



BRUSH SCULPTING FOR NONGAME BIRDS

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Introduction

Nongame wildlife consists of those species not classified as game animals or endangered species. There are over 940 species of terrestrial vertebrates in Texas, of which 87% are considered nongame wildlife. Nearly two-thirds (about 600 species) are resident or migratory birds, more than any other state.

Since over 97% of the more than 175 million acres of habitat in Texas is privately owned, this diversity of wildlife provides a conservation challenge to resource managers attempting to maintain habitat while deriving a sustainable economic return from the land.

In 1991, hunters totaled about 1.1 million in Texas, or about 8% of the population. They contributed over a billion dollars that year in pursuit of their activity (U.S. Fish and Wildlife Service, 1991). This economic fact translates into a financial incentive for landowners to maintain and enhance habitat for game species. At the same time, bird watching and other "nonconsumptive" wildlife recreation was on the increase as our urban population continued to grow. According to the 1994-95 National Survey on Recreation and the Environment (NSRE), the number of bird watchers, or "birders", grew about 155% between 1983 and 1995. This trend can be expected to continue in the years ahead as wildlife watching, in general, becomes more important.

Surveys indicate that birding and other wildlife watching has the potential to provide an alternate source of revenue for private landowners. In fact, several private ranches in Texas are already offering nature tours on a fee basis.

Management practices that will enhance a diversity of wildlife species are an important consideration for landowners. Even more important is the opportunity to educate this growing group of outdoor users as to why private land management is necessary to sustain wildlife populations in Texas.

Nongame birds include:

- 1) Neotropical migrants, those species that breed in North America and winter in the New World tropics
- 2) Short distance migrants, which breed in more northerly latitudes and winter primarily in the

southern U.S. and northern Mexico

- 3) Permanent residents, which remain year-round in a particular region or site.

Raptors, woodpeckers, shorebirds, and other waterbirds fall within these categories, but passerine birds (perching and songbirds) are by far the largest group.

Opportunities for conservation of these species occur on both the breeding and wintering grounds. Texas Partners in Flight is an organization dedicated to the improvement of monitoring, research, management, and education programs for neotropical migratory birds and their habitats. According to the Partners in Flight strategy, the priority species in need of attention in Texas are ranked according to their regional distribution in the Southeastern U.S.

The birds discussed in this paper represent selected habitats in the Rolling Plains, Cross-Timbers, Edwards Plateau, and South Texas ecological regions of Texas, but they occur in other ecological regions of the state as well. Managing habitat for these species will benefit an assemblage of many other important nongame bird species.

Grasslands

In North America, researchers and bird enthusiasts have identified grassland birds as having experienced steeper, more consistent, and more widespread population declines over the last quarter century than any other avian guild (Vickery et al 1995). The reasons for these declines have not been fully determined, but habitat loss appears to be one of the major factors on both the breeding and wintering grounds.

Grassland birds nest on or near the ground, and are associated with tall, intermediate, or short grass heights depending on the species requirements for nesting and cover. Native prairies are a rare thing in Texas today as most have been converted by cultivation, or are in poor condition due to woody plant invasion. Remnant prairies can still be found scattered throughout Texas.

In the Rolling Plains, the upland sandpiper breeds in mixed grasslands, while key passerine species inhabiting tall grass prairie habitats in the Cross Timbers Region are LeConte's sparrow (winter) and grasshopper sparrow (breeding). While overlap occurs

between ecological regions in these bird's distribution, they all require open grasslands, and serve as indicators of good habitat conditions for other prairie-dependent species.

Brush management practices that restore or maintain native prairies will benefit grassland birds and many other nongame species. Woody plants growing in and around small prairies provide habitat and perch sites for potential predators including raptors. Prescribed fire will control encroaching brush species, but mature plants need to be treated individually using selective herbicides or mechanical means. Treatments should be conducted in the late summer or early fall after the breeding season and before wintering species arrive. Invading woody plant species in the Rolling Plains and Cross-Timbers include mesquite, red-berry juniper, eastern red cedar, baccharis, various oaks, yaupon, elms, Russian olive, and others. Prairie restoration should be conducted on priority sites based on soil type, acreage, distribution of potential and existing habitat, and current condition of habitat.

Some bird species are "area-sensitive" and require relatively large, undisturbed tracts of suitable habitat for their survival. Grasslands as large as 250 acres may have a 50% likelihood of attracting grassland species that are highly sensitive to habitat fragmentation (Herkert et al 1993). Thus, restoring prairie habitats that link together small parcels will lessen the effects of fragmentation.

Private lands enrolled in the Conservation Reserve Program (CRP) may provide additional nesting habitat for many grassland nesting birds species by providing residual cover of appropriate height and density. Averages of 1.5 grasshopper sparrow nests per acre were found in CRP fields in the southern High Plains of Texas (Berthelsen and Smith 1995). CRP lands should be seeded with native grasses and forbs and kept brush-free during the establishment phase. Periodic prescribed burning may maintain and enhance the quality of these tracts over the life of the contract. Restoration of native prairies should be planned adjacent or in close proximity to CRP lands in order to expand the total acreage of habitat suitable for prairie species.

Savannah/Shrubland Habitats

Savannah's are typically grasslands with scattered woody vegetation. Mesquite and live oak savannahs are found predominantly in the Rolling Plains and Edwards Plateau regions respectively, while post oak and

blackjack oak may become dominant species in the Cross-Timbers Region. However, past mismanagement has changed the savannah condition, resulting in a "thicketized" understory with invading plants such as junipers, sumacs, elms and hackberries. Although these plants have wildlife value as food and shelter for many game and nongame species, they become detrimental when over-abundant, and begin to out-compete native grasses and forbs that are essential components in savannah habitats.

Shrublands can be considered successional landscapes, supporting brush species of lower stature usually after some form of mechanical brush control, prescribed burning, or intensive grazing. Periodic management is required to keep these habitats from maturing beyond the point of usefulness to the species that require them. Savannahs and shrublands are similar in that both are transitional habitats between open grasslands and wooded habitats. Active management is required to mimic the natural disturbances historically caused by wind and fire, and create the habitats in large enough areas for the species adapted to them (DeGraaf and Rappole 1995).

Examples of species breeding in these habitats in the Rolling Plains, Cross-Timbers, Edwards Plateau, and South Texas regions are: lark bunting, loggerhead shrike, yellow-breasted chat, painted bunting, ash-throated flycatcher, and blue grosbeak. In the northern portions of its Texas range, the field sparrow is a resident of these habitats, while South Texas is home to this bird in winter.

Savannah or successional habitats should be integrated into an overall management scheme for a particular site based upon what the potential vegetation is, and what other habitats are present. For example, old fields, borrow areas, or other disturbed sites may be logical choices because many times they are already undergoing some form of succession. Brush management practices to restore, maintain, or enhance a savannah or shrubland setting should include native woody plant establishment, thinning undesirable or exotic plants by using selective herbicides on individual plants, mechanical treatments, and prescribed burns to control young brush species without killing mature trees. If brush is cut and removed, the appropriate herbicide should be applied to the stump surface to prevent re-sprouting. Cut debris should be stacked into piles to provide cover for other nongame species. If prescribed fire is used, burning in to woodland edges instead of away from them will

promote a more “feathered” edge, thus creating a buffer or transition area instead of abrupt edges.

Clumps of scattered brush interspersed with herbaceous vegetation will create “mini-mottes” containing a diversity of plant species and structural layers. This, in turn, benefits a wider variety of nongame species. As shrubs mature, it will be necessary to top-kill them before reaching a height beyond the usefulness of the target species for nesting or cover. Fire is generally the best way to achieve this, but mechanical treatment may be more applicable where burning is not possible or does not create the desired results. Again, late summer or early fall is the best time to initiate management practices so as to avoid nesting season, thus allowing young birds to fledge normally. Prescribed burning is generally conducted in the winter months, but late summer burns are being investigated as a means of re-creating mesquite savannah (Ansley 1997).

Woodland and Riparian Areas

Woodlands are forested habitats occurring in large blocks, small patches, or irregular corridors. They typically support a diversity of overstory trees and understory shrubs that provide food in the form of fruits, nuts and berries as well as vertical layers important for nesting and cover for a wide variety of nongame birds. The amount of plant canopy cover, height, and species diversity are important factors in determining which bird species will use wooded habitats. In general, a higher plant diversity will support a greater diversity of wildlife.

Some woodlands occur along the margins of streams, rivers, lakes or other water features. These specialized habitats are known as riparian areas and represent some of the most biologically rich and unique habitats in Texas. Riparian areas also act as filters for excess nutrient runoff, and prevent erosion when vegetation is properly managed. Although less than 4 % of the state’s land area is made up of riparian-type vegetation, higher numbers of wildlife and a greater diversity of species are found in these areas than in other habitats. Dominant trees of riparian areas include cottonwood, black willow, and mesquite in the Rolling Plains, and pecan, sycamore, ash and bald cypress in the Cross-Timbers and Edwards Plateau regions.

The red-headed woodpecker is a resident species typical of woodland and riparian areas of the Rolling Plains, while the Baltimore oriole breeds in similar habitat in the Cross-Timbers. The black-and-white warbler is representative of oak-juniper woodlands, and

yellow-throated warblers and green kingfishers inhabit riparian areas of the Edwards Plateau. Curve-billed thrashers can be found nesting in upland thorn woodlands typical of much of South Texas, while Bell’s vireos uses the more mesic riparian habitats in the same region.

In woodlands, habitat patch size can be a limiting factor for successful reproduction of many interior-nesting bird species. When large openings are created in woodland habitats, nest predators and the brown-headed cowbird, a nest parasite, are more likely to gain access to interior-nesting species. Depending on the goals of the land manager and the amount of contiguous woodlands in close proximity to the property, it may be desirable to re-forest existing openings with native trees to create a continuous closed canopy.

On the other hand, highly fragmented wooded patches surrounded by openings in various successional stages may not become suitable tracts for interior species no matter what the management strategy is. Leaving or restoring connective corridors between cleared patches may reduce the effects of fragmentation. Where needed, plant a diversity of native food-producing trees. Consider using simple techniques such as setting fence posts connected with a single smooth wire 48 inches above the ground. This will provide perching sites for birds to deposit seeds in the appropriate area.

In addition, buffer zones of wooded habitat along riparian areas should be at least 150 feet on each side of the stream. This not only provides cover for wildlife movement between tracts of habitat, but also serves to stabilize stream banks and filter runoff. Protect young, establishing trees and shrubs from over-browsing by livestock using temporary electric fencing, or construct permanent fencing to control the intensity, timing, and location of grazing in woodlands and riparian areas.

Over-browsing by deer can be managed by reducing their abundance through high fencing, hunting, or trapping and relocation, none of which offer a practical, long-term solution in most situations.

Mechanical brush control treatments have been applied to millions of acres of Texas rangelands. After soil disturbance, a less diverse woody plant community normally regenerates (Fulbright 1996). As plant diversity decreases, wildlife diversity will decrease as well, depending on the scale of the land use. Bird diversity may decrease on a particular site, but diversity

across a landscape may actually increase depending on surrounding land-use practices, habitats, and corresponding bird species.

In woodland, riparian or other sensitive habitats, the selective control of exotic plants or other undesirable species can be conducted by hand-cutting, girdling or selective herbicide applications. Apply the appropriate herbicide directly to the cut stump surface to prevent re-sprouting. Basal bark treatments or the “hack and squirt” method can be used to kill undesirable trees without impacting surrounding plants. This also creates snags for cavity-nesting species.

Snags are extremely important for a wide variety of nongame wildlife including woodpeckers, screech owls, chickadees, titmice, squirrels, bats, and other small mammals. Six snags and/or den trees per acre of woodland is considered adequate for most kinds of wildlife (Missouri Department of Conservation 1985).

A Word About Small Acreage Management

One of the greatest threats to wildlife habitat in Texas today is the subdivision of large land holdings into smaller tracts. Changes in estate tax structure, improvements in maintaining production agriculture on suitable land, and controlled, sustainable commercialization (i.e., hunting and nature tourism) of key resident wildlife will slow this trend (DeGraaf and Rappole 1995). But ultimately, as human populations continue to grow, resource managers will be forced to develop technologies to restore and maintain habitat fragments in order to support viable wildlife populations.

Under these conditions, corridors or “linear habitats” become increasingly important. Fence lines, drainages, roadways, or other mutual boundaries are all potential linear habitats that, when linked together, may create key travel corridors for wildlife moving to and from larger tracts of habitat.

Cooperative efforts involving multiple landowners within managed units such as local parks, homeowners associations or watersheds must become commonplace if strategies for the future of wildlife in Texas are going to be successful.

With the passage of Proposition 11 in 1995, landowners can now retain their agricultural property tax valuation if their land use changes to active wildlife management. This will ultimately have a positive effect on wildlife as small land holdings, forced to carry

livestock for tax purposes, receive much needed deferment. The techniques for managing many nongame species are now available through the Texas Wildscape Program, administered by the Texas Parks and Wildlife Department.

Literature Cited

- Ansley, R.J., B.A. Kramp, and T.L. Moore. 1997. Development and management of mesquite savanna using low intensity prescribed fires. Proceedings, First Conference on Fire Effects on Threatened and Endangered Species and Habitats, International Association of Wildland Fire, Coeur d'Alene, ID, 13-15 November 1995 (In press).
- Berthelsen, P.S. and L.M. Smith. 1995. Nongame bird nesting on CRP lands in the Texas Southern High Plains. *J. Soil and Water Conservation*. 50(6) pp. 672-675.
- Damude, Noreen. 1997. Pers. Comm.
- DeGraaf, R.M., V.E. Scott, R.M. Hamre, L. Ernst, and S.H. Anderson. 1991. Forest and Rangeland Birds of the United States - Natural History and Habitat Use. U. S. Dep. Agr. Handbook 688.
- DeGraaf, R.M. and J.H. Rappole. 1995. Neotropical Migratory Birds - Natural History, Distribution, and Population Change. Comstock Publ. Assoc., Cornell Univ. Press.
- Fulbright, T.E. 1996. Viewpoint: A theoretical basis for planning woody plant control to maintain species diversity. *J. Range Manage.* 49(6) pp. 554-559.
- Herkert, J.R., R.E. Szafoni, V.M. Kleen, and J.E. Schwegman. 1993. Habitat establishment, enhancement and management for forest and grassland birds in Illinois. Div. Natural Heritage, Illinois Dep. Conserv., Natural Heritage Pub. #1.
- Missouri Department of Conservation. 1985. Snag and den tree management. Timber and Wildlife Benefits on Private Land. No. 5.
- National Geographic Society. 1980. *Field Guide to the Birds of North America*. Washington, DC National Geographic Society.
- Riley, C.M., ed. 1996. *Texas Partners in Flight Priority List for Texas Bird Conservation*. Tex. Parks and Wild. Dept. PWD BK W7100-292. 111pp.
- U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, Bureau of the Census. *1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*. U.S. Government Printing Office, Washington DC 1993.
- Vickery, P.D., J.R. Heckert, F.L. Knopf, J. Ruth, and C.E. Keller. 1995. An overview of threats and recommended management strategies. Unpublished proceedings of the National Partners in Flight Meeting, Cape May, New Jersey.