

Appendix E

Vegetation Management Recommendations

Managing native vegetation (woody plants, weeds, grasses) to prevent continuous overuse by livestock and wildlife should be of primary concern. Over 50 percent use of most species on a continuous basis will stress vegetation causing less production or death of the plant. Good livestock management, using a deferred-rotation grazing system at proper stocking rates, can prevent overutilization of vegetation by livestock. Sound deer and feral hog (and other large exotics, such as axis, sika, etc.) harvest strategies are also needed to prevent overuse of food and cover by wildlife. Native white-tailed deer and feral hogs (and large exotics if present) are the only wildlife species present in the Edwards Plateau/Cross Timbers and Prairies regions that can degrade or virtually destroy the habitat for not only themselves, but for the many smaller mammal and bird species that rely on the same vegetation for food and/or cover.

Managing or planning for the long term, considering wet years as well as drought years, and not carrying more livestock or deer than the land will support during poor as well as good years should be the overall goal.

Wildlife has a certain requirement for cover. Cover provides a sense of security from disturbance and protection from inclement weather and predators. The amount and kind of cover vary with the species. A stand of herbaceous plants may provide adequate cover for some bird species and small mammals, whereas other species require woody cover (trees and shrubs) in lieu of or in addition to herbaceous cover. The best cover for a large species such as white-tailed deer in the Edwards Plateau/Cross Timbers and Prairies regions is a pattern or mosaic of woody brush and trees interspersed within open areas at an approximate 2/1 ratio of open area to woody cover. Clumps or strips of brush should be wide enough so that an observer cannot see through them from one side to the other during the winter months when deciduous species are bare of leaves. Cover strips should be as continuous as possible to provide travel lanes. Deer and other wildlife can be displaced by disturbance from an area without adequate escape cover. A habitat that provides several different types and arrays of cover benefits more species of wildlife than a habitat that has limited types, amounts, and distribution of cover.

Management of vegetation, whether it is deciduous post oak woodlands, Ashe juniper woodlands, mesquite woods, or open grasslands, requires long-term planning. Any vegetation manipulation practice will have an impact on resident wildlife species, either good or bad, depending on the type of treatment used, the degree of use, and location. Before implementing vegetation control techniques, determine what the long-term effects will be for each wildlife species that occurs in the area and minimize the negative impacts. Consider the location and size of sensitive wildlife habitats that provide important nesting or roosting sites, feeding areas, desirable wildlife food producing plants, cover, water, and space needs. Wildlife can be displaced by disturbance from an area without adequate escape or security cover. The amount and distribution of cover on adjacent lands need to be taken into consideration when assessing the cover

needs of wide-ranging wildlife species such as deer and turkey. A small ranch would need a larger amount of security cover on a percentage basis than would a larger ranch where the vastness of the area provides security.

The control of plant species such as Ashe juniper, eastern red cedar, mesquite, prickly pear, and oak species that invade a variety of rangeland sites is often warranted. When these species dominate an area, they diminish plant diversity and the quality of habitat for most wildlife species. Vegetation manipulation may be in the form of prescribed burning, mechanical, biological, or herbicide control of trees, brush, or weeds, and is important to create and maintain open rangelands for grassland dependent wildlife. Most of these practices will require the use of specialized equipment or machinery for plowing, disking, bulldozing, spraying, or other vegetation or soil manipulation procedures. The cost effectiveness of the different control measures must be considered prior to initiation of control measures.

Prescribed burning is an effective, low-cost habitat management tool that can be used to enhance plant diversity by stimulating the production of a variety of forb and grass species and to maintain woody plants at the low heights most beneficial to wildlife. Livestock as well as wildlife can benefit from a properly planned and conducted prescribed burn. However, there are legal constraints and liabilities in the use of fire. The land manager should be well-trained and knowledgeable on the proper use of fire before attempting a prescribed burn. Refer to Texas Agricultural Extension Service bulletin "Prescribed Range Burning in Texas" for details on the use of fire as a range management tool. It is often necessary for a pasture to receive a period of deferment from livestock grazing to allow for a build-up of enough fuel (herbaceous plant litter) to carry a fire.

The use of mechanical equipment to control woody plants will typically result in an initial growth of forbs and annual grasses and the resprouting of many woody species. Soil disturbance associated with mechanical controls releases the natural seed bank found in the soil, increasing the quantity, quality, and distribution of plants beneficial to wildlife. However, without periodic follow-up treatments of fire, herbicides, or additional mechanical manipulations, and/or without proper livestock grazing management, these sites will eventually again become dense stands of regrowth brush and trees. Mowing (shredding) areas of herbaceous plants and/or low density woody plants is another form of mechanical treatment. Mowing should be postponed until after the peak of the nesting/young-rearing period of local ground-nesting birds and mammals. One-third of open areas can be mowed per year, preferably in strips or mosaic types of patterns, to create "edge" and structural diversity.

Biological control is the use of heavy grazing pressure by livestock such as goats to control or suppress woody plants and sheep to control herbaceous weeds. Under certain management goals, biological control of woody plants and forbs can be a legitimate practice if done correctly. However, it is not normally a recommended wildlife habitat management practice. Long-term heavy grazing pressure by goats, which prefer woody browse but will also consume forbs, will eliminate all leaves from woody

plants up to a height of four feet. The creation of this "browse line" and the resulting park-like appearance of the woody plant community will have negative effects on the wildlife species that also depend on the low-growing foliage of woody plants for both forage and cover. Heavy grazing pressure by sheep, which prefer forbs, will reduce or eliminate forbs that are also beneficial to wildlife.

There are many specifically formulated herbicides on the market today that can selectively control unwanted vegetation to enhance wildlife habitat. Determining the proper product and application technique requires consultation with TCE, NRCS, or TPWD personnel. Always advise that wildlife is a goal for your projects of this type. If herbicides are improperly used, they can have a significant negative impact on many plant communities and may suppress or eliminate plants other than the target species. Selective application methods, rather than broad-scale applications, are recommended to avoid the elimination of plants that are important to wildlife.

Ashe Juniper (Cedar) Control

Cedar has invaded large areas of the Cross Timbers and Prairies and Edwards Plateau regions of central Texas and it dominates many rangelands with shallow limestone soils. The suppression of fire and long-term overgrazing by livestock has contributed to the spread and invasion of this evergreen woody species. If not controlled or managed, cedar will eventually form a closed canopy that prevents sunlight from reaching the ground, limiting the growth of grasses, forbs, and other woody plants. The massive shallow root system of cedar allows it to successfully compete with more desirable plants for available soil moisture. The foliage of cedar intercepts rainfall and prevents moisture from reaching the ground. Soil erosion is enhanced under cedar stands due to the limited amounts of herbaceous plants.

Cedar has minimal food value to both livestock and wildlife. Its foliage is not preferred by browsing species. Deer only utilize it to a small extent, typically during the late winter when the availability of other foods is low. The fruit (berries) that it sporadically produces are eaten by some bird species and occasionally by deer, but they are not normally important components of wildlife diets. Cedar is an important component of Golden-cheeked warbler (GCW) habitat, and any control should follow management guidelines in **Appendix K**. Regrowth cedar is almost never a component of GCW habitat.

The most common species of cedar in central Texas, Ashe juniper or blueberry cedar, does not resprout from roots, as do most other woody species, if all above-ground green material is removed or killed. Redberry juniper does occur in some areas, especially the more western portions of the region. Redberry juniper has the ability to resprout from roots and is therefore more difficult to control. A landowner should learn how to identify the species occurring on his land so the most appropriate control methods can be used.

Ashe juniper can be controlled with a variety of control methods including mechanical (dozing, chaining, grubbing), fire, herbicides, biological, and hand cutting. Selective, single-stem removal of cedar where it is growing in stands mixed with other desirable woody plants is preferred over broad-scale removal to prevent damage to the desirable species. When it is removed from these areas, care must be taken to avoid reducing the amount of cover in the stands below minimum levels needed for wildlife. Because of its evergreen growth form, cedar can add structural density to stands of deciduous woody plants during the winter months. Control efforts should be targeted toward "regrowth" cedar invading range sites.

Properly applied fire (prescribed burning) can be used to economically kill small blueberry cedars up to about 3 feet tall. Other control methods are necessary to initially remove larger cedars that are not affected by fire. Prescribed burns at 8 to 10 year intervals can be used to maintain control of cedar seedlings that are continuously being established throughout central Texas from undigested seeds that are widely dispersed by birds and other animals, but a 5 year burning rotation seems the optimum form of control to reduce hand cutting.

The biological control of cedar with goats is not recommended because excessive browsing on other more preferred species of woody plants will precede utilization of the cedar, resulting in the degradation of wildlife habitat. Control of cedar with certain specific herbicides can be effective on low densities of cedars less than three feet tall.

Cedar does have some value as wildlife escape and thermal cover, especially in areas where other forms of woody cover are lacking or in short supply. The amount of cover on open "prairie" habitats of central Texas may be less than needed to provide a minimum amount of security for wildlife. Although some species of wildlife may prefer and utilize open habitats, others are hesitant to venture very far from escape cover. While it may not be the most desirable, cedar is one of an apparently limited number of woody species that can grow on certain soil types of central Texas. It is recommended that small stands and strips of cedar be retained and encouraged at 200-300 intervals in habitats lacking sufficient woody cover. These blocks and strips of cedar can provide structural diversity, travel lanes and security cover that are beneficial to many species. The distribution and density of cedar can be controlled over time to prevent it from forming dense stands.

Mesquite Control

Mesquite, another woody invader infesting many range sites in central Texas may be necessary on some sites. Its growth form varies from a multi-stemmed shrub to an upright tree. Adaptable to a variety of soil types, mesquite can colonize and dominate open rangelands, old fields, and other areas where ground cover has been reduced and fire eliminated from the environment. Mesquite sprouts from buds along a compressed, buried section of the stem called the "crown". Control by grubbing, bulldozing, root plowing, and chaining of mature-size trees has proven successful under proper soil moisture conditions. Several approved herbicides are also available for control.

Shredding, on the other hand, or other practices that only remove top growth but do not involve removal of the crown is not recommended and may result in further sprouting. Any control planning should proceed with good common sense and a sense of aesthetics.

Mesquite seed pods are readily eaten by wildlife and livestock, resulting in the dispersal of undigested seeds across the landscape. Seeds may remain dormant for extended periods of time and germinate when the right conditions or soil disturbances occur. Young mesquites can quickly become established and grow rapidly, particularly when competition from other plants is reduced by heavy grazing pressure.

Like red cedar or Ashe juniper, mesquite does have some redeeming qualities. It provides seed pods that are a beneficial although sporadic food source, microclimates for cool season grasses and forbs that may be important to plant diversity, nitrogen fixing roots, and cover that is beneficial to many wildlife species.

Range enhancement involves range reseeding and native grass restoration. Establishing native herbaceous plants (grasses and forbs) that provide food and cover, benefits wildlife and provides erosion control benefits. Plant species selected and methods for establishment should be applicable to the county. Non-native species are generally not recommended, but if required for a specific purpose, non-native species should not exceed 25 percent of the seeding mix. Seeding mixtures providing maximum native plant diversity are recommended. Many herbaceous broadleaf plants (known as forbs - weeds and wildflowers) are beneficial to wildlife for forage and/or seed production. Encourage "weed and wildflower" species by selective application of chemical, biological (eg., grazing management) and/or mechanical means on native rangelands, Conservation Reserve Program lands, and tame grass pastures (eg., coastal bermuda). Natural Resource Conservation Service personnel in the area can provide detailed recommendations on range and native grass reseeding, designed to meet individual goals. Refer to Appendix K for native grass restoration guidelines.

Farming Practices: Delaying of shredding or mowing of hay or native grass pastures until after July 15 will usually avoid killing of young fawns or ground nesting birds by accident.

Use Integrated Pest Management to minimize pesticide applications (consult the Texas Department of Agriculture, Austin). If necessary, spot spraying is much preferred over broadcast spraying especially for broad-spectrum herbicides. Spray early in the spring while plants are still small, requiring less spray. Many "weeds" are important to wildlife.

To provide weed seeds (ragweed, croton, sunflower, partridge pea, trailing wild bean, etc.) that are the basis of quail, dove, and other seed-eating bird's fall and winter diets, shallow disk 10 - 20 foot wide strips in sandy soil around the edge of brush and woods after the first freeze. This practice will promote growth of these important forbs the following spring and summer.