
325.10	8	6.97	250												in jun	vered 2/00; green, good 2/00; getting buried liper needles, green, good 5/00; tag mia, ced 2/01; plant green, good 2 & 5/01
326.00	8	7.91	239	3.50			3.30	(3.50) C) (3.29	0		3/96; shaded, OK 3/97, 3/98, 5/98 & 3/99; dull green 4/99, 2 & 5/00; green, good 2 &
327.00	8	8.09	239	2.20) (2.50)	0 () 2.60) (0 1.92	0	3/99	1 3/96; shaded, good 3/97; OK 3/98, 5/98 & ; green, good 4/99; slightly reddish, OK 2/00; n, OK 5/00; green, good 2 & 5/01
328.00) 8	4.00) 244	3.60)	1	3.70		1	1 3.90		1	1 3.74	0		1 3/96 & 3/97, 3/98; OK 5/98; green, good , 4/99, 2 & 5/00, 2 & 5/01
									1						· · · ·	

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														·			
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES	
328.10	8	4.87	245				3.30	1+1A	0	3.40	1	0	2.74	1		 Stepped on 3/97; dirt from nearby hole slightly covering plant, OK 5/97; reddish, OK 3/98; yellowish, OK 5/98; dull green, OK 3/99 & 4/99; reddish green, OK 2/00; slightly reddish green, good 5/00; green with some reddish tubercle tips, OK 2/01; green, good 5/01 	
328.20	8	4.82	243				2.40	2	0	2.20	0	Ō	2.11	0		0 stepped on 3/97; OK 5/97, 3/98, 5/98 & 3/99; dull green, misshapen 4/99; green, good 2 & 5/00; green with some red and purple tubercle tips, OK 2 & 5/01	
328.30	8	8.40	257							3.80	Ō	Ō	4.20	0		0 discovered 3/98; some tan tubercle tips, OK 3/98 & 5/98; very poor, all gray 3/99; dull green, OK 4/99 & 2/00; green with a few tan tubercles, good 5/00, 2/01; some tubercle damage, green, OK 5/01	
328.40	8	8.71	255							4.00	2	2	Dead			discovered 3/98; some purplish tubercle tips, OK 3/98 & 5/98; large hollow in center, COD Moneilema 3/99	
328.50	8.	9.63	258							1.40	C	0	1.42	0		 discovered 3/98; in little bluestem clump, good 3/98; almost buried, OK 5/98, 3/99, 4/99, 2/00; olive, OK 5/00; body solid, COD unknown 2/01 	
328.60	8	9.35	260							4.00	2	2	3.20	0		0 discovered 3/98; sort of misshapen, OK 3/98 & 5/98; hunkered, almost buried 3/99; popped up, dull green, OK 4/99; green, good 2 & 5/00, 2 & 5/01	
328.90) 8	8.99	261													discovered 2/01; green, good 2/01; green, OK 5/01	
				·	····· ,					•						0000	NOTES
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PL#	STAKE	DIST			· · ·	96FR					98FL	98FH				99FR	
329.00	8	3.23	226	2.50	0	0	2.80	0	0	3.10	1	1	3.	01	3		poor, reddish 3/96; greener, OK 5/97, 3/98; grayish, shrinking, poor 5/98; dull green, OK 3/99; purplish, OK 4/99 & 2/00; purplish, green, OK 5/00; some tubercle damage, green with some purplish tubercle tips 2 & 5/01
330.00	8	2.98	226	3.20	2	2	3.60	1+2fr	3	3.80	2	2	3	.07	3		OK 3/96, 3/97, 5/97, 3/98, 5/98 & 3/99; OK, maroonish 4/99, 2 & 5/00; some tubercle damage, plant green with some orange tubercle tips, OK 2/01; purplish-green, OK 5/01
331.00	8	3.02	218	5.60	4+1fr	5	5.70	2+3fr	5	6.20	4	Ę	5 5	.69	3+1fr	4	OK 3/96; good 3/97, 3/98; OK 5/98; green, good 3/99, 4/99, 2 & 5/00, 2/01; dark green, good 5/01
332.00	8	2.75	202	2.70	1	1	3.10	2fr	2	3.20	1	 	2	.85	1	1	good 3/96; getting maroonish, OK 5/97, 3/98 & 5/98; dull green, OK 3/99 & 4/99; green, good 2 & 5/00, 2/01; dark green, good 5/01
333.00	8	3.55	192	4.60	3+2fr	5	4.90	1+3fr	2+3A	5.60	4		5 5	5.17	4	2+1A	good 3/96, 3/98, 5/98 & 3/99; green, good 4/99, 2 & 5/00, 2 & 5/01
334.00	8	3.63	191	2.30	1	1	3.10	3fr	3	3.20) 1		1 2	2.84	1	1	OK 3/96; good 3/98, 5/98 & 3/99; green, good 4/99; reddish, OK 2 & 5/00, 2 & 5/01
335.00	8	4.92	188	4.20		3 4	4.50	2+1fr		3 4.30	5 2		2 (3.62	2	2	one flower slightly eaten 3/96; good 5/96 & 3/97, 3/98, 5/98 & 3/99; green, good 4/99, 2 & 5/00, 2 & 5/01

PL# STAKE DIST ANG 96DM 96FL 97FR 98DM 98FR 99DM 99FL 99FR NOTES 336.00 8 5.79 187 3.00 2 0 3.40 2+1fr 3 3.50 2 3.38 1 0 good 3/96 & 3/97, 5/98; gett 337.00 8 6.58 187 2.80 0 0 3.40 2 1+1A 3.30 1 1 4.28 1 1 good 3/96 & 3/97, 3/98, 5/9 337.00 8 6.58 187 2.80 0 0 3.40 2 1+1A 3.30 1 1 4.28 1 1 good 3/96 & 3/97, 3/98, 5/9 337.10 8 7.52 191 3.20 0 0 3.00 0 0 3.10 0 0 in shade; in sunlight at 3 PN 337.20 8 7.28 187 1.10 0 0 1.40 0 0 1.16	S
337.00 8 6.58 187 2.80 0 0 3.40 2 1+1A 3.30 1 1 4.28 1 1 good 3/96 & 3/97, 3/98, 5/96 337.00 8 6.58 187 2.80 0 0 3.40 2 1+1A 3.30 1 1 4.28 1 1 good 3/96 & 3/97, 3/98, 5/96 337.10 8 7.52 191 3.20 0 0 3.00 0 0 3.10 0 0 in shade; in sunlight at 3 PM & 3/99; green, good 4/99; p goldish and damaged basa 5/00; maroonish-green, OK orange tubercle tips, poor 5 337.20 8 7.28 187 1.10 0 0 1.40 0 0 1.16 0 0 in grass clump & shade 3/9	tting buried, OK 3/99;
337.10 3 7.32 131 8 3/99; green, good 4/99; p goldish and damaged basa 5/00; maroonish-green, OK 0)8 & 3/99; good, green, en, good 2 & 5/00,
337.20 8 7.28 187 1.10 0 0 1.40 0 0 1.16 0 0 in grass clump & shade 3/9	M CST, OK 3/98, 5/98
	ally, green, good above < 2/01; green with red-
338.00 8 6.63 186 2.40 0 0 2.60 1 1 1 2.80 0 0 Dead g good 3/96 & 3/97 3/98 & 5 (collected & accidentally kill	illed) 3/99
338.10 8 8.05 186 0 0 0 0K, dull green, discovered 4/99, 2/00; green, OK 5/00 orange tubercle tips, OK 5/), 2/01; green with
339.00 8 5.45 184 3.30 0 0 3.60 1+1fr 2 3.70 1 1 3.64 0 0 good 3/96 & 3/97, 3/98 & 5 good 4/99, 2 & 5/00, 2 & 5/	-
339.10 8 5.38 186 3.60 0 4.20 3 3 4.12 2+1fr 2+1disp good, discovered 5/97, 3/9 good 4/99, 2 & 5/00; green yellow tubercles, OK 2 & 5	n with maroonish and

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						-	07011	075			00DM	000			99DM		99FR	NOTES
PL# S				96DM			97DM	<u>97</u> FL			98DM				the second second second		331.17	d good 3/96, 3/98 & 5/98; dead 3/99; dead 4/99; 4
340.00	8	5.28	183	4.90	2	2	4.90		2 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- 5.20		3	3	3.97	a a sealing the seal	Des	collected by WHC 5/6/99, no evidence of weevils.
					196 (17) 196 (17)		280 40											
	125								ं संस्थ								33.3.7.%	COD unknown
341.00	8	5.82	181	3.50	2	2	3.60		2	2	3.40		1	. 1	3.12	0		1 OK 3/96; reddish 3/97, 5/97, 3/98 & 5/98; OK
	Ŭ		1															3/99; goldish at base, OK 4/99; greenish-red, OK
											i							2 & 5/00, 2/01; orange with green apex, OK 5/01
									1									
						1								í				
342.00	8	6.55	165	3.50	0		3.80		3	2+1A	4.00		2	2	3.67	1		0 good 3/96, 3/97, 3/98, 5/98; OK, a few orange
342.00	0	0.55	100	0.00	Ŭ	Í	0.00											tubercle tips 3 & 4/99, 2/00; dull green, OK 5/00;
																		olive with some orange tubercle tips, poor 2/01;
												1			ļ			mostly orangish, OK-poor 5/01
							l											
							·											
				· · ·			· •											
							• · · ·						1					
Defense		-+ 0 2	2 1110		west fro	m the r	niddle I	host in t	hew	est ch	ain link	fenc	e s	urrou	ndina t	he wate	er treatme	nt plant; Stake 9 = GPS9; R030415A
	g	4 27	243	1.40					Ō	0	2.40	1	2	2	nc		+	0 good, discovered 5/96, good 3/97, 3/98 & 5/98;
366.00	Э	4.37	243	1.40		5	2.00		Ŭ	Ū				_	1	-		eaten down below soil surface, root still alive
			l												1			3/99; tubercle nub sprouting 5/99; green, good 2
															l.			& 4/00; green, OK 2/01; green, good 5/01
															1			
367.00	9	4 4 5	248	2.70	[·	0	3.30		4fr	4	3.50)	3	3	2.85	5 0)	0 discovered 5/96, OK; dull green, OK 3/97 & 5/97;
507.00	.	7.70	210	2.10		_						1						reddish, OK 3/98 & 5/98; measured in one
			-						1]		direction only, green, OK 3/99 & 5/99; purple, OK
																		2 & 4/00, 2 & 5/01
							1		1				i		i.			
				ì	1							1						
367.01	9	4 38	249	ł	···-						1	1 -	1					discovered 5/01; green, good 5/01
1007.01			, 210	1	t T													
	1			1			l						.					
368.00	9	4.58	3 252	1.30)	0	1.40)	0	C	1.40	<u>ן</u>	0	(1.2	0 0	<u>ן</u> כ	0 OK, discovered 5/96; OK 3/97, 3/98, 5/98 & 3/99;
				1	;							1	1					green, good 5/99; pale green, OK 2/00; green,
								1				i	1	I				OK 4/00, 2 & 5/01
						1	5	ł	l									
							l						•			1		
	1	1				1	1	1			1			1		<u> </u>		

	0 T 1		110	00011		OCT D	07011			98DM					99FR	NOTES
	STAKE			96DM	96FL	96FR	ALDIM	97FL	9/FR	BODM	SOLL	30FM	330101	<u>331 L</u>		discovered 2/01; hunkered, green, OK 2/01;
368.10	9	4.62	252									- - -				green, good 5/01
369.00	9	4.26	~258	0.50		0	0.60	C	C	0.40	0	mia	mia			good, discovered 5/96; good 3/97; OK 5/97, 3/98; mia 5/98; tag & plant mia 3/99; tag relocated, plant mia 5/99, 2 & 4/00, 2 & 5/01
		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	050	0.00					1	mia	1. Sector States		mia			good, discovered 5/96; mia 3/97, 5/97, 3/98, 5/98,
370.00	9	4.24	~250	0.60		0	mia			11na	10-1 mg					3/99 & 5/99
371.00	9	4.32	~258	2.40	<u>,</u>	0	2.70	2 f	r 2	2 3.00	1	1	mia			OK, discovered 5/96; slightly reddish green 3/97;
	-					1										slightly reddish green, OK 3/98 & 5/98; tag &
									ł							plant mia 3/99; tag buried, relocated, plant mia 5/99; tag and plant mia 2 & 5/00, 2 & 5/01
	 • •															
		ł					1									
371.01	9	4.29	249				0.50	ant find	5141114) mia			mia		Removed:	OK; discovered 5/97; mia 3/98, 5/98 & 3/99; 23
- 11 (14) 1	9	4.23	243				0.00							Sec. 1	dead	relocated, accidentally dug up, collected by WHC
A CARLEND AND A														10.00	Construction of the second sec	5/6/99, COD unknown
372.00	9	4.33	249	2.30)	0	. 2.70	3	r	3 mia			mia			OK, discovered 5/96; OK 3/97; mia 3/98 & 5/98; divot left, loose spines 3/99; mia 5/99, 2 & 4/00
) 1.65	5		good, discovered 5/96; totally maroon, OK 3/98 &
373.00	9	4.35	249	1.90		0	2.00		0	0 1.80) (1 1.00			5/98; green, almost buried, OK 3/99; popped out,
																green, good 5/99, 2 & 4/00, 2 & 5/01
														İ		
										0 1.30			0 1 .1	-		0 good, discovered 5/96; buried, good 3/97, 3/98,
374.00) 9	4.40) 351	1.40			1.30		U	0 1.30	י <u>ו</u> נ			' <u> </u> ``	1	5/98, 3/99 & 5/99; green, good, tag mia, replaced
										ļ				1		2 & 4/00; hunkered, pale green, OK 2/01; green,
		1										ļ		1		good 5/01
	:									l			Ì			
375.0) 9	4.39	251	1.8	0	(1.60	•	0	0 2.2	ō	0	0 1.6	8 (D	0 good, discovered 5/96; partially buried, good 3/97
			l													& 3/98; reddish, OK 5/98; almost buried, green, OK 3/99; green, good 5/99, 2 & 4/00, 2 & 5/01
					1									l		OK 3/33, giben, good 3/33, 2 & 4/00, 2 & 3/01
										3	1					
						1	 		<u> </u>							

						· · · ·									0050	NOTES
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR				99DM		99FR	
376.00	9	4.43		1.50		0	1.90	0	0	1.80	0	0	1.29	0	(0 good, discovered 5/96; good 3/97; covered by rock, good 3/98, 5/98, 3/99 & 5/99; hunkered, green, good 2 & 4/00, 2 & 5/01
377.0Ō	9	4.12	251	3.30		1	3.90	2fr	2	4.00	3	2+1A	nd	0		0 OK, discovered 5/96; OK 3/97; reddish, OK 3/98 & 5/98; eaten, nub or seedling left 3/99; green, good 5/99; plant mia 2 & 4/00, 2 & 5/01
377.10	<u> </u>	2 70	~254				0.80	Ō	l ī	Dead						under rain lily 3/97; COD unknown 3/98
377.20		The second second second second second second second second second second second second second second second se	248							0.70	A Statistic of the	C	0.51	0		0 discovered 5/98; measured in one direction only, between rocks, OK 5/98; poor, totally buried, chlorotic 3/99; green, good 5/99, 2/00; totally buried in ant dirt, but green, good 4/00; out, green, good 2 & 5/01
378.00	9	4.71	250	2.40		0	2.60	2fi	2	3.00		2 2	2 2.47	0		0 OK, discovered 5/96; OK 3/97, 3/98 & 5/98; dark green, OK 5/99; green, good 2 & 4/00, 2 & 5/01
378.01	9	4.77	257										· · · ·			discovered 5/01; green, good 5/01
378.02	9	4.72	255							 						at 5 o'clock on 378; not tagged, discovered 5/01; green, good 5/01
378.0	3 9	4.71	255			 										at 4 o'clock on 378, left of 378.04; not tagged, discovered 5/01; red, OK 5/01
378.0	4 9	4.71	255		· •					-						at 4 o'clock on 378, right of 378.03; not tagged, discovered 5/01; red, OK 5/01
						: 							1		<u>)</u>	

									LOSU	napies	State	natur	ai Ale	a			
PL#	STAKE	DIST	ANG	96DM	96FL	96FR 9	7DM	97FL	97FR	98DM	98FL	. 98F	R 990	M	99FL	99FR	NOTES
378.05	9	4.82		::									i				discovered 5/01; reddish-green, OK 5/01
378.06	9	4.80	257										-			<u> </u>	discovered 5/01; green, good 5/01
378.07	9	4.71	252								_						discovered 5/01; green, OK 5/01
378.10	9	4.84	250							3.90		1	2 3	.39	3fr	····	0 a little reddish, OK, discovered 3/98; a little reddish, OK 5/98; green, good 5/99; reddish, OK 2 & 4/00; one flower eaten, plant purplish-green, good 2 & 5/01
378.20	9	5.13	250							1.20))	0	0 1	.23	0		0 good, discovered 3/98; good 5/98; OK 3/99; green, good 5/99, 2 & 4/00, 2 & 5/01
379.00	9	4.44	251	2.10		0	2.60		0	2.50)	2	2 2	2.04	0		0 good, discovered 5/96; good 3/97; almost buried, good 3/98, 5/98, 3/99, 5/99, 2 & 4/00, 2 & 5/01
380.00	9	4.25	5 252	0.90)	ō	1.20		0	0 1.50))	0	0 0). 9 8	0		0 good, discovered 5/96; good 3/97, 3/98; OK 5/98; green, good 3/99; plant mia 2 & 4/00; green, good 2 & 5/01
381.00 381.10		4.4	4 252 1 252				3.30	2	fr.	2 3.1	D	2	2	mia			good, discovered 5/96; good 3/97, 3/98 & 5/98; divot left, plant gone 3/99, 2 & 4/00, 2 & 5/01 seedling or pup, green, OK 2/00; green, good 4/00, 2 & 5/01
382.00) 9	4.2	8 252	2 1.50		0	1.80		0	0 1.9	ō	0	0	mia			OK, discovered 5/96; OK 3/97, 3 & 5/98; plant mia 99, 2 & 4/00, 2 & 5/01

										iapies :	State	valuia	Alea			
PL#	STAKE	DIST	ANG	96DM	96FL	96FR 9	7DM	97FL	97FR	98DM	98FL	98FR	99DN	1 99FL	99FR	NOTES
383.00		4.30	252	1.70		4. we want to the	1.80		1 ANF	2.00		1	mia			OK, discovered 5/96; OK 3/97, 3 & 5/98; plant mia 99, 2 & 4/00, 2 & 5/01
		4 00	252	0.50		0	0.30	mia	0	0.30	mla	0	mia	1		OK, discovered 5/96; rediscovered under stick;
384.00	9	4.33	202	0.50			0.00			0.00						OK 5/97; mia 3/98; small seedling rediscovered,
																OK 5/98; plant mia 99, 2 & 4/00, 2 & 5/01
385.00	9	4.43	254	2.40		0	2.50	1fr	1	mia		19994011125 2.4412 2.44	😽 mia	a d		OK, discovered 5/96; reddish green 3/97; greener
365.00	3															5/97; mla 3 & 5/98, 3/99, 2 & 4/00
385.10	9	4.98	254		A constant of the		1.00	0	0	Dead			1.0	2	40.02444	closet to reference point; body solid, COD
305:10	3	7.50										3086) -11- 68086 - 110				unknown, may have been tubercle of buried plant
		100,000,000	4010		A POINT						10. 49 11 4 140 1 2 4 1 4 1 100 1					3/98
385.20	9	4.99	254		- Ander and	a nores	1.10	-0		Dead						to right of 385.3; body solid, COD unknown, may
								- shell					0.200			have been tubercle of buried plant 3/98
385.30	. 9	5.00	254				1.40	0	••• 0	Dead						to left of 385.2; body solid, COD unknown, may
decontract			and a start of the	10.14			2 Charles					1000		148 (M.)		have been tubercle of buried plant 3/98
385.40	9	5.01	254				0.40	0	0	0.60	C	Dead	<u> </u>			below 385 1 - 3 & 385.5; OK 3/98; just spines &
					100	ц. Ц							10000		Strates a	tubercles left 5/98 above 385.1-4; just spines left, COD unknown
385.50	9	4.97	254		Receiption All		0.80	0	0	Dead						5/98
					all and a second			de la car					1 m			good, discovered 5/96; redcish 3/97 & 5/97; OK
386.00	9	4.39	255	2.30		0	2.30	1fr		2.60				a		3/98 & 5/98; divot left, plant gone 3/99, 2 & 4/00,
															Die George	2 & 5/01
			0.04		Aller Line Line Line Line Line Line Line Line		1.40			1.60)	0 1.4	I3 0	(OK, discovered 5/97; OK 3/98 & 5/98; green,
386.10	9	4.77	261				1.40			1.00			0 1		•	good 3/99 & 5/99; green, good, hunkered 2/00;
																coming out, green, good 4/00, 2 & 5/01
															•	
007.00) 9	2 60	~258	2.10		0	2.10	1f	r - 1	2.20)	1 1	A 1.0	35 0) - (O OK, discovered 5/96; OK 3/97, 3/98, 5/98 & 3/99;
387.00	9	3.00	~250	2.10	·	0	2.10		'		-					green, good 5/99; green, good, hunkered 2/00;
																coming OK, green, OK 4/00, 2/01; green, good
							i I									5/01
			1				:	ļ								
												0	0 0.	60 0)	0 under rock; OK 3/98, 5/98 & 3/99; green, good
387.0	1 9	· 3.6	1 ~256	5			0.50	1	0 0	0.60	U		0 0.	00)	5/99; OK, green 2 & 4/00, 2/01; hunkered, OK
		1														5/01
				ļ												
		:						1		ļ						
			i	1	1	<u> </u>	<u> </u>	<u> </u>		1		1		1		i internet and int

										maples						
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FF	R 98DN	1 98Fl	_ 98FF	≀ 99DM	99FL	99FR	NOTES
387.10	9		252	<u> </u>		+	· · · · ·		†		1					discovered 2/01; green, good 2 & 5/01
307.10	3	0.20	202											i		
1																
1																
00000		0.01	~270	1.90		0	2.30	1	A	0 mi			🛛 🖷 mia	31.11.98.5		good, discovered 5/96; reddish green, OK 3/97 &
388.00	9	J.81	~270	1.90		v	2.30		\mathbf{n}	V						5/97; mia 3/98, 5/98, 3/99, 5/99, 2 & 4/00
						10215			A CALL STREET		134134974			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		
389.00	9	4 52	~270	3.60		2	4.20	5	fr	5 4.1	C	1	0 no	0	mia	OK, discovered 5/96; very reddish, squishy 3 &
000.00	U	,]	1	5/97; maroon, lopsided, very shaded, OK 3/98 &
															ļ .	5/98; eaten below soil surface, root alive 3/99;
				1											1	seedling at 4.48m, main plant gone 5/99;
				1			-					ĺ				Seeding at 4.40m, main plant gone 5/55,
												1			į	seedling and plant mia 2 & 4/00, 2/01; tag and
																plant mia 5/01
			1	ļ										1		
									i							
		+					1			1.1	0	ō	0 0.5	3 0) in rock crevice, good, discovered 3/98; good
389.10	9	4.29	266							1 1.1	U	0	0 0.50	5 U		5/98; measured in one direction only 3/99 & 2/00;
							· ·								ĺ	
									1							poor 3/99; green, good 5/99, 2 & 4/00; tag mia,
																replaced, plant green, good 2/01; tag loose, plant
							i		1							green, good 5/01
							1		ŀ							gioon, good or t
		·		1												
000 00		1 07	266				-4			1.2	<u>'n</u>	0	0 1.3	7 C) (0 discovered 3/98; good 3/98, 5/98; good, under
389.20	9	4.25	200							1.2		Ĭ	0 1.0	. _		rock 3/99; good, green 5/99, 2 & 4/00, 2 & 5/01
							· · ·	· · · · · · · · · · · ·		··				·		discovered 2/01; green, good 2 & 5/01
389.30	9	4.25	264	l i												discovered zion, green, good z d oron
									1							
		1							i							
											1		1			
		1	1													
389.40) 9	43	3 264	1			1	[1		ĺ			discovered 2/01; green, good 2 & 5/01
000.40	(Ŭ	1.00						1					ļ			1
			÷				Ì				1			1		
			1													
			I			1				ł	İ		Ì			
								1997 2							-	to left of 201, animal reating in area, tag & plant
390.0) 9	8.2	6 248	3			1.5	0L:	1 0	nia n	nia		m	a		to left of 391; animal rooting in area, tag & plant
																mia 5/97, 3/98, 5/98, 3/99 & 5/99
391.0) 9	8.2	6 248	8			1.4	n	0 1	nia n	nia	inter a	m	ia		to right of 390; animal rooting in area, tag & plant
1391.0		0.4	U 240	· · ·				-								mia 5/97, 3/98, 5/98, 3/99 & 5/99
			1			and A	9 A 199		<u>l. :</u>	1		<u> </u>			He e e	

										iapies -						NOTEO
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	97FR	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
		7.39	232		asin buzole		3.20	3	3	3.30	3	2+1A	2.63	0		0 reddish 3/97; reddish, OK 3/98 & 5/98; bad
392.00	9	1.35	202							봤음문금		:11564		13 MUX 11		totally gray, hard, may be dead 3/99; green, OK
		÷ 42				44		R. LINE								5/99; hard, dry, solid, COD unknown 2/00
								ALC: NOTE: N						NGC UNENSAMI		(1914년) 1917년 1918년 1월 1917년 1917년 - 1월 1917년 - 1월 1917년 1월 1917년 1917년 1917년 1917년 1917년 1917년 1917년 1917년 191
			000	<u> 1888 - 83 - 18</u>	<u>116667 (j. c)</u>	<u> </u>	1.20	0	0	1.40	0	Ō	mia	Contraction of		seedling of 392.00; OK 3/98 & 5/98; mia 3/99 &
392.01	9	7.41	232	1			1.20	0	0	1.40	v	v	ma			5/99, 2 & 4/00, 2 & 5/01
						ļ										5/99, 2 & 4/00, 2 & 5/01
				1												
						Ì										
393.00	9	7.45	230			·	3.40	3fr	3	3.30	2	2	2.69	0		0 a little reddish, OK 3/98 & 5/98; only spines
393.00	3	1.40	200	1]											sticking out of ant mound 3/99; still partially
							1					1		i i		buried, green, good 5/99; mound gone, green,
				1						1	!					good 2 & 4/00; purplish-green, good 2 & 5/01
													1			good 2 & 4/00, pulpilan green, good 2 & oron
	l									I				ļ		
394.00	9	7 18	230			+ ·	3.10	3fr	3	3.10	3	3	2.71	0		0 one fruit partially eaten, remainder on ground
394.00	3	1.40	200					_								5/97; a little reddish, OK 3/98 & 5/98; only spines
																sticking out of ant mound 3/99; plant out, green,
	1	1				Í							Ì			good 5/99, 2 & 4/00, 2 & 5/01
		1									1					yood 5/99, 2 & 4/00, 2 & 5/01
							1									
	<u> </u>		1	· · · · ·		+ -	2.90	·····	1	3.10	3	disp	3.11	3fr	dis	p? good, discovered 5/97; tag mia, retagged, good
395.00	9	/.85	235				2.50		'	0.10	/ Ŭ	p				3/98; fruits dispersed, seeds on and below plant,
							1							1		plant good 5/98; good 3/99; green, good 5/99, 2 &
		1	1													
				1			i	i 		1			1			4/00, 2 & 5/01
					- Crahava utiliti				8. Meter 1990 - 1							discovered 5/98; OK 5/98; mla 99, 2 & 4/00; 2 &
396.00) 9	3.49	281							1.70	1	C) mia	1		
																5/01
397.00) 9	3.52	281				·		d data data data data data data data da	2.30)	() 🔣 mia	1		discovered 5/98; good 5/98; mia 99, 2 & 4/00, 2 &
391.00	28 828. (9 act) a	J.J.									「「」の					5/01
weil (22) Bandhard an weil			· · · · · · · · · · · · · · · · · · ·			<u> </u>			9.50 <u>7 - 1</u> .5		<u> 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 </u>					discovered 2/00; olive, OK 2 & 4/00; purplish, OK
398.00	9	3.44	1 243	3	1	Î	:							ļ		
			1			ĺ								Ì		2 & 5/01
						i						1				
			1										1	1		
							÷								ł	
399.0	0 9	2 5	5 193	3			:			1				:	1	discovered 2/00; green, good 2 & 4/00, 2 & 5/01
000.0		2.0				:									:	
												ļ	1		1	
1																i i
					1							-			1	
L	<u> </u>												· · · · • •			

										naples						NOTES
					<u>_</u>		07011		OZEP	98DM	98FI	98FB	99DM	99FL	99FR	
PL#	STAKE	DIST	ANG	96DM	96FL	96FR	97DM	97FL	9/FR	190010	301 L	00111	002			discovered 4/00; green, good 2 & 5/01
	·	4.02	266			T.	1									
100.00	9	4.VZ	200	1						1			l	Į !		
							1			1			l			
									1			1				
		1]														discovered 2/01; purple, OK 2 & 5/01
			056	<u>}</u> — — -	<u> ·-· ·</u>											
401.00) 9	6.07	256				1						Į			
											i					
		4									1	1		4	1	
			1							·			<u> </u>			discovered under rocks 5/01; green, OK 5/01
			75		+		1								1	
402.0	0 9	0.95	15											1	1	
											i					
		1													1	
			1								_ >					
					_ <u>_</u>				- 					_1		
			1										_			1/20-21/00 5/2/00
				- <u> </u>		100/00	E/1/06	2/12/07	3/17/97	7 3/29/9	97. 5/8/	97, 5/1	0/97, 3/	5-6/98,	3/9/98, 2/2	21-23/00 (With Dana Price), 4/20-21/00, 0/2100
Data	taken an	id record	ded by	/ Jackie	Poole	4/29/96	0, 0/ 1/90	Dono Dric	<u>0/1/21/</u>	00 5/2	00 2/2	0-22/0	1, 5/3,8	-10/01	1	21-23/00 (with Dana Price), 4/20-21/00, 5/2/00
1		100 0/4	100 b	/6/UU WI		1 1166		Dania i iii								
Data															-	
Data	taken &	recorde	d by	Jackie P	oole wi	th assis	stance fr	om Paul (<u> </u>			
Daia							_	L								
							1	1						_ !		
	1															

																			, •-						
													7011		0755		8DM	98F1	98F	R	99DM	99	FL 9	99FR	NOTES
PL# S	TAKE	D	ST.	ANGLE	95 DN	95	FL/FF	₹ <u></u> 9	6DM	96FL	961	-H+9.		9/ FL	975	1 31		001 C	1						
PL# S Stake 1 i	e in s	n or	henina	n at the	top of a	hill be	ehind	som	ne redb	ouds;	ID #	10R0	32422	2A					+				06-1	idien	part of plant dead, but regenerating
	5 11 6				sm-me	d.		2	2.10	C	ł	0	2.60	1		1	2.80	2fr		2	2.66		20.1-	+ Tuisp	3/96; green, OK 3/99; green, good
1.00	1	3	.38	55	Sm-me	u		-	_	-	!		ļ		: 	1	ļ	ļ	1	İ					groon & groon bunkering OK
		ļ	ļ						1		:		ĺ		1		1	1	1						5/99 & 3/00; green, hunkering, OK
									1		}	ļ.			}			1	ļ	1		ļ			5/00; popped out, red at base, dull
		1							1		į –		Ì			1	!	1							olive above, OK 3 & 5/01
ļ					4						ļ							E.	Ì	ł					
					1													1	1						
			1		1				1											क्साल हो।		19682	anere I	agarin.	cause of death unknown 3/96
		-	~ ~ ~ ~		sm-me		1	2	dead							10.00			133				Non-		Preddish 3/97; green 5/97; reddish,
2.00	1		3.85	50			- <u>19</u> 19	2	3.30		วโ	0	3.70	3f		3	3.70) 3f	r	2	4.25)	2fr	aisp	/ recoising/ groen c/os dull
3.00	1		4.28	42	mediu	m		4	0.00										347248 - 17						mushy, gray spines 3/98; dull
																					- 18 A.				maroonish green, OK 3 & 5/99; dull
		1	11 J.	7. 714																				Norka U	green, OK 3/00; orangish, OK 5/00;
																								CAN DA	one large cavity, COD Moneilema 3/01
									anti anti a Anti anti anti															en van	
题藏	- 1914 S. 1								i in terr								A A A			2	20	0 1/	+2fr	. <u>11</u>	2 army green - red 3/98; maroon, OK
	1		7.29	75	sma	11		0	1.80		0	0	2.60) 21	ir	2	3.10	J Z	fr	2	3.0	5 17	1760		3/99; orangish, OK 5/99; maroonish,
4.00	I		1.29	15								Ì						1	ļ		1	ł	i		OK 3/00; orangish, OK 5/00 ⁻ reddish-
						!					ļ					ł		1	1						green, OK 3/01; maroonish-green,
						i												1			1				
					1													1	· I		1	1			good 5/01
					i i											1									
												1									1				
											_		0.0		fr		2.4		2fr,		3 2.5	54	1fr	1	1 measured in one direction only 3/98;
5.00	1	-1	7.29	75	sma	all		0	1.80	ו	0	0	2.2	יוט	11	1	2.7	· [·		-	-			1	green, good 3 & 5/99, 3 & 5/00, 3 &
5.00	ı		1.60		4													ļ	i					ì	5/01
											ļ				ł				1						
					l	Ì							1			I		ļ							
													1			1		ļ						l	
									1				1		ł			L.						!	
		ļ											1.8		1fr -	1	2.2	20	1fr		1 2.	36	2fi	r¦	2 measured in one direction only 3/98;
5.10	1		5.95	5 77	ŀ				÷ .				1.0		111	•					ļ	.		:	green, good 5/99, 3 & 5/00, 3 & 5/01
5.10	•														i							l			
									4													ļ			
i	i				1						1		!									ļ			
i										1						<u></u>					0 0	00	24	r	1 green, good 5/99, 3 & 5/00; just spin
	i 	:	0.47										2.4	40	2fr	2	2.	90	2	dir.	2 2	00	2A+1f	비 중	left, COD unknown 3/01
5.20	.1		6.1	5 75	법의 문화															1		-			
	- 5.4						ι.	2	. <u>1</u>	122			شد ا. 1	70	1fr	C) 2.	10	2fr		2 2	.20	1A+1	fr	1 measured in one direction only 3/98;
5.30	" ` 1		6.4	1 75	5				l	ļ			1.					- 1			!				green, good 3 & 5/99, 3 & 5/00, 3 &
			ļ I		;					÷							•								5/01
			1		1				:	1															Ì
	•													 - 											
								_						<u> </u>											

												1 010	HONOV	-,					
							0.05		07014	0751	97FR	98DM	98FI	98FR	99DN	M 99	9FL	99FR	NOTES
PL#	STAKE	DIST.	ANGLE	95 DM	95FL/FR	96DM	96FL	96FH		9/	0		4				1fr	1 m	easured in one direction only 3/98;
5.40	1	6.42	75						1.50	U	U	1.50				-		ar	reen, good 3 & 5/99, 3 & 5/00, 3/01;
		1	Ì		ĺ		I											m	aroonish-green, good 5/01
			Ì			1					ļ		1	Ì		Ì	l		Ů -
			1			!		ĺ					1]					
				l				Ì										0.10.0	reen, good 3 & 5/99, 3 & 5/00, 3/01;
5.50		6.48	73			+ · · -	1 .	: · ·	2.40	3fr	2+1A	3.10	2fr	2	3.5	51 28	∖+3fr	2+1Ag	hisshapen, green, OK 5/01
5.50		0.40	1 10]		ļ			1		1	11	lissilapen, green, ert de
										1									
]												1				
{								0 0	1.20	ō	0	1.80		ol — ā	1.6	68	0	0 n	neasured in one direction only 3/98;
6.00	1	7.32	75	small		1.20		0	1.20		U U	1.00				1		g	green, good 3 & 5/99, 3 & 5/00; green
l		l.					1		1	1				1		j		v	vith some red tubercle tips, OK 3/01;
	1	1				1	1			1		1		1			1	ļç	green, good 5/01
						Î			1								Í		
l	1													1		1			
									.	.	∔;		0 4 74			6013	A+5fr	6	reddish green 3/98; maroonish, OK
7.00	$\frac{1}{1}$ $\frac{1}{1}$	7.58	72	large		4 4.60	2+3	r 2	2 6.20) 2+7f	r 9	6.7	0 1+7f	r v	B 6.	0013	RHON		3/99; orangish, OK 5/99; maroonish,
1 7.00	, ,	1.00										1				ĺ			OK 3/00; orangish, OK 5/00;
							ł					1				1			misshapen tubercles, spines gray,
														1		Ì			plant reddish-green, OK 3/01; pale
					1			l			1			1		Ì			green with tan tubercle tips, OK 5/01
								1						1		1			green with tan taboroto apo, or or
						I													
1									-	Cite and the second			a - 1011 - chi	<u>u. 1986-681</u>		000	<u>.</u>	്റ	discovered 5/99: olive, OK 5/99; greer
7.0	1	7.34	1 77			4 5 8										.26			good 3 & 5/00; damaged, orange, poo
1.0		1.0														1991年1月	4 4		3/01; COD root rot 5/01
		n te stand generation Training and stand stand								inda feli de a Alia Maria de Beel					209 (945) 202 (1946)		یں۔ مثلیک		
						1 2.4	0 1	fr!	0 3.0	0	0	0 3.6	50 1	fr	1 3	3.38	3A	<u> </u> 0	green, good 3 & 5/99, 3/00; green wit
8.0	0 1	1.14	4 105	smal	1	<u>ין ב.4</u>			~ U.U									1	a few tan tubercles, otherwise green,
							l				l								hunkering, OK 5/00; purplish-green,
		1	1										1						good 3 & 5/01
									l							ļ			
	1					l					1				1				10.015/0
									. 2 61			2.	00	0	0 2	2.15	1/	A 0	discovered 3/98; green, good 3 & 5/9
8.1	0 1	0.7	4 117						김홍활					at (film)				: ¹	3 & 5/00; dry and fluffy inside, COD
																			unknown 3/01
											<u> </u>	<u></u>		<u></u>				_	

												FOIC							
PL#	STAKE	DIST.	ANGLE	95 DM	95FL/FR			96FR				98DM 4.20		98FF 2+1A		DM 1	99FL 4fr	99FR 4	NOTES partially buried in grass clump 3 & 5/98
9.00	1	5.07	62	nd	nd	3.60	2		3.70	1+311		4.20							& 3/99; maroonish-green, OK 3 & 5/99; yellowish 3/00; orangish, OK 5/00; reddish-purplish-orangish, poor 3/01; orangish, OK 5/01
9.10		4.54							2.00)	240				2.50	2fr O		b dull green, OK 3 & 5/99; dry, solid, COD unknown 3/00 D edge of grass clump; green, good, 3 & 5/99, 3/00; green with some reddish tubercles, ants swarming fruit, OK 5/00; olive with some reddish tubercles, OK 3 & 5/01
10.0		5.20				d 1.6	- 283 a		0	- Navier	O	0 22		O A A A A A A A A A A A A A A A A A A A		2.70 1.40	21	7 7 7	 maroonish, OK 3/99;retagged 5/99; maroonish, OK 5/99, 3/00; olive, OK 5/00; just spines left, COD unknown 3/01 green, good, hunkered 3 & 5/99, 3 & 5/00; misshapen, blue-green, OK 3/01 green, good 5/01
11.C	0 1	7.1	3 74	· · · · · · · ·		1.6	50	0	0 2.3	30	Ifr	1 2.3	30	0	0	2.57	•	0	0 discovered 3/96; being covered by rock 3/97; green, good 3 & 5/99, 3 & 5/00, 3 & 5/01
11.	10 1	7.3	34 67										70	Ô		2.4	4	2fr	2 discovered 3/98; dull green, OK 3 & 5/99; mostly red, poor 3 & 5/00, 3/01 collected for weevil study 5/01

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											FUIE		, our				
PL# 12.00	STAKE 1	DIST. 8.32	ANGLE 48	95 DM	95FL/FR	96DM 4.50	96FL 3+2fr	97DM 5.60	97FL 1+8fr	97FR 9	98DM 5.80	98FL 1+5fr	98FR 6	99DM 5.31	99FL 3fr	99FR 3	NOTES discovered 3/96; army green and red, gray spines 3/98; most tubercles orange, spines dull gray, poor 3 & 5/99; mostly reddish, OK 3 & 5/00,
13.00		8.82	54			4.00		2 5:00 2 5:00			3 5.7C) 1+4 fr		5.20	Afi		 3/01; pale green with reddish tubercles, OK 5/01 4 discovered 3/96, 1 flower partially eaten, tag mia 3/98; now 2 tags, a few reddish tubercle tips, OK 3 & 5/99; dead, collected for weevil study 3/00; cod unknown discovered 5/96; COD unknown, just spines left 3/97
14.00		3.88						3.6	0 3	fr fr	3 2.3	0 2f	r	2 3.2	7 21	ir	5 new growth on top of old stem 3/98; green, good 3 & 5/99; olive, OK 3 &
16.0		3.79	9 79					 0.9	0	0	0 1.8	30	0	0 1.0	0	0	5/00, 3 & 5/01 0 measured in one direction only 3/98; green, good, hunkered 3 & 5/99; green, good 3 & 5/00; green with some red tubercles, OK 3/01; green, good 5/01
17.0	00 1	8.7	9 72					2.8	30	2fr	2 3.	20 1+1	1fr	2 3.	59 1 4+2	2fr	1A army green and red, spines gray 3/98 maroonish 3 & 5/99, 3/00; dull green, OK 5/00; purple, OK 3 & 5/01
17.	01 1	9.5	51 71										· 	3	.30	i-	1fr discovered 5/99; olive, OK 5/99 & 3/00; green, good 5/00; pale green, OK 3/01; green, good 5/01

																00DM	99FL	99FR	NOTES
	OTAL	<u> </u>	DIST		95 DM	95FL/FR	96DM	96FL	96FR	97DM	97FL	97FR	98DM 3.00	98FL	98FR 1+1A	3.24	2fr		green, good 5/99, 3/00; slightly
	SIAN		9.69	77			1			2.70	1fr	1	3.00			-	ļ		purplish-green, good 5/00; purple, OK
8.00	I	ļ	5.00				ļ			l									3 & 5/01
l		Ì		: 						1									
												Į							probably stepped on 3/98; green, good
	L						L			2.80	2fr	2	2.80	A+1fr	1	2.62	3fr	•	5/99 3 & 5/00; spines gray, plant
18.10	1		1.95	62						ļ						1	1		green, OK 3/01; olive, OK 5/01
		ĺ			ļ					ĺ				ļ			ļ		
	ļ																		
				ļ) 1+1f		2 3.2		2 1+1A	3.06	3f	2+1A	green, good, hunkered 3 & 5/99;
19.00	<u> </u>		9.85	78						2.90	J 1 + 11	' '				ļ	:		green, good 3 & 5/00, 3 & 5/01
10.00	' ·	•						1											
			ļ											.			 		discovered 3/00; green, good 3 & 5/00;
			1	ļ															discovered 3/00, green, good of a long dull green with some red tubercle tips,
20.0		1	5.21	34															OK 3 & 5/01
														1	ļ				
				ļ						ĺ					I	ł	 		LE (00. under rock: green
			Ì								··					-1			discovered 5/00; under rock; green, good 5/00; purple, OK 3/01; olive, OK
21.0	ō –	i	5.1	38 3						l		ł					1		5/01
																	i		3101
				l	l l							l						ł	
1																	:		discovered 3/01; green, with
			;	2 2					- - "	· } 							!		maroonish tubercle tips, OK 3 & 5/01
22.	00	1	2.9	2 2	1		ļ		ļ			ļ						Į	1
												1						l	· · · · · · · · · · · · · · · · · · ·
	Į									Ì			ļ 						measured around juniper, discovered
									- 1							l			3/01; green, good 3 & 5/01
23.	00¦	1	~29	.77 2	68					1	ļ						Ì		
	ļ			:				1				ļ					:	.!	· · · · ·
											Ļ.							. :	
	ļ		÷	۰. :		· · · · · · · · · · · · · · · · · · ·					- 1	1 -							
	ł			-			. <u> </u>	()	holor	: n "Caut	ion Cr	osswin	.⊥ .ds" siar	- + + - 1		1			looks dead 3/96; bad but not dead
St	ake 2	is ir	n an op	ening re	ached fro	m I-10 W;	look for 4	flagging 2.40			ead		T						5/96; COD unknown, just spines left
	.00	2	9	10	31 med	large	4	2.40										1	3/97
				1										<u> </u>				<u> </u>	

										97F1	97FB	98DM	98FL	98FR	99DM	99FL	99FR	NOTES
PL#	STAKE	DIST.	ANGLE	95 DM	95FL/FR	96DM				Ser Burster a								too buried to measure diameter, looks
2.00	2	9.05	92	medium	3	l nd	0	Dead										dead 3/96; cause of death unknown
		i e Re															las Anton Vog	5/96
											n Slotter (†				C. C. C. C. C. C. C. C. C. C. C. C. C. C		P. 1	discovered 5/96, possible seedling 19
0.00	<u> </u>	9.03	190			1.20		0	mia			mia			mia	이는 성격되었다. 같은 이상 전자		Oiscovered 5/30, possible seeding to
3.00	2	9.00				1.37 2.84												cm west of tag nail (mia 3/97); plant &
																		tag mia 3 & 5/97, 3 & 5/98; tag
																		relocated, plant mia 3 & 5/99
						0 70		<u>م</u>	Dead		TT BB							discovered 5/96; COD unknown 3/97
4.00	2	8.71	190			0.50		<u> </u>	Deau							17.42.51 (1984)	1	
									-						+			
			1						l	L			11. 14/1	<u> </u>	+		.	
Data	⊥ aken ano	record	ed by Ja	ckie Pool	e 3/12/96,	5/7/96;	3/29/97	7, 5/9/97	7; 5/9/9	98; 3/2	4/99, !	5/6/99 w		ю, т			F -	
	2/16/00	5/3/00	3/15/01	, 5/11/01	[J					· · ·	+	
0.10		Cono L	anecon a	nd record	led by Jacl	de Pool	e 3/26/	98					1		1			
Data	laken by	Gena J	anssena		100 2) 000.													

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Devils River SNA, Val Verde County	1998	1999						
Live - Reproductive	6	5						
Live - Non-reproductive	1	0						
Live - Seedling (<1 cm in diam.)	1	1						
Total Live	8	6						
New - Reproductive	0	1						
New - Non-reproductive	0	0					1 	
New - Seedling	1	0						1
Total New	1	1						
New stake - Reproductive	4	11			t		1	
New stake - Non-reproductive	0	5			l			
New stake - Seedling	0	3						
Total New Stake	4	19	1					1
Total Live at end of year	13	26						<u></u>
MIA - Reproductive	0	0						
MIA - Non-reproductive	0	0						
MIA - Seedling	5	1						· -
Total MIA	5	1						
Dead - Reproductive	4	6						
Dead - Non-reproductive	3	0						
Dead - Seedling	1	0						
Total Dead	7	6						
COD* - weevils	5	3						
COD* - hollow	0	3						
COD* - soil disturbance	1	0						1
COD* - unknown	2	0						1
Total mia, dead, not A. tobusch	ii 🗌	7						
					3	İ		
Of the total of 13 live plants at the end of 199	8, 6 died (all re	eproductive s	ize class) and	1 seedling c	lass individua	al went missin	g, for a tota	llos
of 54%. 50% of the deaths were of								
result of insect herbivory. No size								s, ar
three new plots were established								
Total number of plants within the								
class).								
							1	1
	1						1	1

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Garner State Park, Uvalde County	1998	1999						
Live - Reproductive	2	1						
Live - Non-reproductive	0	0						
Live - Seedling (<1 cm in diam.)	0	0						
Total Live	2	1						
New - Reproductive	0	0			· · · ·			
New - Non-reproductive	0	0						
New - Seedling	0	0						
Total New	0	0						
Total Live at end of year	2	1						
MIA - Reproductive	0	0						
MIA - Non-reproductive	0	0						
MIA - Seedling	0	0						
Total MIA	0	0						
Dead - Reproductive	0	1						
Dead - Non-reproductive	0	0					L	
Dead - Seedling	0	0						
Total Dead	0	1					ļ	
COD* - weevils	0	0						
COD* - hollow	0	0						
COD* - soil disturbance	0	0					····-	
COD* - unknown	0	1						
Total mia, dead, not A. tobuschil	<u>i </u>	1			ļ			
ere was 50% mortality at Garner SP in 1999	9, and no new p	plants were add	ed to the popula	ation. The o	dead plant w	as collecte	d by Bill Calv	/ert,
weevil researcher, who will perhap	s be able to as	certain cause of	death.					
							·	
					1		<u> </u>	
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Las Rincones Preserve, Kerr County	1998	1999	 					
Live - Reproductive	44	45				1		
Live - Non-reproductive	49	51						
Live - Seedling (<1 cm in diam.)	4	4						
Total Live	97	100			-			
New - Reproductive	1	0						
New - Non-reproductive	8	6						
New - Seedling	2	5					I	
Total New	11	11						-
Total Live at end of year	108	111						
MIA - Reproductive	2	0						
MIA - Non-reproductive	3	1					1	
MIA - Seedling	0	0]					
Total MIA	5	1						
Dead - Reproductive	1	3						
Dead - Non-reproductive	2	4						
Dead - Seedling	0	0						
Total Dead	3	7						
COD* - weevils	0	0						
COD* - hollow	0	0						
COD* - soil disturbance	0	0						
COD* - unknown	3	7						
Total mia, dead, not A. tobusch	ii	8	1					
In 1999 mortality was 7% with seven plants d								
of death for all plants was unknow								
class plants were discovered, put								
known population, three seedlings							ne matu	re. The
total 1999 population stands at 1	11 plants (41%	s reproduct	ve, 51% non-	reproductive,	and 8% seed	ling class).		

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Frank R	obert's Place, Real County	1998	1999				
	Live - Reproductive	30	38				
	Live - Non-reproductive	19	24				
	Live - Seedling (<1 cm in diam.)	2	0				
	Total Live	51	62				
	New - Reproductive	12	0				
	New - Non-reproductive	9	4				
	New - Seedling	2	3				
	Total New	23	7				
	Total Live at end of year	74	69				
	MIA - Reproductive	0	0				
	MIA - Non-reproductive	0	2				
	MIA - Seedling	0	2				
	Total MIA	0	4				
	Dead - Reproductive	7	4				
	Dead - Non-reproductive	5	4		The first the first the second s		
	Dead - Seedling	1	0				
	Total Dead	13	8				
	COD* - weevils	3	0				
	COD* - hollow	1	1				
	COD* - soil disturbance	0	2				
	COD* - unknown	9	5				
	Total mia, dead, not A. tobuschii		12				
Of the 7	4 plants alive at the end of 1998, 4 we	re missing a	and 8 died f	or a total loss of 16%.	The cause of most	of the deaths was un	known
	(62%), although soil disturbance ad	counted for	r 25% morta	ality and hollow stems	(which may be caus	sed by weevils) accou	inted for
	12%. Three new seedling size clas	s plants we	re found, fo	or 4% recruitment. Two	seedling size plant	s grew to non-reprodu	uctive size.
	An additional four non-reproductive	e plants wei	re located.	The total number of liv	e plants at the end	of the 1999 field seas	on was 69
	(55% reproductive, 41% non-repro	ductive, and	d 4% seedli	ng class).			
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Devil's Sinkhole SNA	1998	1999	
Live - Reproductive	7	6	
Live - Non-reproductive	e 24	9	
Live - Seedling (<1 cm	in diam.) 3	2	
Total Live	34	17	
New - Reproductive	0	2	
New - Non-reproductive	e 0	0	
New - Seedling	0	2	
Total New	0	4	
New stake - Reproduct		1	
New stake - Non-repro	ductive 0	1	
New stake - Seedling	0	0	
Total New Stake	0	2	
Refound MIA - Reprod		0	
Refound MIA - Non-rep		1	
Refound MIA - Seedlin	g 0	0	
Total Refound MIA	0	1	
Total Live at end of y	ear 34	24	
MIA - Reproductive	3	0	
MIA - Non-reproductive	e 6	3	
MIA - Seedling	1	0	
Total MIA	10	3	
Dead - Reproductive	7	3	
Dead - Non-reproductiv	ve 29	10	
Dead - Seedling	12	1	
Total Dead	48	14	
COD* - weevils	16	4	Of the total of 34 live plants at the end of 1998, 14 died (21%
COD* - hollow	3	2	reproductive, 71% non-reproductive, and 7% seedling classes)
COD* - soil disturbance	e 3	0	and 3 non-reproductive individuals went missing, for a loss of 54%.
COD* - unknown	25	7	The cause of most of the deaths was unknown (50%)
COD* - herbivory	1	1	while weevils, hollow stems (probably caused by insect herbivory),
Total mia, dead, not /	A. tobuschii	17	and mammal herbivory accounted for 29%, 14%, and 7%,
			respectively. Two new seedlings were found, for 6% recruitment.
			y two new reproductive and two new non-reproductive
			were established with a total of 2 individuals (one reproductive and one
non-reproductive). Also	o one non-reproductive in	ndividual that w	as considered missing in 1998 was relocated. Total number of live
			eproductive, 46% non-reproductive, and 17% seedling size class).

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Pole Hollow, Kimble County	1998	1999				
Live - Reproductive	20	24				
Live - Non-reproductive	4	2				
Live - Seedling (<1 cm in	diam.) 0	0				
Total Live	24	26		e 1		
New - Reproductive	0	1				
New - Non-reproductive	2	3				
New - Seedling	0	0				
Total New	2	4				
Total Live at end of yea	ır 26	30				
MIA - Reproductive	0	0				
MIA - Non-reproductive	0	0				
MIA - Seedling	0	0				
Total MIA	0	0				
Dead - Reproductive	0	0				
Dead - Non-reproductive	0	0				
Dead - Seedling	0	0				
Total Dead	0	0				
COD* - weevils	0	0				
COD* - hollow	0	0				
COD* - soil disturbance	0	0				
COD* - unknown	0	0				
Total mia, dead, not A.	tobuschii	0				
Of the 26 plants alive at the end of 1	998, none died or we	nt missing.	No new seedlings we	ere found. Four non-	reproductive plants	s became
reproductive. Additionally						total number of
live plants at the end of t	he 1999 field season	was 30 (83	3% reproductive and 1	7% non-reproductiv	e).	

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Kerr WM	IA, Kerr County		1999						i			
	Live - Reproductive		18						·····			
	Live - Non-reproduct	ive	8		-							
	Live - Seedling (<1 c	m in diam.)	1									
	Total Live		27									
	Total Live at end of	year	27									
	Total MIA		13									
	Total Dead		7						L			
	COD* - weevils		0				-	1				
	COD* - hollow		2			<u> </u>					,	
	COD* - soil disturbar	nce	0			1						
	COD* - unknown		5									
	Total mia, dead, no	t A. tobusch	ii 7			<u> </u>		-+				
he mon	itoring plots at the Kerr											
	comparisons can be	drawn betwe	en years. C	ause of m	ortality was	orimarily un	known (71%	%) although	plants with	hollow ster	ms	
·····	indicating insect her	hivory accoun	tod for 20%		T I	tion at the	end of the 19	999 field sea	ason stood	at 27 (67%		
	Indicating insection	Divory account	101 29 /0	mortality	. The popula	uon at the e						
	reproductive, 30% n									<u>,</u>		
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Junction, Kimble Cou	unty	1998	1999	
Live - Repr	oductive	62	64	
Live - Non-	reproductive	23	21	
Live - Seed	lling (<1 cm in d	am.) 1	1	
Total Live		86	86	
New - Rep	roductive	0	10	
New - Non	reproductive	6	19	
New - See		3	2	
Total New		9	31	
New stake	- Reproductive	0	3	
New stake	- Non-reproduct	ive 0	3	
New stake	- Seedling	0	0	
Total New	Stake	0	6	
Refound M	IA - Reproductiv	re O	1	
Refound N	IA - Non-reprod	uctive 0	0	
Refound M	IA - Seedling	0	0	
Total Refo	und MIA	0	1	
Total Live	at end of year	95	124	
MIA - Repi	oductive	1	0	
MIA - Non-	reproductive	0	1	
MIA - Seed	lling	4	1	
Total MIA		5	2	
Dead - Re	oroductive	10	6	
Dead - No	n-reproductive	11	1	
Dead - Se	edling	0	0	
Total Dea	d	21	7	
COD* - we	evils	1	1	
COD* - ho	llow	5	0	Of the total of 95 plants alive at the end of 1998, 7 died (86%
COD* - so	I disturbance	0	0	reproductive and 14% non-reproductive) and 2 individuals (one
COD* - un	known	15	6	non-reproductive and one seedling) went missing, for a 9% loss.
Total mia,	dead, not A. to	buschii	9	While the cause of most of the deaths was unknown (86%), 14%
				of the mortality was attributable to weevils. Two seedlings
increased	to non-reproduc	tive size, and eight ju	uveniles prod	uced flowers or fruits becoming part of the reproductive class. Also a
reproducti	ve individual whi	ch had been recorde	ed as missing	was relocated. Two new seedlings were found in established plots for a
2% recruit	ment rate. An ac	lditional 29 individua	ls (32% repro	ductive and 61% non-reproductive) were found in established plots. One
new plot w	as established v	vith a total of 6 indivi	duals (half re	productive and half non-reproductive). Total number of plants now stands
		35% non-reproductiv		

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ost Maples SNA, Bandera/Real Cos.	1998	1999	
Live - Reproductive	317	316	
Live - Non-reproductive	149	154	
Live - Seedling (<1 cm in diam.)	10	9	
Total Live	476	479	
New - Reproductive	13	2	
New - Non-reproductive	27	19	
New - Seedling	5	1	
Total New	45	22	
Refound MIA - Reproductive	1	0	
Refound MIA - Non-reproductive	1	1	
Refound MIA - Seedling	0	0	
Total Refound MIA	2	1	
Total Live at end of year	523	502	
MIA - Reproductive	4	10	
MIA - Non-reproductive	3	8	
MIA - Seedling	4	3	
Total MIA	11	21	
Dead - Reproductive	10	16	
Dead - Non-reproductive	8	2	
Dead - Seedling	3	0	
Total Dead	21	18	
Removed - Reproductive		1	
Removed - Non-reproductive		4	
Removed - Seedling		0	Of the total 523 live plants at the end of 1998, 18 died (89%
Total Removed		5	reproductive and 11% non-reproductive) and 21 went
COD* - insect larvae	0	2	missing (48% reproductive, 38% non-reproductive, and 14%
COD* - hollow	0	0	seedling class) for a total 7% loss. The cause of most of
COD* - soil disturbance	0	0	the deaths was unknown (78%) while mammal herbivory and
COD* - unknown	16	14	insect larvae each accounted for 11%. Also 5 sickly individuals
COD* - herbivory	0	0	were removed for weevil research (20% reproductive and 80% nor
COD* - fungus	5	1	reproductive). One new seedling was found, for 0.2% recruitment.
Total mia, dead, removed	32	44	Eleven non-reproductive plants became reproductive, and one
			seedling obtained non-reproductive size. Additionally 22 new
			ing class) were found in the established plots. Also one
non-reproductive individual that wa	s considered	l missing in 199	98 was relocated. Total number of live plants at the end of the 1999 field
season stands at 502 (63% reprod			

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Kickapoo Caverns SP, Kinney/Edwards Co	s. 1998	1999	Of the total of 230 plants alive at the end of 1998, 19 died (79%
Live - Reproductive	125	128	reproductive, and 11% each non-reproductive and seedling class)
Live - Non-reproductive	56	60	and 8 individuals (25% reproductive, 12% non-reproductive, and
Live - Seedling (<1 cm in diam.)	22	11	62% seedling class) went missing, for a 12% loss. While the
Total Live	203	199	cause of most of the deaths was unknown (53%), 11% of the
New - Reproductive	16	23	mortality was directly attributable to weevils and 37% of the plants
New - Non-reproductive 7		39	had hollow stems, an indication of insect activity. Also 4 sickly
New - Reproductive/non-reproduc	tive 0	40	reproductive plants were removed for weevil research. Six
New - Seedling	1	45	seedlings increased to non-reproductive size, and six juveniles
Total New	24	147	produced flowers or fruits becoming part of the reproductive class.
New plot - Reproductive	1	33	Also 5 individuals (40% reproductive and 60% seedling class) that
New plot - Non-reproductive	2	20	had been recorded as missing were relocated. 45 new seedlings
New plot - Reproductive/non-repro	oductive 0	30	were found in established plots for a 20% recruitment rate. An
New plot - Seedling	0	15	additional 102 individuals (23% reproductive, 38%
Total New Plot	3	98	non-reproductive, and 39% of unknown, non-seedling class) were
Refound MIA - Reproductive	0	2	found in established plots. Nine new plots were established with a
Refound MIA - Non-reproductive	0	0	total of 98 individuals (34% reproductive, 20% non-reproductive,
Refound MIA - Seedling	0	3	31% unknown, non-seedling class, and 15% seedling class).
Total Refound MIA	0	5	Total number of plants now stands at 449 (41% reproductive, 27%
Total Live at end of year	230	449	non-reproductive, 16% unknown,non-seedling class, and 16%
MIA - Reproductive	3	2	seedling class).
MIA - Non-reproductive	0	1	
MIA - Seedling	8	5	
Total MIA	11	8	
Removed - Reproductive	0	4	
Removed - Non-reproductive	0	0	
Removed - Seedling	0	0	
Total Removed	0	4	
Dead - Reproductive	13	15	
Dead - Non-reproductive	2	2	
Dead - Seedling	2	2	
Total Dead	17	19	
COD* - weevils	5	2	
COD* - hollow	0	7	
COD* - soil disturbance	2	0	
COD* - unknown	10	10	
Total mia, dead, removed	28	31	

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