



Wildlife Management Plan

Alum Creek

Wildlife Management Association

The Alum Creek Wildlife Management Association (ACWMA), a non-profit corporation, is the collective membership of landowners and their family, friends, and agents that have property within the Association's designated coverage area within Bastrop County, Texas.

The primary goals and objectives of the Association are to:

1) Promote, educate, and encourage the members of the Association to adopt environmentally sound management and conservation practices for the enhancement, preservation, and conservation of all wildlife and their habitats; with specific emphasis in sound habitat management for the critically endangered Houston toad (*Bufo houstonensis*).

2) Facilitate the gathering of members, at least twice a year, to provide for the dissemination of pertinent information. Such information includes, but is not limited to, current population trends for the Houston toad, updates from the Lost Pines Habitat Conservation Plan (LPHCP) program, updates on the Houston Toad Programmatic Safe Harbor Agreement (HTPSHA), updates on current environmental and wildlife issues, habitat management practices, overviews of conservation groups and/or organizations, changes in regulations that may affect the area, and any other pertinent topic that would benefit the knowledge, understanding, and experience of the members.

3) Expanding the education and awareness of sound conservation stewardship within the Association's coverage area. Association members are encouraged to actively promote the details and information of the Association and its objectives to prospective landowners/members.

Membership

152

Membership Acreage

4,629 Acres

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- The designated coverage area of the Alum Creek Wildlife Management Association covers approximately 124,000 acres of the northeast quadrant of Bastrop County, Texas.
- This Association boundary coincides with the “Potential Houston Toad Habitat” as deemed by the United States Fish and Wildlife Service (USFWS) and the encompassing “Incidental Take Coverages and Assurances” provided for by either the programmatic Lost Pines Habitat Conservation Plan, administered through Bastrop County, or the USFWS Programmatic Safe Harbor Agreement, administered by TPWD.
- This region of Bastrop County encompasses a portion of the unique Lost Pines ecosystem, along with a multitude of habitats associated with the Post Oak/Blackland Prairie Ecoregion of Texas.

The Lost Pines forest is an approximate 13-mile belt of loblolly pines (*Pinus taeda*). The stand is unique in that it is a disjunct pine forest population that is more than 100 miles separated from the loblolly pines of the Piney Woods region found in East Texas. First described by early Spanish explorer Domingo Terán de los Ríos in 1691, and later by Stephen F. Austin, historical settlement of this area is associated with land grants from the Mexican government. Thought to have been a larger pine forest that subsided during the last glacial period of the Pleistocene era, it has historically been a target area for lumber industries. Lumber harvesting began in the Lost Pines in the late 1830's-40's, with the height of the lumber harvest occurring in and around the 1880's. The Lost Pines historically sized in at approximately 89,950 acres and by 1952 it was estimated that 85,000 acres remained. Amongst the unique Lost Pines habitat are two TPWD State Parks, Bastrop State Park and Buescher State Park. These state parks are conjunctively referred to as the Lost Pines Complex within the TPWD State Park division and strive to protect the habitat of this unique region from harvest and development; while, providing outdoor recreational opportunities to the visiting public. In 2011, the Lost Pines region experienced the Bastrop County Complex Wildfire, occurring during September and October of 2011. With years of drought leading into one of the worst droughts the state has ever experienced, and with highly unstable seasonal weather conditions, the fire quickly crowned and consumed roughly 34,000 acres. An estimated 96% of Bastrop State Park was affected by the fire. Since the Complex fire, efforts have been undertaken by several groups and agencies to reforest the affected portion of the unique Lost Pines eco-region. The Texas A&M Forest Service and Bastrop County, along with the Lost Pines Recovery Team and TreeFolks, developed a program to reforest private property affected by the fire, embarking on a 5-year campaign to plant more than 2 million loblolly pine trees on privately owned land in Bastrop County. In October of 2015, the Hidden Pines Wildfire occurred to the west of the 2011 burn scar and resulted in a consumption of approximately 4,500 acres (includes some acreage within the 2011 burn scar). The extent of these record wildfires can be directly correlated to the current habitat conditions and their management, or lack thereof.

In addition to the unique Lost Pines ecosystem, the Association is situated amid the Post Oak Savannah/Blackland Prairie Eco-region of Texas. Historically, naturally regimental wildfires and the uninhibited grazing of bison formed and molded these ecoregions into oceans of gently rolling hills of tall-grass prairies, intermingled with mottes of woodlands. The natural maintenance of these pristine ecosystems was once again led by wildfires and bison; followed by other natural events (i.e. floods, tornadoes, etc). Wildfires, both naturally occurring and manmade (Native Americans), consumed the landscapes on a regular basis. Burning until arriving at natural barriers, wildfires would recycle the

buildup of vegetation within prairie/savannah habitats into minerals and nutrients and control natural brush encroachment of these open-space systems; thus, exposing the enriched soils to the sunlight for use in the extensive vegetation rejuvenation process. Within the woodlands of the riparian corridors and oak mottes, wildfires would also recycle the nutrients and minerals back into the soils, while at the same time, effectively controlling the growth of understory vegetation. Herds of bison would consume extensive amounts of vegetation. Their defecation would expedite the breakdown of vegetative material and organic matter, generating minerals and nutrients for the soils. Hoof disturbance, created from having thousands of bison in a herd, would produce additional disturbances of the soils. Also, especially when combined with the disturbance of the soils, bison effectively supported the transport and propagation of vegetative species via their thick hides and digestive processes. While the average annual rainfall ranges from 35 to 48 inches per year, a portion of this area exhibits characteristics associated with arid habitats due to clay pan soils; with an exception of the Carrizo sands, which harbors the unique community of the Lost Pines.

The Post Oak Savannah advances almost indiscernibly with its subtle deviations in soil and vegetation. Consisting of eclectic vistas of tall-grass prairie (little bluestem, Indiangrass, switchgrass and a myriad of wildflowers) only to be episodic by the occasional motte of trees (scattered oaks; mainly, post oaks and blackjack oaks) giving the scenery a natural estate-like sensation. Within the scattered mottes and woodlands, cedar elm, sugarberry, eastern red cedar, and common persimmon are intermingled with stands of flowering dogwood, buttonbush, bumelia, American beautyberry, and yaupon. The transitional area between woodlands and prairies, referred to as edges, was especially attractive to early European settlers. The epicenter of early use for the Post Oak Savannah, by early settlers, consisted primarily of the grazing of cattle and horses.

Farming was common. Farming practices drastically escalated in the 1870's. With advancements in technology, including the vast extent of the railroad system and the ease of farm to market operations, tall-grass prairielands were plowed under. The rich loams of the Blackland Prairie were idyllic for growing crops. Within a rather brief stint, most of the desirable land was cultivated. Excessive cultivation and ranching of this ecosystem have, to this day, left less than one percent of the intact native blackland prairie system that used to flourish. In the confluence of the blackland/post oak system, timber lands and oak mottes were cleared and plowed under. With the influx of European settlement and reliance on the landscape, native prairies subsided, leaving the landscape feral due to the over-harvest and over-marketing of the landscape and its associated wildlife species. The reliance on the landscape for survival, when combined with anti-fire philosophies, drastically interrupted the natural maintenance processes that sustained the original ecosystem.

To date, antiquated philosophies within the realms of land management and wildlife management, have led to a drastic decline in the quantity and quality of both the blackland prairie and post oak savannah ecosystems. With the suppression of fire, when combined with the unregulated harvest of wildlife and the unbalanced drive of ranching and farming, these ecosystems have transitioned into unhealthy, unmanaged systems. In the offset of the 1930s dust bowl, and coupled with time-related philosophies, once native, thriving grasslands were diminished. In their place, thru the years, a wide array of exotic grasses (Old World bluestems, bermudagrass, bahaiagrass, etc.) and other woody vegetative species (ligustrums, Russian olive, Chinese tallow, Chinaberry, etc.) were introduced to provide the basis of mass production for the agricultural industry. With no repercussions, exotic species continue to be planted and propagated, resulting in today's influx of issues related to non-native species throughout the ecoregions. Exotic grasses and other exotic herbaceous plant species are prominent competitors when put up against the native

vegetation. These exotics tend to thrive on excessive disturbances (i.e. grazing, fires, flooding, mowing, etc.) and are well adapted for a wide array of environmental conditions that would induce stress within the native species; thus, the native species are regularly out competed.

Similarly, woodlands and oak mottes have become dilapidated due to mis-guided viewpoints and perceptions throughout the ages. The lack of dynamic land management has led to dense, over-grown woodland understories throughout most of the region. Without having natural fires to manage the forest understory, woody vegetation (i.e. yaupon holly, juniper, cedar, etc.) has grown unchecked. The overgrown understory has closed the niche between the forest canopy and the zone in which the understory was naturally limited. The loss of this such an ecological niche has drastically reduced the viable habitat for many avian species, forcing them to move out and/or away to find more suitable habitat. Another major issue these overgrown understories have presented is the lack of herbaceous vegetation on the forest floor. Species such as yaupon and cedar/juniper have grown dense enough to inhibit sunlight from reaching the forest floor and have naturally acidic off cast from their refuse (leaves and limbs). Though they are native, their natural traits ensure their survivability by allowing them to outcompete other vegetative species. The lack of an herbaceous forest floor results in diminished viable food sources for a wide array of wildlife species and leaves the soils exposed and prone to erosion issues. Specifically, within the Lost Pines ecosystem, the overgrowth of the yaupon and cedar/juniper understory has intermingled with pine needle off cast, further increasing the shading of essential sunlight within the sub-canopy. Many of these understory species are also extremely volatile under the right weather conditions; therefore, excessively overgrown understories throughout the ecoregions pose viable, extreme wildfire threats.

Though farming is still a major land use in the eco-region today, the Post Oak Savannah, much like the Blackland Prairie, has been converted into vast acreages of improved pastures consisting of Bermudagrass, Bahaia grass, and King Ranch bluestem. Diverse wildlife and vegetation communities that once befell the prairies and savannahs have been reduced severely and continue to decay. Loss of such communities is further exasperated by development, urban sprawl, and the lack of sound land management (understory thinning, brush management, rotational grazing, etc.) Many pasturelands and grazing lands throughout, are being inundated with juniper, mesquite, cacti, huisache, and other brush species. Continuous brush encroachment decreases livestock production by inhibiting the early successional seral stage that can be achieved through managed grazing, shredding, and prescribed fire activities. Many of the once flourishing wildlife and vegetative communities are now at a higher risk of peril, as seen through the drastic decline of many herbaceous and wildlife species such as big bluestem and the Houston toad. Land and wildlife management here in Texas falls heavily on the shoulders of landowners and land managers. With the adoption and implementation of sound, holistic management approaches, landowners and land managers can lead the way for the reclamation of the pristine habitats that used to thrive within these ecoregions.

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Management practices listed below are general guidelines for the Post Oak savannah/Blackland Prairie eco-region. Specific guidelines for habitat and wildlife management within the “potential Houston toad habitat” area should cross reference listed activities with the attached document:

“Appendix F: LPHCP Wildlife Management Guidelines”

General Habitat Management Considerations and Recommendations for the Post Oak/Blackland Prairie Eco-region

Fundamental requirements that must be considered when managing wildlife habitat include food, cover, water and the proper distribution of these elements. Wildlife and habitat management should be directed at maintaining a productive and healthy ecosystem. The ecosystem consists of the plant and animal communities found in an area along with soil, air, water and sunlight.

All management activities should be aimed at conserving and improving the quantity and quality of soils, water and vegetation. Managing for plant diversity is essential. A diverse habitat has a good mixture of various species of grasses, forbs (weeds), and browse (woody) plants. Many of these plants will be at various stages of growth, which adds another element of diversity. The diversity of vegetation increases the availability of food and cover for wildlife species. A greater diversity of plants results in more food being made available during different periods of the year.

The volume and diversity of plants protects the soil from erosion. Also, the decomposition of vegetation helps restore needed minerals to the soil to sustain plant life. Vegetation improves the water cycle by increasing water infiltration into the soil and reducing surface runoff. An ecologically based habitat management program serves to improve water cycling, mineral cycling, and energy flow and manipulate plant succession.

These processes enhance vegetative quantity, quality and diversity. A greater diversity of all life forms, including microorganisms, insects, reptiles, amphibians, birds and mammals may be achieved under sound management. The land's long-term health is improved and conserved for future generations to utilize as a source of income, recreation and for aesthetic enjoyment. Plant communities with a diversity of grasses and native broad-leaved weeds (forbs) are more productive than those comprised primarily of grasses.

The climax plant community of most rangelands is comprised primarily of perennial grasses with a relatively low forb component. While this may be suitable for livestock and some grassland wildlife, most species are dependent on the seeds and foliage of forbs. Periodic disturbances such as fire, soil disturbance, livestock grazing, and mowing can set back plant succession and maintain a diverse plant community, simulating conditions under which plants and animals evolved within ecosystems in Texas.

The following listed categories are the seven main components of habitat and wildlife management in the Blackland Prairie/Post Oak Savannah Ecoregions in Texas.

Habitat Control

Grazing Management- Focusing on good land management, as opposed to strictly livestock production, allows a landowner to adjust the presence or absence of livestock; to include, controlling the grazing time and intensity level that is beneficial for both plant health and diversity.

Grasses evolved with grazing pressure. Forage availability and production is dependent on stocking rates, rest, and rainfall. Sedentary grazing or limited rotation grazing with even average stocking rates and rainfall can create severely abused and overgrazed range. Grasses are continually grazed beginning with the most palatable first and on down the line until the plant community is primarily less desirable shallow rooted grasses and a few undesirable forbs. Overall plant diversity decreases.

An abused range lacks adequate groundcover and available browse to support healthy livestock and wildlife populations. Overgrazing with domestic livestock causes problems in managing for healthy ecosystems. Good grazing management starts with the basics:

1. the kind and class of livestock grazed
2. stocking rate or intensity
3. duration of grazing to provide rest periods for the pastures and
4. excluding livestock from sensitive areas to promote vegetation protection and/or recovery.

In an ideal program the goal is high intensity short duration. The stocking rate is such that every plant should be bitten off once during each grazed period or rotation. A sedentary grazing allows plants to be bitten over and over starting with the most palatable first. In a sedentary grazing system, the less desirable vegetation keeps growing while the more palatable ones continue to get bitten. This can result in a pasture being underutilized, but still overgrazed and eventually the removal of your most desirable species.

Having enough animals to bite the plants only once means livestock can only stay in one place for a short period of time before they must be moved to another pasture. High intensity short duration grazing requires several pastures within the grazing system to allow for extended rest periods. High intensity short duration grazing systems allow livestock to act as a tool to manipulate and enhance wildlife habitat and plant diversity as the bison did historically in our grassland and savannah ecosystems.

There are several variations of this system, finding one that you can implement on your property is the key. If it is unrealistic to divide a property into enough small pastures to both sufficiently graze and rest the range, a small landowner may want to contact neighbors to pool property and allow each property to serve as a pasture in a grazing rotation. Properties without these options may have to use prescribed burning and/or mowing to achieve some of the results and benefits of grazing.

The following are common grazing systems that, when properly utilized, have been effectively utilized to support habitat and wildlife improvements:

- 1 Herd / 3 Pasture (preferably as a step in moving toward a 1 herd / multiple pasture {4+} grazing system)
- 1 Herd / 4 Pasture
- 1 Herd / multiple pasture multiple herd / multiple pasture (goal is to move toward always resting 75% of area)
- High intensity/low frequency (HILF)
- Short duration system
- Other type of grazing system (ex. a short-term stocker system):
- Planned Deferment (e.g., number of years livestock will be deferred from the property, etc.)

*** Use rotational grazing systems. The most critical part of a grazing system is the stocking rate. Recommended stocking rates are 1 animal unit per 8 – 15 acres of native grassland; 3 – 6 acres on improved pasture; and 50 – 75 acres on primarily wooded areas. Cattle are an excellent tool for wildlife management when they are used properly. Cattle remove excess grass that wildlife do not utilize and the grass removal increases forb growth. Prevent the cattle from grazing more than 50 percent of available forage at any one time. Plants that are not overgrazed will have better root systems and be more drought tolerant.*

Prescribed Burning- Prescribed burning is the planned application of fire to set back succession. It improves habitat and plant diversity and returns nutrients to the soil. Burning can improve accessibility, increase both quantity and quality of forage and browse production, suppress brush and cactus, improve grazing distribution of livestock and wildlife, and remove excessive mulch and debris.

Prescribed burning is a tool used to maintain desired vegetation composition and structure. Achieving a management objective requires a particular set of conditions for burning and a specific type of fire or burn prescription. A burn prescription defines the range of conditions and factors under which a fire boss will light a fire to meet these specific objectives. Factors that influence the type of fire and its intensity include time of the year, fuel quantity and moisture, air temperature, humidity, soil moisture, wind speed, geographic area, and direction of the flame front movement in relation to the wind.

Generally summer fires are hotter type fires and fall-spring fires are cooler burning fires. As fuel quantity goes up and fuel moisture goes down the higher the intensity of the fire. The same goes for the higher the wind speed and air temperature and the lower the humidity and soil moisture, the hotter the fire. The plant response, after a fire, is influenced by fire intensity, plant condition at the time of the burn, as well as weather conditions and grazing management practices following the burn.

Burned pastures can be grazed immediately to reduce grasses that compete with forbs or to make use of now palatable prickly pear, then deferred to allow the pasture to rest. Whitetail and exotic wildlife numbers may have to be reduced prior to burning to allow time for preferred plants to reestablish following the burn.

A successful prescribed burn includes 3 basic steps:

1. Develop a burn plan that includes management goals and objectives, burn prescriptions, a safety plan, descriptions and maps of the burn unit, smoke management, legal requirements, contacts and notifications, a control and firing plan, and a post-burn evaluation
2. A safe and effective execution of the burn on the planned site, and
3. Good range, livestock, and wildlife management to maximize the effects of the burn.

Inexperienced managers should ask for assistance and/or advice from agencies such as Texas Parks & Wildlife or the Natural Resources Conservation Service.

*** Install 10 to 20 foot fire lines around perimeter fences and along roadways to implement a prescribed burn program. Native pastures and post oak woodlands should be targeted. Prescribed burns will reduce thick understory growth within woodlands and control*

woody encroachment within grasslands. If the woods are too thick with yaupon, the yaupon may have to be mechanically removed (chainsaw or shredder) prior to the fire to allow air movement within the forest. Divide properties into sections to implement a 3 to 5 year burning program with each plot being burned every 3 to 5 years. The freshly burned areas will encourage new growth of browse and forbs for white-tailed deer, turkey, and quail. Cattle should be restricted from burned sites for at least 3 months.

Range Enhancement- Mismanagement and overgrazing can lead to abused rangeland.

Continuous over-utilization by livestock and/or white-tailed deer and exotics can remove certain desirable and highly palatable plants from a system. Past land use practices such as mechanical clearing or farming may cause some plants to become rare or even nonexistent on certain ranges.

Range enhancement is the re-establishment or enhancement of plant communities with native grasses and forbs. These plants provide both food and cover for wildlife and help to meet the three basic requirements. Seeding mixes should provide for maximum native plant diversity and should include many broadleaf plants; which, are important forage for wildlife and seed production.

Range enhancement should include appropriate plants or seed mixtures, as well as methods of application, for the ecological region/county where the property is located. Non-native species are not recommended and should not be used.

Managing, restoring, and/or protecting native grass prairies is also considered range enhancement. This may or may not include actual reseeding but could include utilizing some of the “tools” to manage for the earlier successional stages of a native prairie. Grazing, burning, and mechanical disturbance (plow) are all options to manage and restore native prairie.

Brush Management- Brush management is only part of a good habitat management program and should be planned carefully so it fits in with overall management goals.

The primary principles that drive any good brush management program are:

1. Extent,
2. Pattern,
3. Selection, and
4. Method.

The extent to which brush is going to be cleared is the first step in developing a program. Overall goals of the property should be examined and can help to dictate the amount of clearing needed to meet wildlife, livestock and/or aesthetic expectations. Clearing 100% of the brush may be best from a livestock production standpoint but if your overall goal includes white-tailed deer management you may only want to clear 50%.

The pattern in which brush is cleared should consider wildlife cover and accessibility. This may include cover from predators, nesting cover, and loafing or roosting cover. Maintaining travel corridors that link sections of brush is also very important.

Selection includes both the site and the species of brush to be cleared. The site of brush clearing is important to make sure to keep erosion to a minimum. Soil type and slope

should be considered. Certain soils may also be selected for clearing because of better forage production. Also, removal of desirable plant species should be kept to a minimum.

The method is determined by total cost analysis, soil erosion issues, and the type or species of brush which is being targeted. Individual plant treatment may be all you need depending on the amount of brush you have.

*** Additional clearings should be created within thick post oak forests and mesquite flats to allow sunlight to reach the soil surface and increase forb and browse production. Cedar trees and yaupon should be targeted. Openings should either be long winding openings that are 10 to 30 feet wide or just small plots from one-half to two acres in size. Pile the cut trees and branches in the forest or within open fields to provide cover for rabbits and other ground dwelling wildlife. See attached guidelines for brush management.*

Timber Management- Forest management may include establishing, maintaining, harvesting, selectively removing or suppressing trees or woody species to allow for the growth of desirable trees, shrubs, grasses, and forbs for forage and nesting or protective cover for a variety of wildlife species.

Activities should focus on keeping the proper kind, amount, and distribution of woody cover for selected wildlife species as well as retaining snags (standing dead trees) for cavity nesters. Forested areas can be managed to produce wood fiber, while at the same time providing quality habitat for wildlife. Timber management strategies can be grouped into two categories, even-aged and uneven-aged.

Even-aged management is defined as the application of a combination of management actions, which results in a timber stand comprised of trees that are the same age. Harvest methods used to generate even-aged stands are clear-cut, seed-tree, and shelterwood. A clear-cut results in the removal of all merchantable timber and is usually followed by site preparation and planting. Both the seed-tree and shelterwood methods rely on natural regeneration. A seed-tree operation results in the removal of all merchantable timber, except for a few, well-spaced high-quality trees with good seed production that will be relied upon to regenerate the stand. Approximately 8-10 trees per acre may be retained for seed production. These seed-trees may be harvested after adequate regeneration has become established or may be left indefinitely. The shelterwood method results in the removal of 40 to 60% of the merchantable timber. The residual trees are relied upon for seed production and seedlings become established in partial sunlight under the shelter of the residual trees. Like the seed-tree method, residual trees may be harvested after adequate regeneration has become established. Regardless of the method used, consideration should be given to the size, shape, and distribution of the harvest area prior to the final harvest operation.

Uneven-aged management is defined as the application of a combination of management actions that maintains several age-classes and tree sizes within a timber stand. In order to produce a sustained yield of forest products, uneven-aged management results in continuous canopy coverage, recurring regeneration of desirable species, and the orderly growth and development of trees in several diameter and age-classes. Regeneration is through natural methods. Under an uneven-aged management strategy, individual trees (single-tree selection) or small groups of trees (group selection) are selectively harvested every 5-10 years. An area properly managed under single-tree selection results in a forest that is comprised of evenly distributed large, medium, and small trees of various ages. This system requires the removal of trees of all ages and sizes in order to maintain a healthy stand. To prevent

degradation of the stand, the application of this harvest strategy requires the expertise of a forester experienced in uneven-aged management. Diameter cutting (cutting all trees larger than a predetermined size, rather than using tree age as criteria) or "high-grading", can result in a stand comprised of inferior trees after a few cutting cycles and should be avoided.

During harvest, streamside management zones (SMZs), or a band of uncut timber, should be retained on each side of stream channels within the regeneration area. The SMZ should be a minimum width of 66 feet on each side of the channel. Along intermittent and perennial streams, widths of 100 feet or more are preferred. To provide maximum benefit to wildlife, these minimum widths should be extended to an identifiable natural break in topography (crest to crest), or to an area defined by the presence or absence of bottomland hardwoods. In addition to protecting water quality, these areas increase diversity, provide valuable mast production, and serve as wildlife travel corridors.

Effective habitat management often requires the availability and proper use of an array of management "tools". Due to varying management objectives, no one tool, or in this case timber management system, is the most appropriate for every situation. Misuse of a timber management strategy can cause degradation of habitat quality. As with all land management practices, managers should develop well-defined objectives, and select and properly implement the strategy that is the most appropriate for their management needs.

Riparian Management/Improvement- Riparian area refers to the low-lying areas on either side of a stream course. Management or improvement of the vegetation in these areas helps to alleviate erosion and protect water quality.

Much of our bottomland hardwood forests that existed historically have been cleared for agricultural production, degraded through improper timber harvest or other mismanagement, or flooded by the construction of flat-water reservoirs. Bottomland hardwoods have been referred to as the single most important wildlife habitat type and provide a wealth of benefits for wildlife, erosion control, flood control, water quality, water retention, and ecosystem health. Managers should attempt to restore and/or manage these riparian areas that include bottomland hardwoods, bogs, mixed pine and hardwood forests, and natural wetlands to promote ecosystem health and diversity.

Riparian management and improvements can include providing alternate livestock watering sites, deferring livestock from riparian areas during critical periods, excluding livestock from pastures with riparian areas, herbaceous plantings or seeding in degraded riparian zones, or replanting previously cleared or degraded bottomland hardwoods. Attention should specifically be given to protection of turkey roosting areas and snag retention for cavity nesters. The creation of permanent SMZs, as mentioned above in forest management, is also a vital part of any management program where the property is involved in timber production.

Wetland Improvement- Texas wetlands may include swamps, bottomland hardwoods, marshes, bogs, springs, playa lakes, or saline lakes. They are found along rivers, streams, lakes, and ponds; in uplands where surface water collects and at points of groundwater discharge such as springs or seeps. Wetlands are characterized by:

- Water or saturated soils for at least a portion of the year
- Plants that are adapted to wet environments (hydrophytic vegetation) and
- Soils that develop under depleted oxygen conditions (hydric soils).

Managing for wetland improvement can involve any practice that enhances, restores, or creates these three characters. Setting back succession in an existing wetland by using the axe, cow, plow, or fire to ensure the integrity of the wetland plant community can be important to the production of wetland wildlife food sources.

Closing a ditch that was once used to drain an existing wetland or creating a ditch or drilling a water well to increase water flow into a wetland can be very important to maintaining the hydrology or flooding regime needed for that wetland to continue to function. Cleaning out a seep or spring that is experiencing reduced flow due to siltation can provide more permanent or seasonal water. Building a levee with water control structures to manage the water regime and provide water during the growing season and for fall and winter migrants can be an important habitat source for waterfowl or shorebirds.

The management options for wetlands are as diverse as the wetlands themselves. Where the opportunity exists, wetland management provides unique opportunities for habitat management that benefits a great diversity of wildlife and overall land health.

Habitat Protection for Species of Concern- Endangered, threatened, or rare wildlife species are a byproduct of endangered and rare habitat. Habitat protection includes managing or developing additional areas to increase nesting sites, feeding areas, and other critical habitat types to overcome limiting factors and meet the three basic needs of certain wildlife species.

Habitat protection as it is defined here can include setting aside critical areas of habitat, managing vegetation for a particular species, maintaining overstory vegetation from degradation, and annually monitoring the species of concern. Management for migrating, wintering, or breeding neotropical birds should follow specific guidelines provided by the Texas Parks and Wildlife Department specific to your ecological region. Leopold wrote "...game can be restored by the creative use of the same tools which have heretofore destroyed it - ax, plow, cow, fire, and gun."

Broad-scale habitat management for nongame species, just as for game species, should include those practices that promote an increase in plant abundance and diversity in both composition and structure. Contact the Texas Parks and Wildlife Department for approved management guidelines before implementing activities designed to protect or enhance habitat for endangered species.

Prescribed Control of Native, Exotic, and Feral Species- The changing land management practices, combined with grazing pressure of too many deer, exotics, and livestock have degraded the quality of wildlife habitat across the state. Over-utilized rangelands have poor plant diversity, are often dominated by exotic or lesser quality vegetation, and support poor wildlife diversity. There may be little or no groundcover to capture runoff, rainwater is lost, and groundwater is not recharged. The whole system is suffering.

Using the gun as a tool to manage populations at or below the carrying capacity of the range is essential in providing quality wildlife habitat for a multitude of wildlife species. White-tailed deer have a high reproduction potential, and in the absence of natural predators, can quickly overpopulate a range. If white-tailed deer are allowed to overpopulate, they can have negative effects on the habitat.

Deer consume the most palatable plant species first, and excessive browsing pressure can eliminate these preferred plant species from the range. This reduces plant diversity and

has negative impacts on all wildlife species, not just white-tailed deer. Once a range is damaged by overgrazing, it can take years for a range to recover, even after deer numbers are reduced to an appropriate level. The most effective way to regulate deer numbers is through hunting.

Hunting allows the land manager to maintain deer numbers at a level that the habitat can support without causing damage to the habitat. In addition to habitat damage, deer from overstocked ranges generally have poor fawn survival, low body weights, and poor antler quality. The most effective way to reduce deer numbers is through the harvest of doe deer at appropriate levels. Once deer numbers are at a desired level, doe harvest must be continued to maintain the population at a desirable level.

Each time a deer hunter chooses to shoot a deer or not shoot a deer, a management decision that will affect the future of that deer herd and habitat has been made. For example, choosing to shoot or not shoot a doe directly affects the sex ratio and reproductive potential of the herd. Choosing to shoot, or not shoot, a yearling buck affects the current and future age structure of the buck population. Therefore, not only can the gun be used to manipulate deer numbers, it can also be used to manipulate sex ratios, reproductive potential, and age structure of the herd.

Exotic and feral species, which includes feral hogs or any number of exotic ungulates, compete directly with native wildlife species for available habitat. Population reduction or elimination of these non-native species will benefit your native wildlife management program.

In addition, land managers should attempt to control or eradicate exotic vegetation that in many cases can dominate native habitats or in the least reduce overall vegetation diversity. Native vegetation, as opposed to introduced species, provides for better, more productive wildlife habitat. Removal of species such as chinaberry, Chinese tallow, weeping lovegrass, coastal bermuda grass, King Ranch bluestem, and Kleberg bluestem will reduce competition with native vegetation. Effective control of exotic vegetation is dependent on the species and the method used should be an accepted or proven practice in the ecological region where the property is located.

Erosion Control

Pond construction/Major Repair- Building and/or repairing a permanent water pond to prevent, stop or control erosion as an approved Natural Resource Conservation Service (NRCS) watershed project while providing habitat diversity and benefiting wildlife. Whenever possible, owners should use ponds to help create or restore shallow water areas as wetlands and for water management.

Gully Shaping- involves reducing erosion rates on severely eroded areas by smoothing to acceptable grades and re-establishing vegetation. An area should be seeded with plant species that provide food and/or cover for wildlife.

Streamside, pond and wetland revegetation- means revegetating areas along creeks, streams, ponds and wetlands to reduce erosion and sedimentation, stabilize streambanks, improve plant diversity and improve the wildlife value of sensitive areas.

Establishing native plants on critical areas- is one method of controlling erosion. These plants also can provide food and/or cover for wildlife and restore native habitat. Some of the ways to establish these plants are as follows:

- A. Establish and manage wind breaks/shelterbelts by planting multi-row shelterbelts (at least four rows that are 120 feet wide by 1/4 mile), renovate old shelterbelts (re-fence, root-prune and replace dead trees) and establish shrub mottes,
- B. Establish perennial vegetation on circle irrigation corners by revegetating at least every other corner to reduce erosion and sedimentation, improve plant diversity and improve wildlife habitat,
- C. Plant permanent vegetation on terraces and field borders to reduce erosion, improve plant diversity and improve wildlife habitat.,
- D. Conserve tillage/no-till farming practices by leaving waste grain and stubble on the soil surface until the next planting season to provide supplemental food or cover for wildlife, control erosion and improve the soil tilth.,
- E. Manage Conservation Reserve Program (CRP) cover by maintaining perennial cover established under the CRP on erodible sites using proper management techniques such as haying, prescribed grazing or burning.

Dike, levee construction or management- a way to establish and maintain wetlands or slow runoff to control or prevent erosion and to provide habitat for wetland-dependent wildlife. Levee management may include reshaping or repairing damage caused by erosion and revegetating levee areas to reduce erosion and sedimentation and stabilize levees. This practice may include fencing to control and manage grazing use. Water diversion systems also can be installed to protect erodible soils and divert water into wetlands to provide habitat for resident and migratory water birds and wetland-dependent species.

Minimizing Erosion for Management Projects- Building and construction projects can be major causes of erosion. Landowners can take steps to minimize erosion during these projects by following a few simple, commonsense precautions.

- Plan construction activities during the spring and summer months, so that erosion control measures can be in place when rain comes.
- Examine your site carefully before building. Be aware of the slope, drainage patterns and soil types. Proper site design will help you avoid expensive stabilization work.
- Preserve existing vegetation as much as possible. Limit grading and plant removal to the areas under current construction. (Vegetation will naturally curb erosion, improve the appearance and the value of your property, and reduce the cost of landscaping later.)
- Use fencing to protect plants from fill material and traffic. If you have to pave near trees, do so with permeable asphalt or porous paving blocks.
- Preserve the natural contours of the land and disturb the earth as little as possible. Limit the time in which graded areas are exposed.
- Minimize the length and steepness of slopes by benching, terracing, or constructing diversion structures. Landscape benched areas to stabilize the slope and improve its appearance.
- As soon as possible after grading a site, plant vegetation on all areas that are not to be paved or otherwise covered.
- Control dust on graded areas by sprinkling with water, restricting traffic to certain routes, and paving or graveling access roads and driveways.

Temporary Measures to Stabilize the Soil-

- Grass provides the cheapest and most effective short-term erosion control. It grows quickly and covers the ground completely. To find the best seed mixtures and plants for your area, check with your local nursery, the Texas Department of Agriculture, Natural Resources Conservation Service, Texas Cooperative Extension Service, and Texas Parks and Wildlife Department.
- Mulches hold soil moisture and provide ground protection from rain damage. They also provide a favorable environment for starting and growing plants. Easy-to-obtain mulches are grass clippings, leaves, sawdust, bark chips and straw. Straw mulch is nearly 100% effective when held in place by spraying with an organic glue or wood fiber (tackifiers), by punching it into the soil with a shovel or roller, or by tacking a netting over it. Commercial applications of wood fibers combined with various seeds and fertilizers (hydraulic mulching) are effective in stabilizing sloped areas. Hydraulic mulching with a tackifier should be done in two separate applications: the first composed of seed fertilizer and half the mulch, the second composed of the remaining mulch and tackifier. Commercial hydraulic mulch applicators - who also provide other erosion control services - are listed under "landscaping" in the phone book.
- Mats of excelsior, jute netting and plastic sheets can be effective temporary covers, but they must be in contact with the soil and fastened securely to work effectively.
- Roof drainage can be collected in barrels or storage containers or routed into lawns, planter boxes and gardens. Be sure to cover stored water so you don't collect mosquitoes, too. Excessive runoff should be directed away from your house and into wildlife watering facilities. Too much water can damage trees and make foundations unstable.
- Structural Runoff Controls- even with proper timing and planting, you may need to protect disturbed areas from rainfall until the plants have time to establish themselves; or, you may need permanent ways to transport water across your property so that it doesn't cause erosion.

To keep water from carrying soil from your site and dumping it into nearby lots, streets, streams and channels, you need ways to reduce its volume and speed. Some examples of what you might use are:

- Riprap (rock lining) to protect channel banks from erosive water flow.
- Sediment trap to stop runoff carrying sediment and trap the sediment.
- Storm drain outlet protection to reduce the speed of water flowing from a pipe onto open ground or into a natural channel.
- Diversion dike or perimeter dike to divert excess water to places where it can be disposed of properly.
- Straw bale dike to stop and detain sediment from small unprotected areas (a short-term measure).
- Perimeter swale to divert runoff from a disturbed area or to contain runoff within a disturbed area.
- Grade stabilization structure to carry concentrated runoff down a slope

Predator Control

Predator Control- Natural systems contain predator-prey relationships that are complex and evaluating predator impacts on native species may be difficult to say the least.

Livestock injury and/or loss by predators are measurable with economic consequences and rarely tolerated by ranchers and managers. Loss of native species such as mule deer

predation by mountain lions in West Texas may not be realized, when in comparison to livestock, but may have an economic impact on ranchers with possible lower lease returns and loss of trophy animals. Landowners, livestock, and wildlife managers should recognize that the goal of predator control should be to protect livestock and minimize losses of native wildlife due to predation, not necessarily maximizing the take of predators.

Landowners and managers must evaluate the need for predator control on their property by assessing the abundance and diversity of predators present, the potential impacts by those predators on desired wildlife species and livestock, and the long-term habitat management goals of the property. For example, removing large predators from high deer density areas will only increase deer populations impacting plant diversity and cover, thus affecting the wildlife species dependent on those plants for food, shelter, and nesting cover. It may be difficult for landowners new to an area, or those not familiar with the needs of wildlife, to evaluate the impacts of predators on the resident and migratory species on their property.

The mere presence of some predatory species should prompt an immediate response from the landowner or manager. Feral cats, dogs, and hogs should be removed by whatever means from wildlife habitat and should not be tolerated by owners and managers. Imported red fire ants are another example of a species that should be controlled by every means available.

The Brown-headed Cowbird, a parasitic nester that impacts more than 225 species of birds, should be controlled by trapping when possible and only after attending a certification course given by Texas Parks and Wildlife Department at various times of the year. Native predator species such as raccoons, ringtails, opossums, skunks, fox, and rat snakes can have localized impacts on resident bird populations especially ground nesting species such as turkey, quail, and a number of songbirds. Control of predators such as these may not need to be a top priority if habitat conditions are where they should be, offering abundant ground and understory cover for shelter, food and nesting.

Coyotes, bobcats, and mountain lions, once considered predators of the “wilderness”, are now found in close proximity to suburban areas as urban “sprawl” or expansion encroaches on rural farm and ranch lands. As property is developed into this habitat, interaction with these highly adaptable and mobile species is occurring more frequently. A common-sense approach should be taken when considering control of these species. The landowner or manager must evaluate the predicted outcome of control measures prior to starting any control. For example, in many parts of the Edwards Plateau, as well as the State and nationwide, there are too many white-tailed deer and controlling the predators that feed on them would cause increased populations and further loss of habitat for other wildlife species.

Some precautions can be taken when large predators are present in an area close to people. Pets and newborn livestock should be protected by any means available (i.e. fencing, enclosures, housing, etc.). Keep pet foods from the outdoors and restrict wildlife feeding to a safe and comfortable distance from the house. Control of prey species numbers in the form of deer harvest to at or below carrying capacity should discourage any large predators from becoming residents in the area. If control measures are warranted, consult with a wildlife professional prior to using any measures other than shooting or trapping. Extreme caution should be taken and only the experienced should consider methods such as poisoning.

Some species may not be recognized as predators but cause damage and loss of wildlife by actions other than direct take. For example, European Starlings and English House Sparrows displace native cavity nesting birds, such as woodpeckers, by taking over and actively

defending nest cavities. The presence of large grackle and blackbird colonies deter other birds from nesting in some areas. Brown-headed and Bronzed Cowbirds have tremendous impacts on songbird populations across the nation. A single female cowbird can lay up to 40 eggs per season, impacting literally hundreds of songbird species including several threatened and endangered species in the Edwards Plateau.

Trapping and shooting are the most economic means of control, with caution taken to release non-target species from traps and proper identification made prior to shooting. A landowner or manager should first manage the wildlife habitat on his or her property, increasing the plant diversity and abundance of species that provide food, shelter, and nesting cover for all wildlife species prior to implementing a full-scale predator control program for all predator species.

The size and location of the property, amount of wildlife habitat and the goals of the landowner will influence the practices used. Fire ant control and cowbird trapping is not dependent on the criteria above. As well as live trapping of small and medium-sized mammals such as raccoons, opossums, rats, skunks, and others. The control of sparrows, starlings, grackles and feral animals can and should occur on any size property. On larger tracts of land, control of large predators may benefit the wildlife species that are present; but, should be carried out by knowledgeable land managers and/or wildlife professionals when methods other than shooting or live trapping are utilized.

On properties throughout the Post Oak Savannah, Blackland Prairie, and across the State, landowners and managers have implemented every known control method for predators and yet they thrive. Landowners need to have a long-range wildlife management plan in place defining the goals of any of the activities occurring on the property, including predator control. Once in place, activities can be monitored, and results can be recorded to aid in future management decision making.

Supplemental Water

Supplemental Water- This category of wildlife management activity includes providing supplemental water in habitats where water is limited or redesigning water sources to increase its availability to wildlife. Many people mistakenly believe that water sources suitable for livestock are also suitable for wildlife. Unfortunately, that is not always the case; particularly, for juvenile wildlife and many bird species. Wildlife water developments are in addition to those sources already available to livestock and may require protection from livestock.

Marsh or Wetland Restoration/Development- provide supplemental water in the form of shallow wetlands for wetland-dependent wildlife, even in areas where inadequate water does not limit wildlife.

Owners may include seasonally available water such as:

- greentree reservoirs;
- specific shallow roost pond development;
- seasonally flooded crops and other areas;
- moist soil management;
- cienega (desert marsh) restoration, development and protection; and
- maintaining water in playa lakes.

Based on the wildlife's needs and the suitability of the property, managing water levels annually is desirable.

Managing Well, Trough, and Windmill Overflow- can provide supplemental water for wildlife and provide habitat for wetland plants. Owners also may drill wells, if necessary, and/or build pipelines to distribute water. Building devices—known as wildlife water guzzlers—to collect rainfall and/or runoff for wildlife in areas where water is limited also helps protect wildlife.

*** Typically, surface water is adequate in most areas, but it may be heavily silted and be of short supply during droughty periods. Additional water can be provided by creating small earthen basins on individual properties or by placing water troughs in the ground with their tops at or near ground level to provide easy access for wildlife. Watering facilities should be approximately one quarter to one half mile apart.*

Spring Development and/or Improvements- should be designed to protect the immediate area surrounding a spring. Excluding and/or controlling livestock around springs may help to maintain native plants and animal diversity.

Other ways to protect areas include:

- moving water through a pipe to a low trough or a shallow wildlife water overflow,
- making water available to livestock and wildlife while preventing degradation of the spring area from trampling.

Improvements also could include restoring a degraded spring by selectively removing appropriate brush and revegetating the area with plants and maintaining the restored spring as a source of wildlife water.

Maintaining critical habitat, nesting and roosting areas for wildlife, and preventing soil erosion must be considered when planning and implementing brush removal. This practice should be planned and implemented gradually and selectively over a period of time.

Supplemental Food

Supplemental Food- Most wildlife environments have natural food; however, a landowner may increase the available food supplies by providing food or nutrition in addition to the level naturally produced on the land.

Food Plots- are one way to establish locally adapted forage to provide supplemental foods and cover during critical periods of the year. Livestock should be generally excluded from small food plots. The shape, size, location and percentage of total land area devoted to food plots should be based on the requirements of the targeted species.

*** Range plants, brush and forbs provide the best food for wildlife, but food plots can provide additional food to serve as insurance. Plant between 1 to 3 percent of your property in warm and cool season food plots. Plots should be between 1 and 5 acres in size depending upon the deer density in your area. If the deer are overutilizing your plots, you will need to enlarge them. Food plots can be planted in blocks that are several acres in size or long and narrow and placed along field edges. Fence line right-of-ways often provide good locations for food plots if the tree canopy is not too thick. Try to plant a mixture of food crops to provide food for deer, turkey, and quail. Recommended winter crops are oats, wheat, ryegrass, clover, and Austrian winter pea. Summer foods include iron-clay cowpeas, black-eyed peas, purple hull*

peas, lab lab, and grain species including milo, hay grazer, pearl millet, and sunflower. Follow the planting recommendations in Supplemental Forage Management for East Texas White-Tailed Deer (attached). Food plots must be fenced off from cattle. The bottom wire should be 18 inches off of the ground to allow deer to crawl under the fence. The 2 top wires should be at least 12 inches apart. Feeding high protein pellets can be 10 times more expensive than food plots, therefore try the food plot route first. Corn can be used between September and January to provide beneficial sources of carbohydrates. Corn feeders are not a substitute for good food plots, because deer require 16 percent protein in their diet and corn only provides 8 percent. Also, make sure the corn contains less than 20 parts per billion of aflatoxin. High aflatoxin levels can harm wildlife, especially birds and young animals. Deposit sack minerals on bare ground to insure that deer are receiving sufficient amounts of calcium, phosphorous, and other minerals during antler growth. Distribute the minerals adjacent to food plots.

Feeders and Mineral Supplementation- can help dispense additional food to selected wildlife species during critical periods. These can be as simple as properly placed bird feeders, or more elaborate types of turkey feeders. Once a feeding program has been initiated, it is important to keep it implemented and ensure all feeders are kept full. It is also important to clean all feeders regularly to avoid contamination from aflatoxin. Harmful aflatoxin in feed should not exceed 20 parts per billion.

Mineral supplements also may be supplied to wildlife in several ways; however, this practice must be a part of an overall habitat management plan that addresses all animal groups and considers the habitat's carrying capacity.

Managing Tame Pasture, Old Fields, and Croplands- can increase plant diversity, provide supplemental food and forage and gradually help convert the land to native vegetation.

Recommended practices may include:

- Overseeding or planting cool season and/or warm season legumes (for example, clovers, vetches and peas) and/or small grains in pastures or rangeland;
- Using plants and planting methods appropriate to the county;
- Shallow tillage (disking) that encourages habitat diversity, the production of native grasses and forbs or increases bare ground feeding habitat for selected species; and
- No till or minimum till agricultural practices that leave waste grain and stubble on the soil surface until the next planting season—which provide supplemental food or cover, control erosion and improve soil tilth.
- Legumes should be planted annually until all pastures are shifted to native vegetation.

*** Shallow discing should be conducted annually between October and February within native and improved grasslands. Shallow discing encourages weed growth; thus increasing habitat diversity and providing supplemental forage and seeds for deer, turkey, and quail. Discing strips should be 15 to 30 feet wide with strips being discing on a three year rotation (one third of the strips discing each year).*

*** Overseed improved pastures with annual ryegrass or clover during winter months to provide additional food for wildlife. Do this at least along the margins of the fields adjacent to wooded areas. Strips should be 100 to 200 feet wide.*

Supplemental Shelter- Cover or shelter is an important part of wildlife habitat. In fact, it is an integral part alongside food and water. The arrangements of these key habitat requirements will often determine the success of wildlife species in a given area.

Wildlife cover can take many forms and can vary greatly from one species of wildlife to another. Some species of wildlife are very specific in their need for cover while others are quite opportunistic and can readily adapt to what's available. However, one thing is common when it comes to cover, they all require it.

Although supplemental shelter can be provided in many ways, it will never take the place of good conservation and management of native habitats. When land is properly managed for wildlife habitat, quality cover and shelter will usually be available. Unfortunately, in much of Texas, many areas have been so altered, neglected, and abused that one or more of the key requirements of wildlife (including shelter) is absent or in short supply. This is where the opportunity exists for supplementation.

Before beginning on any wildlife management practice, you must determine what wildlife species you are managing for and what its specific needs are. Some need cover on a large scale while others may need a relatively small amount of cover. Some live and reproduce exclusively on the ground while others spend most of their lives in the air or in trees. Management should be targeted to those populations of wildlife in your area and their specific needs.

Cover and shelter can be provided for wildlife in many ways. Some species of birds and mammals nest and reproduce in cavities. Nest boxes and snags (dead, standing trees) can be created for these wildlife species. Brush piles can be created to provide cover for many species of birds, reptiles, and small mammals.

Other properties lack cover on a larger scale, impacting larger wildlife species such as white-tailed deer. Trees and shrubs can be planted to provide this cover requirement. Mowing can be deferred in certain areas to let grasses and weeds (forbs) grow up; providing both food, cover, and nesting sites for some species of wildlife. Fence lines can be allowed or encouraged to grow up in trees, shrubs, and vines in areas where cover is limited. Mesquite or other brush can be half cut early in the growing season on provide low growing, ground cover in areas where this is lacking.

*** One of the biggest problems facing white-tailed deer and turkey in the area is a loss of fawning and nesting cover. Efforts should be made to postpone shredding and mowing until June 15th each year. These wildlife species require knee high grass to hide their young and nests. At least try to leave 2 to 4 acres in the corner of a pasture near the woods. The restriction of cattle may also be required to provide tall grass areas.*

Census

Census- Census counts are periodic surveys and inventories to determine the number, composition or other relevant information about a wildlife population to measure if the current wildlife management practices are serving the targeted species. Such surveys also help evaluate the management plan's goals and practices.

Specifically, this activity estimates species numbers, annual population trends, density, or age structure using accepted survey techniques. Annual results should be recorded as evidence of completing this practice.

- **Spotlight counting-** animals at night along a predetermined route using a spotlight should follow accepted methodology, with a minimum of three counts conducted annually.
- **Aerial counts** using a fixed-wing aircraft or helicopter to count animals also should follow accepted methodology for the region and be performed by a trained individual.

- Daylight wildlife composition counts are driving counts used to census wildlife in daylight hours. Annual population trends on dove, quail, turkey and deer, as well as sex/age structure on deer, should be determined by sightings along a standardized transect of a minimum of five miles at least three times during a season.
- Harvest data collection/record keeping means tracking annual production of wildlife. Age, weight and antler development from harvested deer, and the age and sex information from game birds and waterfowl should be obtained annually.
- Browse utilization surveys annually examine deer browse plant species for evidence of deer use on each major vegetative site on the property. The surveys should be conducted in a way that can be repeated.
- Census and monitoring of endangered, threatened or protected wildlife through periodic counts can improve management and increase knowledge of the local, regional or state status of the species.
- Census and monitoring of nongame wildlife species also can improve management or increase knowledge of the local, regional or state status of the species. These practices can include developing checklists of wildlife diversity on the property and should be a part of a comprehensive wildlife management plan.

One of the most important things for a landowner to remember when designing a census protocol of nongame species on their property is the ability to be consistent. In other words, be able to do the same thing, the same way, at the same time each and every time the census is conducted.

*** Keep good census and harvest records. These provide a good measure of the health of wildlife populations and the success of habitat enhancement activities. Weigh and age all deer harvested. Take pictures of the bucks. Take antler measurements; points, inside spread, main beam length and basal circumference (right or left). Keep incidental sightings of deer from August 1st to September 1st by buck, doe, and fawn. Conduct census efforts to determine trends in deer numbers. Record turkey hen/poult observations by number and size between June 1st and August 15th.*

Plan Preparation

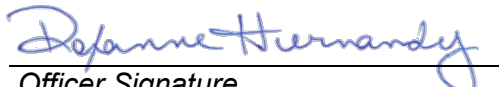
1. Individual Preparing Plan:

Name: Robert Trudeau Title: NRS-III (Private Lands Biologist)
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Phone(s): 512-332-7280
Email: Robert.Trudeau@tpwd.texas.gov

Landowner Manager Resource Mgmt. Prof. Consultant

3. President Affidavit

By my signature below, I certify that I am the presiding president of the above described Wildlife Management Association or a specifically authorized agent for the Association. Authorized agent is defined as any person with verbal or written authorization to make decisions on behalf of the Association. I also certify that the above information is true and correct to the best of my knowledge. I authorize TPWD to use this information for its purposes, but not to release it to other parties or agencies without the Association's approval.



Officer Signature

Roxanne Hernandez

Printed Name

January 29, 2023

Date Signed



Texas Parks and Wildlife Department Certification

Place an X in one: Approved Disapproved

Authorized TPWD Signature _____
Date

Name: _____

Title: _____

Certification provides that this Wildlife Management Plan was reviewed and is found to be biologically and technically sound with regard to management of wildlife populations and habitats.

Common Native Plants of the Post Oak Savannah/Blackland Prairie

- **Trees**
 - Woolly birch
 - Pecan
 - Black hickory
 - Sugarberry
 - Black walnut
 - Southern red oak
 - Bur oak
 - Blackjack oak
 - Chinkapin oak
 - Post oak
 - American elm
 - Cedar elm
 - Texas persimmon
 - Wax myrtle
 - Honey mesquite
 - Drumond red maple
 - Eastern redbud
 - Flowering dogwood
 - Mexican plum
 - Ashe juniper
 - Loblolly pine
- **Shrubs**
 - American beautyberry
 - Buttonbush
 - Black dalea
- Lantana
- Texas honeysuckle
- Autumn sage
- Sassafras
- Coral-berry
- **Succulents**
 - Prickly-pear cactus
 - Narrow-leaf yucca
 - Thread-leaf yucca
- **Vines**
 - Woolly pipevine
 - Cross-vine
 - Trumpet-creeper
 - Old man's beard
 - Coral honeysuckle
 - Virginia creeper
 - May-pop
 - Yellow passionvine
 - Prairie rose
 - Mustang grape
- **Grasses**
 - Big blue stem
 - Broomsedge
- Sideoats grama
- Cane bluestem
- Buffalograss
- Inland sea-oats
- Hooded windmill grass
- Canada wildrye
- Big muhly
- Little bluestem
- Indiangrass
- **Wildflowers**
 - Butterfly-weed
 - Winecup
 - Prairie larkspur
 - Coralbean
 - Late boneset
 - Maximillian sunflower
 - Cardinal flower
 - Turk's cap
 - Scarlet sage
 - Indian paintbrush
 - Texas bluebells
 - Texas bluebonnet