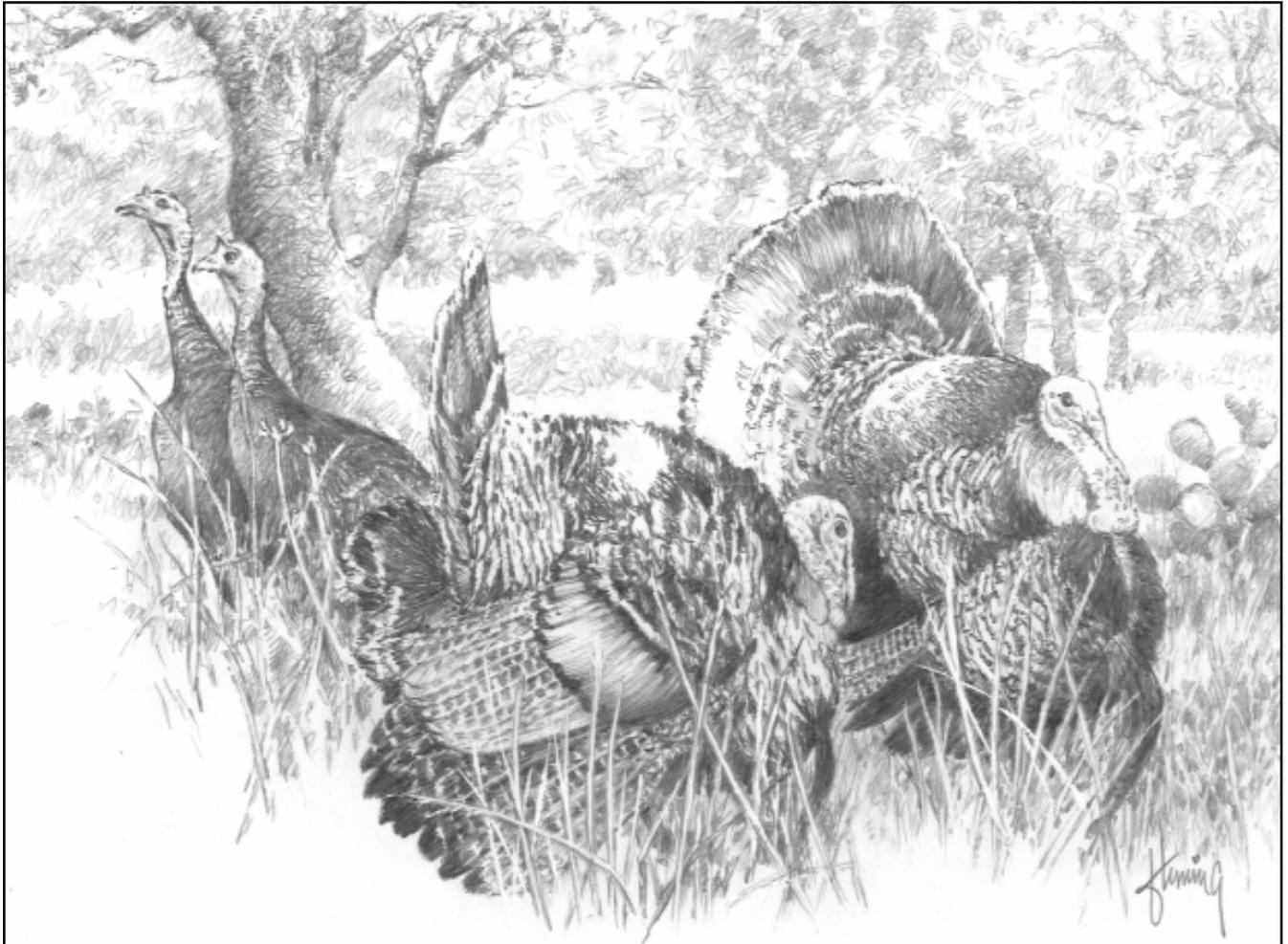


Rio Grande Turkey Habitat Management



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by
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Wildlife Division
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Rio Grande turkey are distributed throughout the central portion of Texas from the northern high plains to the southern gulf coastal prairies. The occurrence of this species becomes less frequent as they approach far west Texas and they are not found in deep east Texas.

The popularity of the Rio Grande turkey as a game bird has increased markedly in recent years; primarily due to the acceptance of the spring gobbler hunting season by hunters and landowners alike. Although many birds are harvested during the fall season, these birds are generally taken incidental to deer hunting. The spring gobbler season presents a unique hunting experience when the birds can be called within close range and during a time when there is very little other hunting opportunity.

Through proper management, land managers can establish or enhance huntable turkey populations which not only provide an additional source of hunting income, but increases man-days of hunting opportunity for the hunting public.

Basic Habitat Requirements

Food

Rio Grande turkey have the same basic habitat requirements as other wildlife species in that they require **food**, **cover**, and **water**. The distribution and availability of these basic environmental components is important. Food requirements for Rio Grande turkey greatly influence the distribution of these birds and seem to determine their population levels. Year-round food supplies apparently are the major requirements necessary to establish and maintain turkey in any given area.

Food habit studies in Reagan and Sterling Counties of Texas indicated that turkey utilized the following food items on an annual basis by percent volume in their diets: grasses - 36%, insects - 29%, browse - 19%, and forbs - 16%. Turkey need a reliable source of food which is available on a daily basis. These mentioned food groups then become of major importance due to their seasonal availability (Figure 1).

Insects are highly preferred turkey foods. Peak utilization period of this food source is during summer and fall when insects are most numerous. Insects are consumed in large quantities when available and searched out when less available. Turkey actively search out insects such as beetles during the dormant winter period.

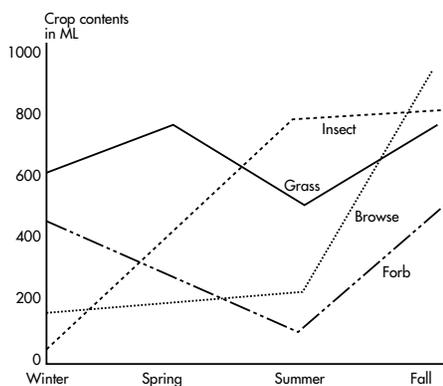
Grasses are utilized throughout the year but peak use of these food items

occur during the winter, spring, and fall. Rescuegrass is frequently eaten by turkey with the birds taking green seeds, leaves, and dried seeds. These food items are often available when other food items are scarce during late winter. Agricultural crops which are considered as grasses, such as wheat, rye, or oats, appear to be of major importance to the birds when available. This will be discussed at length in the supplemental feed portion of this brochure.

Utilization of browse plants includes fruits, berries, beans, and acorns produced by trees, shrubs, and vines. These items are important when available but they are seasonal and availability is usually of short duration. Important browse plant and fruit producing species are: acorns from many oak species (liveoak, Lacey oak, Spanish oak, shin oak, and post oak); berries produced by hackberry trees; elm seeds; fruit of Texas persimmon; mesquite beans; fruit and seeds of pricklypear and tasajillo; wild grape; chittum berries; agarito berries; and wild blackberry.

Use of forbs or weeds is also of importance to wild turkey. The birds utilize the green leaves and fruits of these plants but use is seasonal because forb growth and production is dependent on rainfall and temperature. Forb usage is at its peak during the winter period.

Figure 1. Seasonal Utilization of Food Types by Rio Grande Turkey



Cover

As with other game species, a diversity of cover is important for maintaining a prolific and healthy turkey population. Vegetative cover is required for escape, loafing, screening, nesting, and roosting. Turkey do venture out into cleared areas to feed but must have escape cover nearby in which they can hide.

Shrubs, weeds, vines, and grasses provide cover required for nesting as do agricultural crops such as alfalfa, wheat, and oats. Ground cover over 18 inches in height is desired by nesting turkey. Oftentimes, in the Edwards Plateau, these conditions are found only in highway rights-of-way and many nesting attempts are successful in these areas.

Turkey spend the night roosting off of the ground to escape the danger of predation. Normally, they will use tall trees as roost sites; however, in extreme cases they have used electrical poles and other man-made structures. The birds prefer roost areas with low-growing brush both under the tall roost trees and along the approach to the roost site. This low



brush or screening cover is extremely important and provides cover as the birds enter and leave the roost site. Turkeys customarily spend time in the loafing areas of the roost sites before ascending to the trees for the night.

Preservation of sites utilized by turkeys for roosting is essential for maintaining the population.

Water

Availability of surface water is a requirement of good turkey range. Turkey distribution is frequently associated with streams and river bottoms. This is thought to be not only a function of

standing water but the more plentiful food supply associated with the deeper soil types normally found along these drainage systems. However, the increase in watering sites associated with windmills and earthen livestock waterings have expanded turkey distribution. Several studies indicate that standing water is important to nesting turkeys with most nests located within one mile of water; however, nests are often located as close as 1/4 mile of water.



Watering sites located not more than 2 miles apart appear to be advantageous for the wild turkey. Research studies have reported significant increases in turkey populations as a result of an increase in watering sites that were constructed for livestock operations. This may be in the form of dirt tanks or troughs at windmills.

Well situated surface water availability is important to good turkey habitat management.

Habitat Assessment

When attempting to enhance existing habitat or to provide adequate habitat requirements, a land manager must assess existing food, cover, and water conditions, or lack thereof.

The location and protection of all winter roost sites is of extreme importance. These sites must be preserved! The taking or shooting of turkey from a roost is unlawful. Location of hunting blinds adjacent to roost sites should not be permitted. Any human disturbance of roost sites during late evening or at nighttime can cause the birds to move, sometimes permanently.

The manager needs to be aware of the types of use turkey are making of given areas. Which areas provide heavy use and why? Are certain areas being used primarily for nesting? Do other areas provide no use because woody vegetation such as cedar, shinoak, or whitebrush is too dense to provide suitable habitat; if so, selective clearing may be desired.

The manager must also make a mental inventory of food producing plants and seasonal food availability. If year-round food supplies are not available, artificial food plots or supplemental feeders may be helpful.

Water availability is an important habitat consideration. Many turkey populations have become established in close proximity to permanent water provided by creek and river drainages. Standing, drinking water is important but the abundance and diversity of plant and insect foods as well as cover which is found in association with permanent water is also desirable.



The class of livestock, the stocking rate, and the use of a rotational grazing system are instrumental in providing cover and forage for turkeys.

Management Recommendations

Management of the Food Supply

Basic goals to provide an adequate food supply for a turkey population throughout the year are to increase the variety, quantity, and quality of vegetation utilized by this species. Techniques for improving the habitat include the grazing of livestock in light to moderate rates and in a rotational grazing system, control of native deer and exotic big game, prescribed burns, and mechanical control and management of noxious brush species.

Rangeland must be lightly to moderately stocked with domestic animals to insure an adequate year-round food supply. Overstocking rangelands tends to eliminate high quality plants and reduce volume as well as diversity of vegetation. Maintaining cattle, sheep, and goat numbers within the food supply produced by the range is essential. Recommended stocking rates within the range of the Rio Grande turkey vary markedly. Some of the environmental factors affecting stocking rates are rainfall, soil and vegetation types, length of the growing

season as governed by temperature, topography of the land, and the previous livestock operation and land clearing activities.

The use of a deferred rotation system of grazing, in addition to the stocking rate, is essential for increasing food availability for turkeys and other wildlife species. The particular grazing system utilized should permit pastures to be rested during different seasons over a several year period. This helps prevent overuse of preferred grasses, forbs, and browse plants. Continuous grazing, even with a light stocking rate, can result in overuse of key plants.

Control of white-tailed deer numbers is important. Native deer consume large quantities of forbs and browse plants which turkey utilize. Rangeland overpopulated with deer can detrimentally affect vegetation quantity, quality, and diversity.

Besides maintaining native deer within the food supply of the habitat, the harvest of exotic big game is necessary in some areas. Axis, fallow, and sika deer, as well as aoudad and mouflon sheep, are common exotic big game animals in

portions of the Rio Grande turkey range. Excessive numbers of these animals have the same adverse effects on food availability as do any other grazing animal.

Prescribe burns can help improve the rangeland for deer, turkey, and other species of wildlife. It is a technique utilized to control the spread of regrowth juniper trees and increase plant diversity in the Edwards Plateau ecological area. Ashe juniper, or cedar, is an invader that decreases production of preferred grasses, forbs, and browse plants for livestock as well as wildlife.

Prescribe burning during the winter period increases vegetation diversity as well as increasing the nutritional value of the vegetation. Additionally, as the warm season progresses, there is frequently an increased number of species and volume of insects available in the burned areas.

In some instances, the mechanical manipulation of noxious brush species by the use of a bulldozer may be necessary. An example of this situation might be dense thickets of brush that contain trees too large to be controlled by prescribed burns. The use of a bulldozer should be



Prescribe burning can be used to control invading juniper while increasing range plant and insect diversity.

avoided in areas of very shallow top soils where large rocks may be uncovered or when desirable trees may be removed. Also, the needs and requirements of other wildlife species must be taken into consideration.

Food Plots

Although supportive research data may not be available, the presence of agricultural food crops can be of vital importance to existing turkey populations. Water and cover may be at minimal levels but without adequate, year-round food supplies, wild turkey cannot exist.

In areas where native plants or agricultural crops do not provide adequate turkey food, food plots may be necessary. These plots will require fencing to exclude livestock. In areas of high deer populations, food plots need to be large enough or fenced to prevent destruction of the crop by the deer herd. The green, leafy material of winter wheat, rye, and oats is readily taken by turkey during the winter period. Birds have been observed feeding on these cultivated crops daily. The crops from birds harvested during the winter period have been found to be full of the leaves of these green plants. Ripened seed of many cultivated crops are actively sought out by turkey. Some of these are wheat, oats, rye, milo, peas, peanuts, baled hay (when seed heads are included), sorghum almum, corn, and millet. Also, food plots tend to attract insects during the spring and summer, which furnish an essential or preferred food source. Again, special emphasis should be placed on providing additional food sources during the late fall, winter, and early spring periods. Research studies have indicated that by providing adequate nutrition prior to and during the nesting season, fertility and subsequent poult production can be increased significantly.



Food plots, both summer and winter, can be used to supplement natural forage as well as providing an attractant for insects in the spring and summer.



These pictures depict two different types of turkey feeders, plans for which are included in this bulletin. Many different modifications can be made to fit your particular situation.

Supplemental Feeding

In addition to cultivated crops, artificial feeders can provide a supplemental food supply. The Texas Parks and Wildlife Department, when stocking wild-trapped birds in unoccupied turkey habitat, recommends the placement of supplemental feeders to aid in holding the birds in a given area and to give them the opportunity to establish themselves. The more common foods utilized in feeders are shelled corn, milo, wheat, oats, rye, and high-protein pellets.

Basically, any type of feeder which allows the birds "free-choice" accessibility to the feed is acceptable. Feeders should be fenced to exclude livestock, deer, and exotics. A 4-or 5-wire, barbed wire fence placed relatively close to a feeder will deter deer use. Platform feeders are helpful to limit use by deer and "varmints". If high protein pelleted feed is used, it is often necessary to mix milo or corn with the pellets until the birds become accustomed to the pelleted feed. In several documented instances turkey have become established, with a consequent increase in numbers, where high protein pelleted feeds were available.



Cover Management

Identification of roosting sites is essential to the preservation of this key limiting factor. Roost sites will vary greatly according to vegetation types and topography; however, frequently the roosting areas are associated with large timber near creeks, rivers, and intermittent or dry drainages. In some instances, large oak motts in a savannah habitat type are utilized. Canyons or draws with steep bluffs that have tall timber are also favorite roosting areas.

Some of the species of trees that turkey utilize for roost sites include pecan, sycamore, cottonwood, willow, cypress, hackberry, elm, mesquite, live oak, Spanish oak, and chinkapin oak. If you want to locate a roost site, begin by looking under tall timber along drainage systems. A well used roost will have abundant droppings, feathers, and signs of scratching. Roosts may also be located by looking and listening for birds going to or leaving the roost at dusk and dawn.

Preservation of sites utilized by turkeys for roosting is essential for maintaining the population. At times, this may become a problem as a result of large trees being located in fertile and

deep soils of the bottomland habitat. These sites are frequently converted to improved pastures or croplands.

Screening type cover leading to or around and under a roost site is essential. Total removal of brush along or adjacent to the taller roost trees will make the site unacceptable to the birds and it will no longer be used.

Nesting cover is a requirement for protection from predators and weather. Nests are most frequently located in cover 18 inches in height. This may be found in

the form of grasses, forbs, shrubs, or man-made brush piles. Moderate stocking of rangelands with domestic livestock and the use of a deferred rotation grazing system are essential for producing adequate ground cover and nesting cover for turkeys. Leaving brush along fence rows will increase cover. Also, shrubs, weeds, and grasses growing under the limbs of downed trees will furnish protected nesting sites. However, this is secondary to proper rangeland management with respect to grazing by livestock.



Screening type cover leading to or around and under a roosting site is essential. The left side of the picture depicts good mesquite screening cover leading to a pecan bottom roost site in the background.



Nesting cover 18" in height is necessary to protect turkey nests from predation and weather. Brush piles can be used to furnish turkeys with nesting cover by protecting grasses of adequate height from grazing.

Brush Management

Brush management is an important component of habitat management. Clearing practices can either destroy or improve rangeland for turkeys. Solid block clearing on a large basis can eliminate both cover and a food source required to maintain a turkey population. On the other hand, rangeland consisting of a dense cedar brake is very poor habitat. Some researchers have reported that high concentrations of turkey were found in areas where 20% to 75% of the brush had been removed. Additionally, there are instances where removal of any brush species may be detrimental such as a grassland savannah when scattered motts of liveoak and other trees are the only available cover. Some basic guidelines for brush clearing are as follows:

1. Brush cover must be left along water courses. Brush should also be left along drainages that run into water courses.
2. Roosting sites and travel lanes to these sites should be preserved. Clearing activities near roosting sites can result in the birds permanently leaving the area.
3. Strips can be established on flat terrain and cleared at a 1 to 1 ratio. Remove 150 yards of brush and leave 150 yards. This is a rough guideline to prevent unreasonable clearing. To prevent excessive clearing, avoid removing over 50% of the brush in a pasture.
4. Brush islands or strips can be left as escape cover and travel ways when large areas are cleared.
5. Block clearing can produce good results if done in a checkerboard pattern.
6. Irregular patterns of cleared land produce the greatest amount of edge effect. Where possible, clearing patterns should follow the contour of the terrain.
7. It is important to recognize that many brush species furnish escape cover, nesting cover, and roost sites. The importance of many woody or brush species as key food plants must be evaluated before clearing.
8. As a general rule, the use of chemicals for brush control should be avoided since desirable vegetation may also be killed in the process.



Surface water, in the form of stock tanks, overflow from windmills and watering troughs, is an important element of good turkey habitat.

Water Management

As previously stated, watering sites located not more than 2 miles apart are generally sufficient; however, watering sites located at closer proximity would be better.

Overflow ponds at windmill locations will furnish turkeys with needed surface water, and the construction of dams along drainages will also increase water availability. Remember, water sources must be available throughout the year.

Harvest

Regulations set by the Texas Parks and Wildlife Department, which concern the Rio Grande turkey, are established to prevent waste or depletion of this game species while attempting to furnish recreation on a sustained basis. The key tools of regulations concern bag limits and season time and length. An example of bag limits is the gobbler only versus the either sex bag. The gobbler only limit during the fall is a conservative bag that is utilized in areas with moderate to heavy hunting pressure. This is usually governed by landownership size. Areas or counties with small ranches generally have higher concentrations of hunters as opposed to large ranches. The either sex bag, which allows a hunter to take either a gobbler or hen is utilized in western counties that have high concentrations of

turkeys and limited hunting pressure as the result of larger ranches. The lengthy fall season extending from November to January is an example of a liberal regulation as compared to the shorter gobbler only spring season.

Hunting gobblers with a call during the spring mating season is truly a unique and exciting hunting experience. This widely distributed and numerous game bird can be hunted during this season without harm to the population. However, to more closely set the dates of the spring season so that the majority of the breeding has taken place, the Texas Parks and Wildlife Department conducted a 3-year turkey breeding chronology study. The study, conducted from 1991 through 1993, indicated that mating in central Texas was largely completed by April 16, with approximately 66.7% of the hens being bred by this time. The spring gobbler season is set to occur after the majority of the hens are bred and have started nesting. At this point, most of the gobblers become surplus and can be harvested without impact to the turkey population.

Establishing specific harvest quotas on a ranch is a management art that an



Turkey hunting furnishes high quality recreation for hunters and increased revenue for landowners.

owner or operator can develop. The annual quota should be flexible enough to adapt to changing environmental conditions such as drought or above normal rainfall. The quota should take into consideration long term population trends, production, and sex ratios. The manager should determine if the population is increasing, decreasing, or static, and then utilize this information to adjust his harvest recommendations.

The annual trend of turkey numbers can frequently be determined from winter roosting counts. These are areas where turkeys congregate in large numbers during the winter to roost. They can be counted when the birds leave the roost site at daybreak or when they return in the evening.

An evaluation of production and sex ratio can be obtained from turkey observations made during the summer months of July and August. A ratio of three poults per hen is considered good to excellent reproductive success, while a ratio of two poults per hen is classified as fair production. Productivity below these levels is considered to be poor. An optimum sex ratio would be 2 to 3 hens

per gobbler. This range should be adequate for reproductive needs and furnish an adequate volume of gobblers for hunting recreation.

The manager uses the long term population trend, production success, and sex ratio to make judgements concerning increasing or decreasing the harvest quota. Harvesting 10% to 20% of the gobblers annually would be a conservative approach. Increasing the quota to 30% of the estimated gobbler population may be practical only after several years of above average production. Within counties where there is an either sex bag, the hunting of hens is practical on ranches with high turkey numbers and limited or light hunting pressure.

On any given area, a turkey population is usually very cyclic. The numbers tend to increase with high nesting success during years of normal rainfall and decrease during periods of prolonged drought conditions. It is not unusual to have 2 to 3 years of poor production followed by high production when range conditions are favorable. In short, the manager must be flexible to adjust to changing conditions.

Suggested Reading List

Breeding Chronology in Rio Grande Turkey Hens

By Billy Don Davis, Federal Aid Final Report, Job 7.07, TPWD. 192 pp.

Food Habits of the Rio Grande Turkey in the Permian Basin of Texas

By George W. Litton, Technical Series No. 18. TPWD

The Wild Turkey: Its History and Domestication

By A. W. Schorger, University of Oklahoma Press. 625 pp.

The Wild Turkey: Biology and Management

Compiled and edited by James G. Dickson, National Wild Turkey Federation Book. 463 pp.

The Wild Turkey and Its Management

Edited by Oliver H. Hewitt, The Wildlife Society, 1967. 589 pp.

The Wild Turkey: Biology and Management

Edited by James G. Dickson, Stackpole Books, 1992. 462 pp.

Turkey Feeder

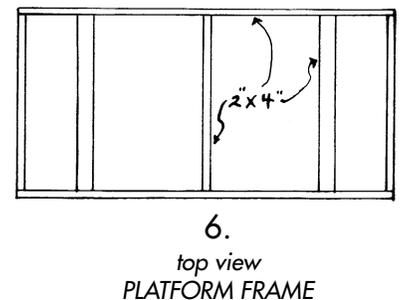
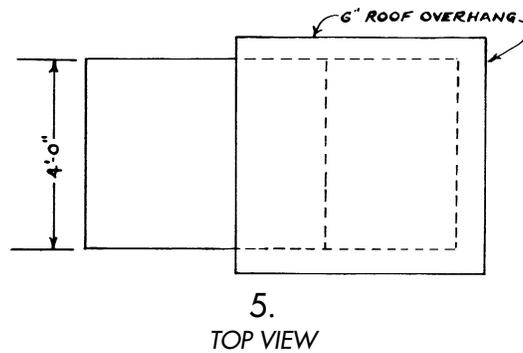
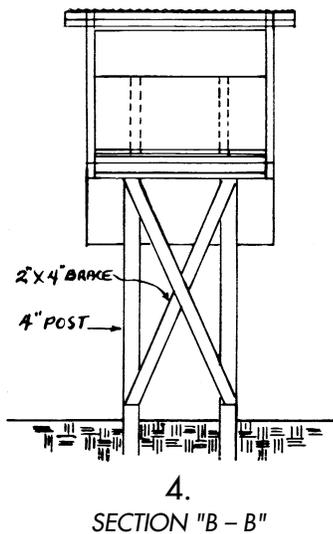
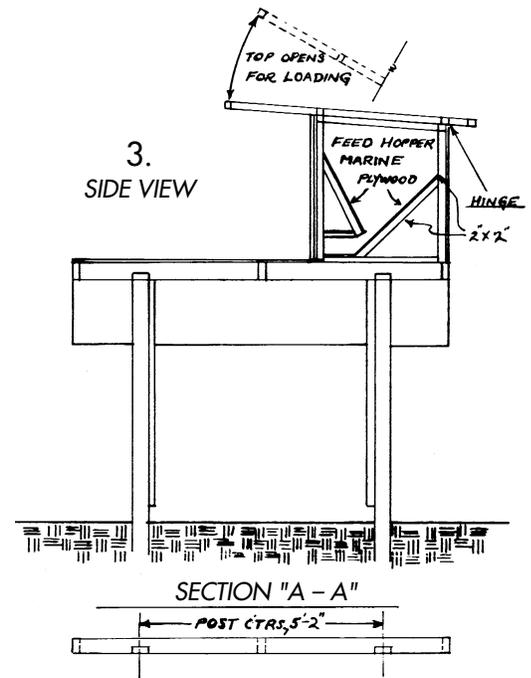
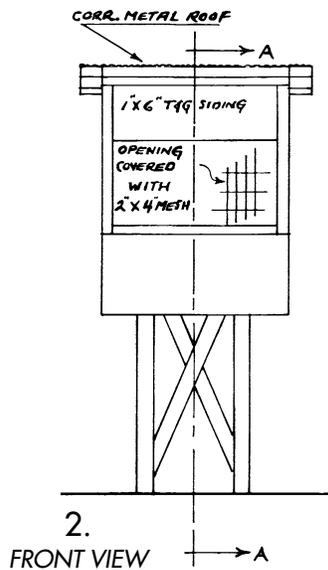
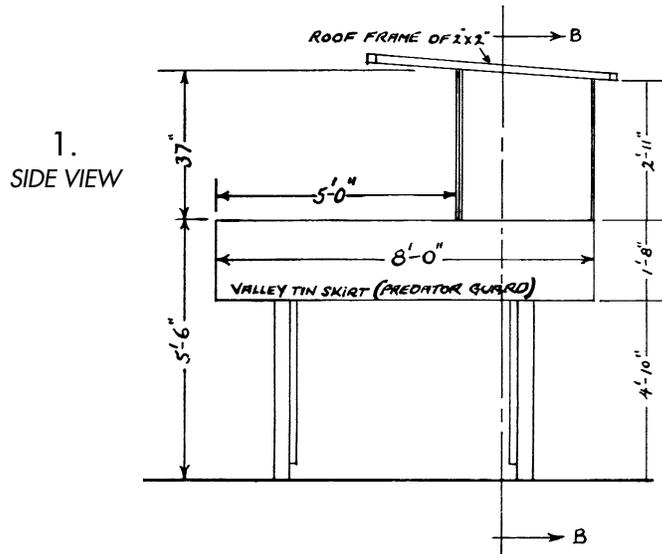
500 pound capacity

This type of feeder is being used on several wildlife management areas and on private ranches. The inset legs and valley tin around the platform practically eliminates the tremendous waste that usually accompanies the use of turkey feeders by ever-hungry raccoons.

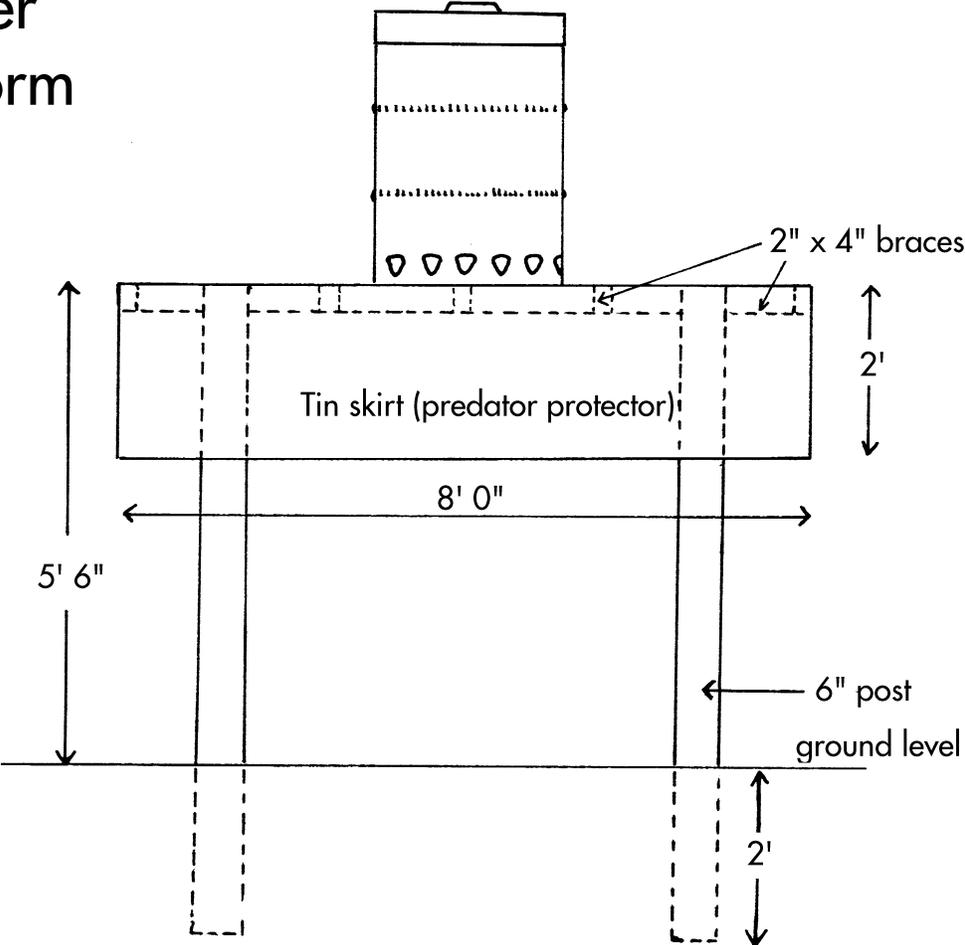
Care should be taken not to place the feeder directly under a tree or the raccoons will soon learn to climb the tree and drop down on the feeder. While it takes a little longer for turkeys to learn to utilize this type of feeder, the savings are well worthwhile. Turkey will normally accept this feeder more readily if a few pounds of grain such as milo are scattered on the ground around the feeder at weekly intervals until turkey locate the feed in the hopper.

General Notes

1. Platform covering and exterior of hopper of 1" x 6" tongue and groove.
2. 'Weldwire' mesh used over feed opening.
3. Top of hopper secured by hook and eye at each side.
4. Tongue and groove siding on hopper installed with tongue edge up.
5. Posts set in from edge of platform to deny access to predators.



Turkey Feeder Platform





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