FINAL REPORT

As Required By

THE ENDANGERED SPECIES PROGRAM

TEXAS

Grant No. E-8-1
1998 through 2002

Endangered and Threatened Species Conservation

An Incentive Program ("Landowner Incentive Program")for Rare Species Conservation on Private Lands in Texas

Prepared by: Cecily Warren

Robert Cook
Executive Director

Gary Graham
Director
Wildlife Division

PERFORMANCE REPORT

FINAL REPORT

STATE: Texas **GRANT NUMBER:** E-8-1

GRANT TITLE: Endangered and Threatened Species Conservation

REPORTING PERIOD: September 1, 1997 through August 31, 2002

PROJECT TITLE: An Incentive Program ("Landowner Incentive Program") for Rare Species Conservation on Private Lands in Texas

BACKGROUND:

Only three percent of the land in Texas is publicly managed, and as a result, most rare species inhabit privately-owned and managed lands. Programs that provide incentives for private landowners to protect and manage rare species will obviously have a direct and positive impact on their conservation. Recent analyses of the effectiveness of the Endangered Species Act have almost unanimously called for improved incentives for the participation of private landowners in species conservation and recovery, yet few real incentive programs for rare species actually exist. In the recent past, landowner habitat or wildlife incentive programs administered by government agencies either focused on non-imperiled species (e.g., limited to wetlands, game/waterfowl, or restoration projects), or were inadequately funded. Such impediments discouraged landowners who want to protect rare species from pursuing such funding mechanisms, and a program designed for private landowners to promote rare species protection was needed in Texas. It is the goal of the Landowner Incentive Program in Texas to provide technical assistance and monetary incentives that encourage private landowners to recognize rare species as an asset rather than a liability.

OBJECTIVES

1) To provide monetary incentives for landowners who are interested in maintaining or improving rare species populations on their property; and
2) To gather data that will demonstrate the value of such incentives toward the conservation of rare species.

RESULTS:

The Landowner Incentive Program (LIP) was designed by the Texas Parks and Wildlife Department (TPWD) to encourage Texas' private landowners to manage rare, threatened and endangered species and rare habitat types on their private property. Technical guidance by professional TPWD wildlife biologists, as well as a system of grants paid directly to landowners, was used to provide incentives for

the wise management and enhancement of rare resources. Since 95 percent of Texas lands are under private ownership, it is imperative that the management of rare resources is accomplished with the willing cooperation of the private landowner. LIP began as a pilot project working with private landowners under Section 6 funding for endangered and threatened species, but was expanded with landowner, legislative and political support as landowners take the lead in managing for rare resources. During the five-year history of LIP, 24 contracts with private landowners have been entered into valued at $424,739.00 and involving the enhancement of over 36,514 acres for at least 13 rare species and seven threatened habitat types. LIP funds have been directed to "on on-the-ground" resource management activities such as prescribed burning, spring development, selective brush control, cross-fencing of sensitive areas, native vegetation re-planting and abatement of nest parasitism in neotropical songbirds. Accomplishments and a detailed analysis of the program's results, including successes and mistakes, are discussed.

Quantitative measures of this program regarding increased habitat and rare populations man not be available for many years in the future. However, there has been immediate benefit:

1) Improved habitat has expanded under this program.
2) More information has been gained about how to improve habitats.
3) An infrastructure has been established allowing future landowners to more effectively and efficiently improve habitat.
4) Public awareness has increased greatly which in turn promotes the advantages of the program to landowners.
5) Improvement of landowner public's perception of the Endangered Species Act, plus the positive impact the program has on private land.
6) Landowners have become more willing to share information on species of concern on their land thus adding to understanding of species status.
7) Providing definitive data from highly diverse regions and habitats, which also demonstrates the conservation value of incentives.
8) Providing secondary benefits for landowners: ecotourism, wildlife tax credit, improved esthetic value to land.
9) Awareness of the LIP facilitates cooperation with other funding groups to match dollars, hence expanding the program's reach and capabilities even further.

Accomplishments and a detailed analysis of the program's results, including successes and mistakes, are discussed. The narrative detail will have two sections where project reporting has been combined because projects are physically related or are in similar phases of work. The first combined narrative is in the section of projects in north Texas for the lesser prairie chicken where several landowners worked together on neighboring projects. The second combined narrative is under the East Texas projects for longleaf pine, which are all relatively new, and in the same stage of progress.

There have been 24 contracts allocated under the Endangered and Threatened Species grant (Section 6) since the beginning of the LIP. Thirteen projects have been successfully completed. Beginning projects, the one-year **Littlefield Lesser Prairie-chicken Project** and the **Cameron County Lower Rio Grande Habitat Restoration Project** have been completed. Much of the **Limpia Creek Black Hawk Project** was completed, but due to the confidentiality and controversial issues that surrounded this project, the landowner requested that the contract be terminated prior to fully completing all actions. Funds were

only provided for those actions that were completed. Two landowner contracts expired without any restoration initiated or completed. The **Yoakum County LPC Project** was not renewed due to personal circumstances of the landowner that precluded him from completing his proposed management actions. The **Refugio County Native Gulf Coast Prairie Restoration Project** was not renewed because the landowner was no longer interested in fulfilling his commitment. In both of these cases, no funds were used. These remaining projects are in progress. For those projects that are still under contract or have been successfully completed, a total of 7276 acres (ranging from 5-2900 acres) are being protected or restored.

Four grassland prairie projects for lesser prairie chicken (LPC) and Attwater's prairie chicken (APC) have been delayed to complete prescribed burns. Portions of some burns have not been carried out due to severe drought conditions in the areas. For one completed project, the release of APCs has not been possible because of an insufficient supply from the breeding facilities. Climatic conditions prohibiting burns has also delayed completion of black-capped vireo (BCV) habitat restoration and longleaf pine (LLP) projects.

Drought conditions have also been responsible for a grass and LLP seedling loss ranging from 20 percent to 60 percent. Some projects were not funded with an expectation for a need to replant, hence new seedlings may need to be funded by the landowner.

The six species that are both federally and state listed include the ocelot, jaguarundi, black-capped vireo, Texas poppy mallow, Attwater's prairie chicken, and the Tobusch fishhook cactus. Attempts to restock APC have met with severe difficulty. Breeding stocks have not to date produced enough chickens to conduct a release. Additionally, one species is proposed for listing (Pecos pupfish), and one species is a Candidate Category 1 species (lesser prairie chicken). There are 12 state listed species, and 7 former Candidate Category 2 species.

Details of Contracted Projects:

Texas is divided into ten distinct ecological regions as displayed in Figure 1. For the purposes of this report each project is presented by geographical sections of the state. The individual project will then indicate the ecological region stated as "ecoregion" within the narrative detail.

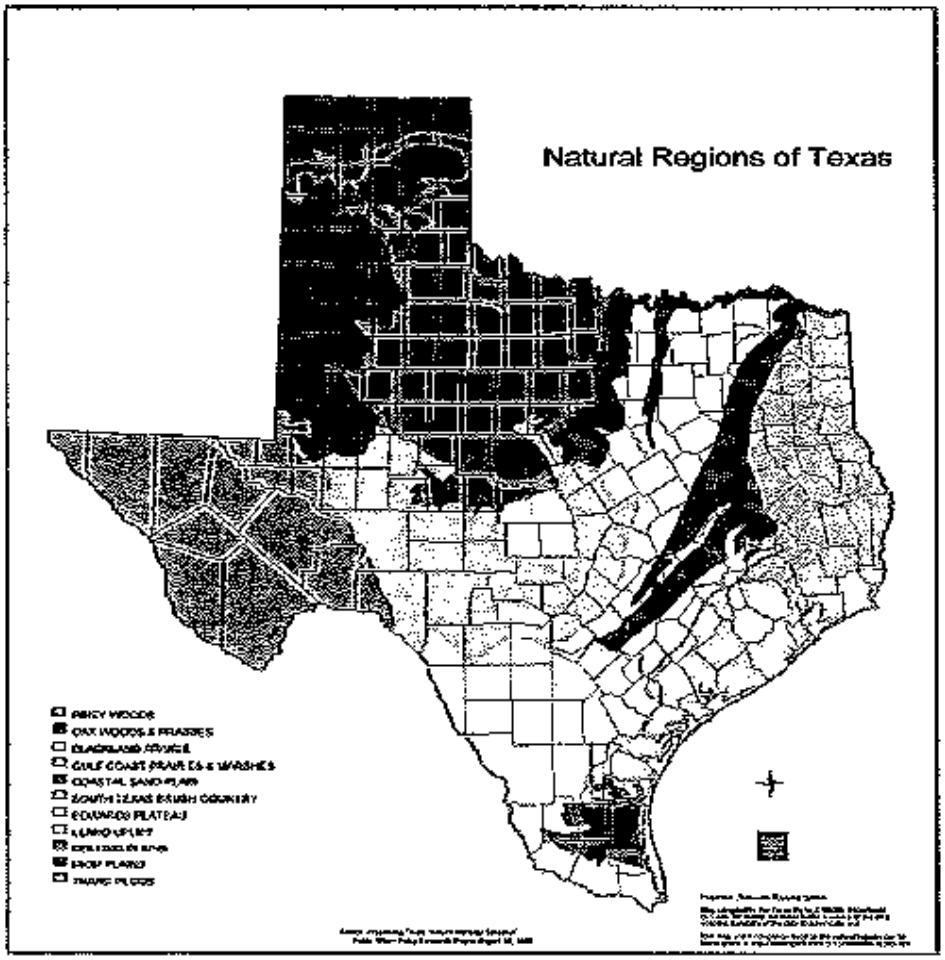


Fig. 1

PROJECT NARRATIVE DETAIL

North Texas Projects

Texas Poppy Mallow Project:

1. Total Funding: TPWD - $10,853.39, Landowner - $12,568.00
2. Contract Period: October 10, 1997 – September 14, 2002
3. County of Project: Mitchell
4. Number of Acres Affected: 320
5. Ecoregion: Rolling Plains

Objective: To improve Texas poppy mallow conservation by deferment of grazing during the plant's reproductive process. The project site is a 320-acre pasture, periodically grazed by livestock.

Method: The rangeland was in poor condition and manipulation of grazing intensity and timing was dependent upon dividing the single pasture into 4 smaller pastures with the poppy mallow population

restricted to 1 pasture. This allows total deferment of grazing during the critical reproductive stage while allowing the rancher to improve the condition of the rangeland.

Status: Extreme drought conditions occurred in the area during the 1998 growing season and the Texas poppy mallow monitoring effort showed a drastic decline from 1997 baseline counts. The 1998 decrease in poppy mallow numbers is believed to be due solely to drought. Survey results for 1997-2002 indicated that the drought of 1998 caused a drastic reduction in numbers of plants. Please see **Attachment 1** for a table on plant counts and summaries.

While not as good as 1997 results, the 1999 population surveys show a dramatic rebound from 1998. Timely rains and reduced grazing pressure were probably responsible for increased numbers of poppy mallows. There was a drastic reduction in plants for 2000 through 2001 due to a long-term drought. The following year 2001 through 2002 saw significantly higher rainfall and a dramatic increase in poppy mallow, though numbers did not reach the levels of 1997 or 1999.

Cooperative Lesser Prairie Chicken Project Summery: This project was a combination effort of 3 landowners for initial start up and preparation for grass seed acquisition and planting. The goal of the project was to enhance/restore habitat for lesser prairie chickens. The activities focus on providing a reliable winter food source and improving nesting and brood-rearing habitat on 180 acres dominated by Conservation Reserve Program (CRP) fields comprised of introduced grasses. Approximately 15 acres of food plots have been established to provide winter foods as well as food and cover for young poults in the summer. These plots were established in pre-existing fireguards in the center of a CPR pasture so as not to reduce the amount of nesting cover available. In order to enhance the quality of existing CRP grassland, 100 acres were burned and 50 acres interseeded with a diverse mixture of native grasses, forbs, and woody species in 1998. Severe drought conditions followed planting of the native mix and no germination occurred that year. Timely rains provided optimum planting conditions in 1999. An additional 50 acres were seeded to a native diverse mix and a good stand resulted. Eight birds were counted on this property in the spring of 1999. No breakdown by sex was possible because the birds flushed when the observer approached. The birds are still there according to the landowner. Status of each separate landowner project follows.

Lesser Prairie Chicken (LPC) – Co-op: North Texas

1. Total Funding: TPWD - $40,000.00, Landowner – $6,600.00
2. Contract Period: March 17, 1998 – August 31, 2002
3. County of Project: Hockley
4. Number of Acres Affected: 360
5. Ecoregion: High Plains

Objective: The goal of this four-year project, which began in 1998, is to develop and encourage a grass roots effort to conserve the LPC. As a result of a landowner meeting in 1997, neighboring sites managed by individual landowners were selected to participate in the co-op. As of 2002, two of these landowners have signed MOUs and have completed the second of their 4-year projects.

Method: Landowners in the co-op have established food plots and are restoring CRP grassland to native species, while one of the landowners is restoring native prairie on currently farmed acres. Landowner

#1 completed a 1998 and 1999 spring prescribed burn on his CRP to reduce competition of introduced grasses prior to planting native grasses and forbs in spring of 1999. Landowner #2 planted 100 acres of cropland to native grasses in 1998, and planted another 50 acres of cropland for native planting in the spring of 1999. Prescribed burns have been conducted with difficulty due to extreme drought in the region.

Status: To date there has been continuous management and replanting of native food plots with further establishment of native grasses. The exotic lovegrass species has been predominantly eliminated. Results are that a very good mix of native plants has been established: 80% side oats, little bluestem, forbs and legumes.

LPC Co-op:

1. Total Funding: TPWD - $20,000.00, Landowner - $3,920.00
2. Contract Period: April 10, 1998 – April 10, 2002
3. County of Project: Lamb/Hockley
4. Number of Acres Affected: 730
5. Ecoregion: High Plains

Objective: To improve food availability, and nesting and brood-rearing habitat for lesser prairie chicken through integration of local farming and ranching operations with sound wildlife management practices. The property on which the LIP project was conducted lies within the sandy soil country in the SW Pecos and Staked Plains physiographic regions. Locally it consists of CRP fields, agricultural land, and native shortgrass prairie. Use of the property was devoted primarily to growing cotton and small grain crops.

Method: The project was conducted on private property located in a region of heavy agriculture that was previously thought to be uninhabited by lesser prairie chickens. Due to the recent discovery of 9 males and 3 females in the area, efforts focused on helping to increase the existing population through various habitat management techniques including: (1) management of existing CRP grasslands for native grass and forb diversity through prescribed burning and interseeding with a wildlife seed mix, (2) providing annual grain crops in areas that would otherwise be devoted to cotton production as a source of supplemental food planting and (3) working with adjacent landowners to increase the total acreage available for active management for lesser prairie chickens.

Accomplishments: A minimum of 25 acres were planted annually to milo and placed in an "L-shaped" configuration bordering the North and West sides of the crop field. Each year 25 percent of the 180 acres comprising the CRP field was burned with a rest on the last year in which no unit was burned. Fallow disking of fireguards helped stimulate production.

Status: Although extensive interseeding of native legumes, forbs, and bunchgrasses into burned areas was conducted in an attempt to increase food production and enhance brood rearing and nesting habitat, the entire area has suffered from a prolonged 4-year drought. As such, production of lesser prairie chicken habitat and planted food plots with stimulation through burning has been very poor and LPC populations have declined. This project is currently under review at the field-level for future funding that will address water development and redistribution into LPC habitat as a safeguard against current and future drought.

LPC Co-op

1. Total Funding: TPWD - $10,000.00, Landowner - $2000.00
2. Contract Period: April 10, 1998 – April 10, 2002
3. County of Project: Cochran
4. Number of Acres Affected: 2400
5. Ecoregion: High Plains

Objective: Improve LPC habitat through an enhanced rotational livestock-grazing program and water availability.

Method: The new grazing program will be implemented through fencing smaller ares of pasture which will provide additional rest for warm season bunchgrasses. This practice is important for enhancing LPC nesting and winter habitat. The project area consists of 2,400 acres of native rangeland that currently supports a number of LPC.

Status: The contract was extended to allow sufficient time to accomplish project tasks.

LPC Project

1. Total Funding: TPWD - $18,748.00, Landowner - $4,687.00
2. Contract Period: September 26, 2001 – September 26, 2003
3. County of Project: Yoakum
4. Number of Acres Affected: 4,972
5. Ecoregion: High Plains

Objective: To restore habitat for LPC and to conserve the sand shinnery oak community and associated wildlife community.

Method: Adding solar pumps and hardware to 4 existing wells, reseeding area adjacent to center watering facility and rotational grazing.

Status: Project is still in beginning stages, however observed results to date are a denser and more diverse grassland community, which provides a greatly improved habitat for LPC to thrive.

LPC

1. Total Funding: TPWD $17,500, Landowner $8,800, USFWS $24,208
2. 2. Contracting Period: January 5, 2001 – January 5,2003
3. County of Project: Donley Co.
4. Number Acres Affected: 1,760 acres
5. Ecoregion: High Rolling Plains

Objective: To control grassland succession, implement rotational grazing, and selectively control brush to enhance both horizontal and vertical structure of native shortgrass prairie and scrub vegetation, and to

increase overall plant species diversity for LPCs and other rare nesting grassland birds, while simultaneously allowing a closely prescribed rotational grazing operation. This management strategy allowed the landowner the opportunity to rest pastures for a 3-month period during the growing season. The purpose was to target rare shortgrass and midgrass prairie and its native shrub/brush component, particularly juxtapositions (ecotones/edges) of short and mid-grasslands and brush associations that provide critical cover for nesting and brood rearing. The property on which the LIP project was conducted lies within the Rolling Plains ecoregion. Mixed grass plains, sand sagebrush, and mesquite characterize natural vegetation. Use of the property was devoted to a cow-calf/stocker operation (32 acres per pair), which provided the primary economic base to the landowner.

Methods: Cross fencing of pastures was implemented to provide more control and more efficient grazing of shortgrass and midgrass units. There was a redistribution of water to newly divided grazing pastures. Prescribed rotational grazing was implemented through all pastures for short periods of time during the growing season. Selective brush control was conducted on 300 acres of encroaching mesquite brush and yucca vegetation.

A short-duration grazing system was implemented. Cross fencing 5 existing pastures using high-tensile electric fence created 15 grazing units averaging 80 acres in size. Additional watering points were developed to help implement this system. At least 4 grazing units now receive season-long rest each year and grazing units are being grazed twice during the growing season. Grazing units are now receiving at least 50 days of rest between the first and second grazing periods and are being grazed at different times of the season during subsequent years. Mesquite and yucca control using individual plant treatment methods was conducted and has enhanced rangeland condition. Grass production and cover conditions are currently being monitored. Fiberglass drinking tubs and a new system of water pipes to redistribute water were installed in association with cross fencing. Three hundred acres of mesquite and yucca-infested habitat were selectively hand-sprayed by the landowner using herbicide as per NRCS specifications.

Status: This project is currently being monitored for its direct positive impacts on (a) diversity and structure (vertical and horizontal) of the shortgrass and midgrass prairie communities and associated forbs and shrub ecotones, which constitutes priority bird species habitat for the Panhandle of Texas. Point (b) being monitored is the density and distribution of the lesser prairie-chicken habitat and numerous other shortgrass prairie birds that are in decline.

Golden-cheeked Warbler (GCW) and Black-capped Vireo (BCV) Habitat Enhancement

1. Total Funding: TPWD - $15,440.00, Landowner - $18,151.00
2. Contract Period: November 3, 2000 – November 3, 2003
3. County of Project: Somervell
4. Number of Acres Affected: 1,450
5. Ecoregion: Cross Timbers and Prairies

Objective: To improve habitat for golden-cheeked warblers and restore historical habitat on the ranch for black-capped vireos. Property Description: The ranch supports habitat components characteristic of the Western Cross Timbers, Fort Worth Prairie and Lampasas Cut-Plain. Prior to project initiation on November 3, 2000, habitat suitable to support golden-cheeked warblers existed on the ranch. The ranch

also exists within the historical range of black-capped vireos. However, existing habitat is less than optimum due to invasion of Ashe juniper.

Method: Burn units have been established, fire plans written, and preparations made to burn all 5 units, weather permitting in Fall of 2002.

Status: Accomplishments to date include brush management using burn and mechanical methods on 3 of the 4 proposed units totaling 126 acres.

Central Texas

Attwater's Prairie Chicken (APC)

1. Total Funding: TPWD (State and Sec. 6 Funds)- $92, 484.80, Landowner: $30,000.00
2. Contracting Period: August 8, 1998 - December 31, 2002
3. County of Project: Austin
4. Number of Acres Affected: 2900
5. Ecoregion: Post Oak Savannah

Objective: to enhance APC habitat by controlling brush that has invaded the native tall grass coastal prairie. This project is on the ranch that will be the site of the first release of captive-raised APCs on private property next summer.

Method: Approximately 700 acres were treated in the fall of 1998 with herbicide to control MaCartney rose. Prior to treatment, the pasture was stocked with 300 cows for 2 months to open up the pasture and expose the small rose plants to the herbicide. After treatment, the stocking rate was returned to normal. An excellent kill of the roses was obtained. A burn of this pasture was scheduled for the winter of 1999-2000. However, conditions have not been favorable for burns up to August 2002. A 1000-acre pasture was treated in May, 1999 to control wax myrtle. The stocking rate was increased prior to treatment to expose the small plants to the aerial applied herbicide. A good kill was obtained, however, more time is needed to see if any of the treated plants will survive. Leaf loss does not mean that all of the plants are dead plus Wax myrtle is difficult to exterminate. The cattle stocking rate was returned to normal after treatment and was greatly reduced in late July to allow a fuel supply to accumulate for a possible burn in the winter of 1999-2000. However, the absence of rainfall has resulted in limited growth of grass even with the reduction of the stocking rate. Provided the burning ban is lifted, there may not be enough fuel to support a fire and the planned burn may have to be moved to the winter of 2002. The final phase of the project will be to treat 1200 acres with herbicide to control running live oak and Macartney rose.

Status: 2400 acres have been treated with herbicide resulting in a large kill of McCartney Rose and significant reduction of wax myrtle. A release of APC has not yet been possible due to lack of supply in the rearing facilities.

Black-capped Vireo (BCV)

1. Total Funding: TPWD – $6,000.00, Landowner - $1,500.00
2. Contract Period: July 29, 1998 – July 29, 2005

3. County of Project: Kimble
4. Number of Acres Affected: 1,031
5. Ecoregion: Edwards Plateau

Objective: To increase habitat for BCV by expanding plant diversity.

Method: Preparations were made to conduct prescribed burns on a rotational basis. Habitat will be maintained for BCV as well as diverse vegetative cover for all wildlife.

Status: To date only the preparations for burns have been made. Project has been delayed due to the severe 4-year drought and a lack of burn management manpower. Burns will take place when climatic conditions permit.

Houston Toad

1. Total Funding: TPWD - $2,134.00, Landowner - $532.00
2. Contract Period: October 10, 2000 – October 10, 2001
3. County of Project: Bastrop
4. Number of Acres Affected: 50
5. Ecoregion: Post Oak Savannah

Objective: To construct a Houston toad breeding pond

Method: Approximately .5 acres of land will be cleared to allow for pond placement and stacking of cleared brush and trees. The dominant trees at the pond site are eastern red cedar and post oak. The landowner and TPW will periodically survey the pond for Houston toads during breeding season. The landowner agrees to maintain the pond for a minimum of 10 years.

Status: Grasses have been planted and there has been some breeding observed by the landowner.

Houston Toad

1. Total Funding: TPWD - $2,134.00, Landowner - $532.00
2. Contract Period: October 10, 2000 – October 10, 2001
3. County of Project: Bastrop
4. Number of Acres Affected: 25
5. Ecoregion: Post Oak Savannah

Objective: To construct a Houston toad breeding pond.

Method: To clear .11 acres for the construction of the pond and stacking area. Dominant red cedar and post-oak trees characterize the project property. The owner agrees to maintain the pond for 10 years.

Status: Grasses were planted with excellent survival rate. The landowner has observed Houston toads and leopard frogs breeding well. Other species of toads have also been observed inhabiting the pond.

BCV and GCW

1. Total Funding: TPWD - $5000.00, Landowner - $2,610.00
2. Contract Period: July 19, 2001 – July 18, 2003
3. County of Project: Williamson
4. Number of Acres: 130
5. Ecoregion: Cross Timbers and Prairies

Objective: Restoration from existing pastureland to native prairie and the plant community, which will benefit BCV and GCW.

Method: Balcones Canyonlands National Wildlife Refuge was consulted to determine the particular species composition to be planted. Local genotype seeds (as available) were planted using a no-till seed drill. GCW surveys and an assessment of vegetation were conducted. There was selective removal of juniper and topping of shin oaks in the BCV habitat area. Shin oak acorns were planted in a designated area. The restoration was enhanced through the application of controlled burns timed to reduce woody species and non-native herbaceous plants. All work has been done and project was completed February 7, 2002.

Status: The vegetative diversity has been greatly enhanced and increased in density, which in future years should greatly contribute to improved number for BCV and GCW. BCV and GCW surveys are planned for future management and observation of the property.

West Texas

Pecos Pupfish

1. Total Funding: TPWD - $25,000.00, Landowner - $4,500.00
2. Contracting Period: August 6, 1999 – August 6, 2004
3. County of Project: Pecos
4. Number of Acres Affected: 2
5. Ecoregion: Trans-Pecos, Mtns. and Basins

Objective: To conserve and enhance the distribution and population numbers of the Pecos pupfish (*Cyprinodon pecosensis*) within its historic range.

Method: A 4-acre pond was constructed with supply ditch, associated weir gate, pipe valves and pipefittings. Fencing, gates and locks were set up around the pond for security.

Status: Pond has been constructed and a large protected population of pupfish has been established. Populations are healthy and increasing.

Pecos Pupfish

1. Total Funding: TPWD - $21,300.00, Landowner - $7,700.00
2. Contracting Period: June 5, 2000 – June 5, 2005

3. County of Project: Ward
4. Number of Acres Affected: 29
5. Ecoregion: Trans-Pecos, Mtns. and Basins

Objective: To create a desert wetland to conserve and enhance the distribution and population numbers of the Pecos pupfish within its historic range. The project is intended to aid the other associated fish populations. Natural populations in this area have been lost to hybridization with the exotic Sheepshead minnow in the Pecos River. This project will create habitat, provide research activities and monitoring of remaining populations, construction of migration barriers and modification of bait regulations in Texas and New Mexico.

Method: There is an agreement that entails cooperative conservation measures to be undertaken by TPWD, New Mexico Fish and Game, Bureau of Reclamation and private landowners in Texas and New Mexico for multiple Pecos pupfish projects. This particular project used funds to develop a cie'nega to resemble a natural desert wetland. The restoration will include modifications of a pond substrate and aquatic vegetation to enhance habitat for subject species. Modification was conducted of surrounding terrestrial vegetation and landscape. Security measures were taken to prevent introduction of exotic species, such as the sheepshead minnow.

Status: Pupfish populations are increasing and flourishing, plus have not had an exotic encroachment.

East Texas

Combined Longleaf Pine Forest Restoration

The longleaf pine community is one of the extremely rare plant communities remaining across the West Gulf Coastal Plain, and across its entire range in the southeastern United States. Less than 3 percent of the southeastern landscape that was formerly in longleaf pine remains, and it is probably less than that in eastern Texas. This longleaf pine forest, through proper forest management practices, has the potential to produce habitat for the following rare species: longleaf pine (*Pinus palustris*), red-cockaded woodpecker (*Picoides borealis),* Bachman's sparrow (*Aimophila aestivalis)*, scarlet snake (*Cemophora coccinea),* Louisiana pine snake (*Pituophis melanoleucus ruthveni),* Henslow's sparrow (*Ammadramus henslowii),* and migrant loggerhead shrike (*Lanius ludovicanus).* In addition to these rare species, habitat will be created for the eastern wild turkey (*Meleagris gallopavo silvestris)* which is a formerly extirpated species that has been re-introduced, and bobwhite quail (*Colinus virginianus)* which has been shown to be declining across its range in eastern Texas. Applications of prescribed burning, once established, should encourage a number of native grasses, forbs and herbaceous plants, including little bluestem (*andropogon scparius).* The longleaf pine-little bluestem vegetation series, which was native to this part of Texas, was identified as a series that was globally threatened throughout its range, and extremely rare throughout the state, and vulnerable to extirpation by the Texas Natural Heritage Program (1993).

Historically and to present time, most landowners have chosen to plant loblolly within the range of longleaf, because loblolly has a quicker establishment time for commercial use, and returns on the investment could be seen at an earlier date. New technology using containerized seedlings allows longleaf to be established almost as quickly as loblolly. Many of these projects to be done in close

proximity. As such, these combined projects have a high potential to serve as demonstration areas where the Texas Forest Service and the Department can have landowner tours and promote longleaf pine silviculture to landowners. This could serve as an impetus to bring a significant number of landowners to the decision to regenerate their pine forests, and pasturelands to longleaf pine forests, which are of paramount ecological importance to a number of rare species in eastern Texas.

1. Total Funding: TPWD - $79,627.00, Landowners - $20,434.40
2. Approximate Contract Periods of 8 Projects: July 7, 2001 – September 2003
3. Counties of Projects: Sabine (4), Shelby (1), Nacogdoches (1), San Augustine (1) and Trinity (1).
4. Number of Acres Affected: 3855
5. Ecoregion for All Projects: Pineywoods

Objective: The primary goal of all 8 projects is to restore the longleaf pine ecosystem. Some specific projects are of particular interest because they are a cooperative effort between adjoining properties and will create a continuous expanse of longleaf pine forest and resulting ecosystem. All projects are new and in various stages of start up for site preparation or initial planting.

Methods: Site preparation was or will be accomplished by aerial and direct application of Arsenal/Oust or Chopper herbicide and bedding by mechanical means (triple plow) to prepare seedbed and reduce vegetative competition. Containerized longleaf pine seedlings were or will be planted in 10X7 foot spacing. Future management may include spot application of herbicide and prescribed burn to appropriate longleaf stands. TPWD varied in contribution to projects as to the site preparation or purchase of seedlings or both. The landowners each contributed 25 percent or more to each project.

Status: Projects varied substantially as to seedling survival rate and viability. A few projects saw a seedling loss of up to 40 percent, others as little as 10 percent. Losses can occur from insect or animal predation or from the currently dry weather conditions of the area. Planting results and future survival will be assessed both by TPWD and the Texas Forest Service.

South Texas

Native Plant Restoration – Tamaulipan Forest

Projects taking place in south Texas have primarily been grassland and brush habitat restoration. Prescribed burns have been the preferred procedure for site preparation, but have proven extremely difficult to conduct within project time frames and cost allowances. Public employees do not, at this time, have sufficient training, availability of time or personnel numbers to assist landowners with conducting safe and proper prescribed burns. Private burn contractors have proven to be more expensive than the practice of herbicide application. The situation of prescribed burns has to date not proven to be a practical approach for site preparation from the standpoint of available personnel, cost and occurrence of appropriate climatic conditions.

1. Total Funding: TPWD - $2,250.00, Landowner - $5,575.00
2. Contract Period: April 24, 2000 – April 24, 2001
3. County of Project: Willacy
4. Number of Acres Affected: 6

5. Ecoregion: South Texas Plains

Objective: To re-forest the Rio Grande River floodplain and create an artificial Resaca within the property. The newly established forest will eventually mature and be invaded by a variety of native plants that should help to create a Tamaulipan forest community, plus enhance habitat for ocelot.

Method: Native Tamaulipan forest species were planted and irrigated for a sufficient time to become established. Herbicide treatments were applied to the site to reduce competition and help the desired plants to become established. Primary species planted will be ebony, anacua, granjeno, brasil and huisache. Minor species planted will be Texas persimmon, huisachillo, tepeguaje and snake-eyes. Within this forest planting, the landowner constructed an artificial resaca to add wildlife value to the property.

Status: The project has a canopy of pioneering species with a number of shade tolerant trees growing in the understory. At least 50 percent of native brush have done well and shown significant growth and density improvement after 2 years.

1. Total Funding: TPWD - $8,329.80, Landowner - $10, 800.00
2. Contract Period: May 22, 2000 – June 30, 2002
3. County of Project: Cameron
4. Number of Acres Affected: 87
5. Ecoregion: South Texas Plains

Objective: To enhance habitat for waterfowl. Water and nesting areas will be increased and a water source ensured to all wildlife during drought years.

Method: Lomas were constructed to provide nesting sites. Seedlings of brasil, anacauita, coma, anaqua, ebony, crucillo, granjeno, snake-eyes, colima, milkweed and lotebush were planted. Larger sized plants were put in place because the high population of woodrats and rabbits would destroy seedlings quickly. The highly prolific brazilian pepper will be removed to allow native mangroves and other plants to prosper.

Small palm native sabal palm groves were established on the southwestern corner and at various other sites around the resaca that was overgrown with Brazilian pepper.

Status: Increased waterfowl populations have been observed, particularly around the palm grove sites. Jaguarundi and a large number of endangered and threatened herptofauna have been observed: Mexican tree frog, black striped snake, Rio Grande lesser siren and Rio Grande chirping frog.

1. Total Funding: TPWD - $66,500.00, Landowner - $66,500.00
2. Contract Period: January 24, 2001 – January 24, 2004
3. County of Project: Calhoun
4. Number of Acres: 5052
5. Ecoregion: Gulf Prairies and Marshes

Objective: To restore 5052 acres of coastal prairie habitat to more dense and larger natural grassland.

Method: The habitat was converted from continuous grazing system to a rotational grazing system through fence building and enhanced water availability. Ranch will continue to operate under a range management plan developed by the Sam Houston Resource Conservation and Development, Inc. plus a wildlife management plan by TPWD. Results will be measured in acres treated and effects will be sustained by the good stewardship of the landowner.

Status: To date, all but the cross fencing has been built. There has been excellent grass response to Spike herbicide against live oak. Grassland acreage and grass density has greatly increased.

Lessons Learned

Technical Assistance

Most landowners require a great deal of assistance in developing programs and applications. Program delivery has proven to be highly staff-intensive. Significant time is required to identify issues with landowners, including which species occur on their property as well as those that could be assisted through management. Staff explored opportunities for management within or outside of current operations and determined how far the landowner was capable of going to conserve the species and financially able to complete contract requirements. Having experienced staff that have worked with private landowners on the ground has been critical in the program acceptance and expansion. Assigned staff need to be widely distributed in the field to cover as many opportunities as possible, and need to network with other biologists on staff as well as private consultants. This technical guidance staff is supported by a core group of wildlife diversity specialists.

Early intensive communication and assessment is very important for final project outcome. Projects and landowners must be reviewed by the more experienced staff to be sure of the landowner's level of resources for and commitment to the project. An experienced staff member should keep the estimated project cost as accurate as possible to avoid over committing funds. Funds committed to projects that are not ultimately used are usually lost to possible additional projects and the program as a whole. Funds have also been lost on projects that were never started or only partially completed by landowners. Early experienced communication with the landowner is essential to assess the degree of commitment and follow through that can be expected on a project.

Baseline studies prior to start up of a project are very important for final measures of success. TPWD did not conduct many baseline studies due to lack of staffing resources. Because project outcome may not be accurately measured until many years in the future, and staffing resources are unsure, a landowner self-monitoring approach may prove useful. TPWD may enlist the landowner's help in monitoring the ultimate success of their LIP projects with the guidance and spot check of the technical staff. Staff may design simple reports or checklists specifically tailored to individual projects, which landowners can then complete and return to TPWD as a "self monitoring" report tool. Spot checks can periodically be conducted by technical staff to verify and refine the landowner's documentation.

Early Landowner Involvement

Involving private landowners and landowner groups from the very beginning was key to program success. Landowners and landowner groups have continued to express strong support for LIP. All major landowner organizations were involved in supporting the expansion of the pilot project to incorporate state funding of activities and personnel. The LIP Committee was developed by TPWD with input from private landowners and conservation groups. Use of a joint advisory committee representing private landowners, landowner groups, conservation groups and natural resource agencies has further developed trust relationships on both a personal and inter-group basis that has led to the resolution of other issues in conservation. Balanced membership on this LIP Committee has been an important factor in keeping everyone accountable.

Flexibility

Flexibility is critical to a program targeted at working successfully with private landowners. The LIP Advisory Committee was given great latitude in reviewing applications, and was constantly challenged to be broadly inclusive in their deliberations. Staff must be vigilant against imposing constraints or arbitrary guidelines common in other cost-share efforts, and must remain focused on the bottom line – on-the-ground rare species and habitat enhancement. An incentive program for rare species must make it easy for the landowner to participate on their terms. For instance, proposals have been made by the LIP Committee or staff to require a minimum acreage, funding caps and minimum cost share percentage. Strong leadership by staff and the Committee was required to maintain continued flexibility. Landowner needs vary across population boundaries and ecological zones, and conservation of species varies across similar parameters. The goal is stay focused on the rare species conservation bottom line and remains flexible to achieve it.

Promotion and Marketing

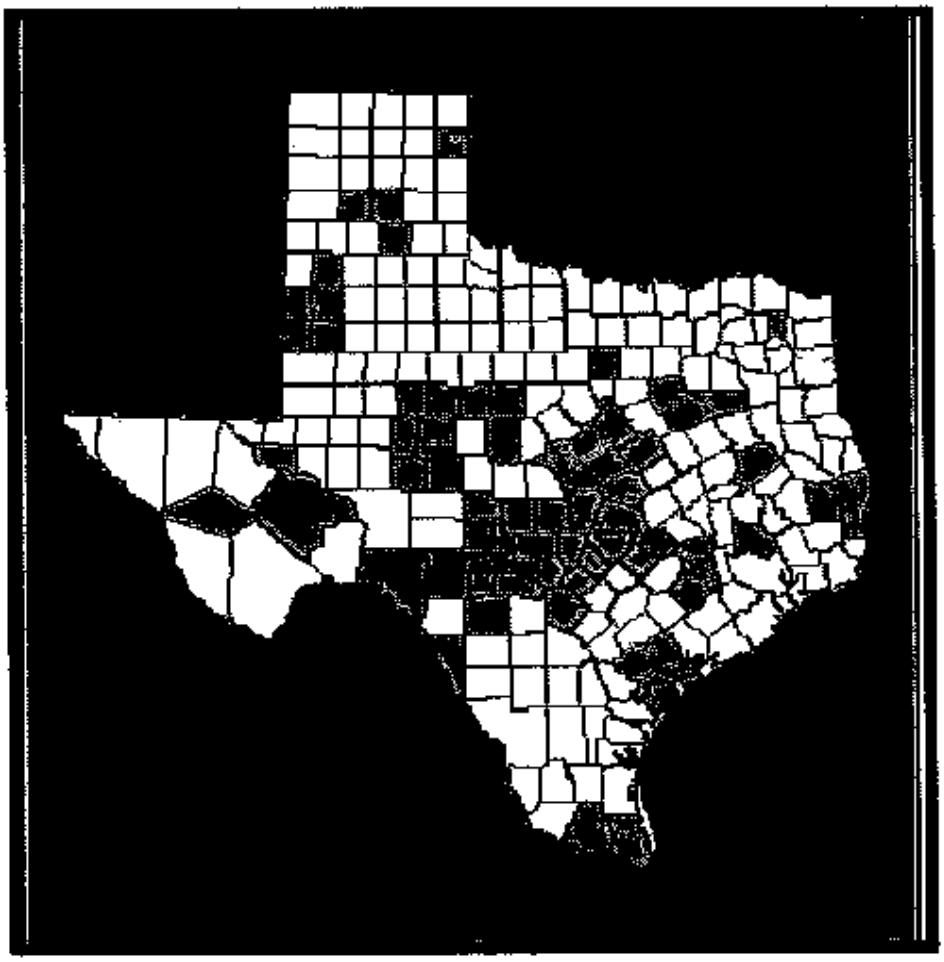
Agency efforts to promote and market LIP have been relatively successful. Two different approaches, mass media and targeted audience marketing, were tried and measured. Over 1500 landowner requests for specific information on LIP have been recorded over the 5-year period. The first campaign was channeled through urban print media, and significant staff time was required to track down a handful of quality projects. It did provide a great deal of publicity to an urban audience, and the public recognized that we were trying something innovative. During the next years we relied on partners and staff working through word of mouth. A small number of applications were received, but these were of very high quality. A well-run marketing campaign with the expanded LIP funding generated significant landowner response, as marketing was directed to landowners through landowner targeted radio (expensive) and print (less expensive) advertising. One of the best methods of promotion has been through agricultural oriented periodicals. We observed an inverse relation to mass media and the percent of quality projects and time expended. Interestingly, agriculture and conservation organizations have been very supportive but have provided very few project proposals.

Please see figure 2 for a map indicating total coverage for all projects presently in the LIP program. A portion of these projects were paid for through other funding sources from FY 2001 to FY 2002.

Projects have primarily been initiated in the center and more ecologically disturbed part of the state. These areas are also the most available to the public and large media resources to convey awareness of the program. Coverage and diversity of LIP projects has been phenomenal for the dollars available.

Confidentiality

The choice to keep confidential as much information as possible has been a key component. It has also been challenging. Texas law provides that wildlife management plans are confidential and this has been important to rebuilding trust between landowners and biologists at TPW. However, some basic information was required for contracting and, since these are the public's funds, projects are open to public review. We were able to solve this by separating the contract and budgeted amounts from the wildlife management plan, which detailed the project specifics. The landowner is offered the choice of confidentiality in the beginning. This has proven widely acceptable. In this process, field staff still must use good judgment about when confidentiality is not practical. In one great project, controversy was generated by our efforts to keep activities confidential. This occurred early in the process and we had not perfected guidelines nor fully explained the choice to the landowner. This was settled amicably with the landowner's assistance. Operationally the landowners are encouraged to share the results and provide demonstration and field day opportunities, and almost all have agreed to this.



Counties Depicting LIP Projects
1997 - 2002

Fig. 2

Project Review/Approval

Each LIP application was sent to species experts, local field staff and wildlife diversity biologists for review. They recommended changes or expressed concerns and forwarded these to the contact person in the field for response. The landowner contact person had the ultimate responsibility to determine with the landowner whether to incorporate any changes. This diverse internal staff review and discussion ensured the biological soundness of the proposal and enhanced project quality and staff buy-in. Following this, the LIP Advisory Committee provided similar review and comment. The staff and advisory committee process had originally been developed and occurred through mail on a semi-annual or quarterly basis, but was upgraded to e-mail in the last 2 years. These electronic submissions have been invaluable in speeding the comment period and moving the project along faster. Email is also now

the tool used for committee approval of projects and has significantly improved efficiency. The e-mail process also greatly increased flexibility and dialogue among members and between members and the point staff. This has resulted in improved project design and understanding, as well as building respect for field staff in that liaison position.

Budget Issues

Budgeting of projects through the state system continues to be a challenge, as projects are generally funded for three to five year periods, while funding is restricted to two annual budgets. There is no guarantee that funding will occur over the next biennium, although this must be assumed for some projects. Landowners are advised that multi-year contracts are dependent on continued funding of the program. Contracting remains a hurdle in many cases, with factors such as co-ownership causing occasional disagreement, or delayed landowner response to contracting at the end of fiscal years. Funding at increased levels for an incentive program can provide a real difference on rare species and habitat issues over the landscape. However, the program delivery is primarily in the hands of field staff, and this technical assistance is extremely staff time intensive. Any funding for incentive programs of this type must include funding for technical assistance and coordination.

Cumbersome bureaucratic processes continue to be problematic and often complex. The expanded program identified a need for a position at TPWD to track the individual projects through the maze of procedures as project funding grew, thus the development of a LIP Coordinator position was broadly supported. This served to resolve key issues with field staff over time conflicts, other work assignments and returning payments promptly to landowners, as well as concentrating the liaison in a single individual between field staff, contacting and species specialists.

Unpredictable Role of Nature

As with the initiation of any program, some things do not work as well as designed or intended, and unforeseen problems occur. A severe drought in Texas over the four-year period had a substantial negative impact on most projects, both in delaying some activities and in directly affecting the successful establishment of other activities. Vegetation plantings that were not delayed were poor at best and a few were failures. Almost all prescribed burning has been postponed due to dry conditions, fuel reduction, and mandated burn bans. This can cause delay and requires additional landowner contact to retain interest. After five years of observation and experience a conclusion has been reached that some projects may need to have emergency funds built in for seedling loss or fluctuation of prices for various materials needed in a project.

PROJECT COSTS: Total Costs $462,215.01; Reimbursed Amount $100,000.00

PREPARED BY: Cecily A. Warren **DATE:** 12.30.02
Cecily A. Warren

APPROVED BY: Michael E. Berger **DATE:** 12-30-02
Michael E. Berger

APPROVED BY: Rosanne Roegner **DATE:** 12/30/02
Rosanne Roegner
Federal Aid Coordinator

Attachment 1

Plot 1 - triangular plot 24m at 180 degrees from a mesquite with orange flagging and a Plot 1 RP aluminum tag along fence line along county road; plot is 49 m (at 33 degrees) by 52.5 m (at 91 degrees) by 46 m (at 327 degrees)

	1997	1998	1999	2000	2001	2002
# of plants	85	0	18	3	0	0

Transect 1 - 5 m either side of a line which runs from Reference Point 1 mesquite at 4 degrees to a deer stand near the north fence

	1997	1998	1999	2000	2001	2002
# of plants	26	0	1	0	1	0

Plot 2 - triangular plot 45.5 m at 239 degrees from a large post with two smaller posts to the east along county road fence line. Post is flagged orange, and tagged Plot 2 RP with an aluminum tag. Plot is 59 m (at 22 degrees) by 62 m (at 56 degrees) by 34.5 m (at 303 degrees).

	1997	1998	1999	2000	2001	2002
# of plants	42	0	29	65	0	0

Transect 2 - 5 m either side of a line which runs from Reference Point 2 fence post at ca. 350 degrees to the same deer stand as Transect 1.

	1997	1998	1999	2000	2001	2002
# of plants	16	0	57	9	0	0

Plot 3 - triangular plot 26 m at 142 degrees from a large pecan east of a north-south cross fence near old house. Plot is 67.5 m (at 35 degrees) by 18 m (at 337 degrees) by 78 m (at 22 degrees).

	1997	1998	1999	2000	2001	2002
# of plants	653(1 eaten)		55	54	4	11

Transect 3 - 5 m either side of a line which runs from the fourth fence post at 357 degrees to an old east-west cross fence in a weeping lovegrass pasture. The fourth fence post is west from a large corner post in the north-south cross fence.

	1997	1998	1999	2000	2001	2002
# of plants	19933(12 eaten)		195	94	40+	56

Plots and transects were established, and baseline information in 19 June 1997 was collected as shown above.

Extreme drought conditions in 1998 caused the drastic reduction in numbers. The plants were brown, dried and dead. Some seeds were produced, but their viability is unknown. Several plants had the apical meristems eaten by a large, browsing animal.

In 1999 plants were starting to dry up, and some were browsed.

An extreme drought in 2000 caused all plants within the plots and transects to wither and turn brown prematurely. No mature fruits were found in either the plots or the transects. Most plants were either stemless or with extremely short (less than 5 cm high) stalks. All flowers had aborted. Total numbers of plants were down in most plots and transects. No plants appeared to be browsed.

Again drought caused plants to be stressed. Most flowers were aborting and the plants looked very drought stressed. Total numbers of plants were down in all plots and transects except one. Data collected on 29 May, 2001.

Another very dry year although it appeared to have rained two to four weeks previously. Perhaps not as bad a drought as previous years as plants increased in numbers in two of the three plots/transects that had plants in 2001. Many of the plants had been browsed at the growing tip. However most plants had set at least a few fruit, even though the number of aborted flowers and fruits were high. Data collected on 30 May 2002.