



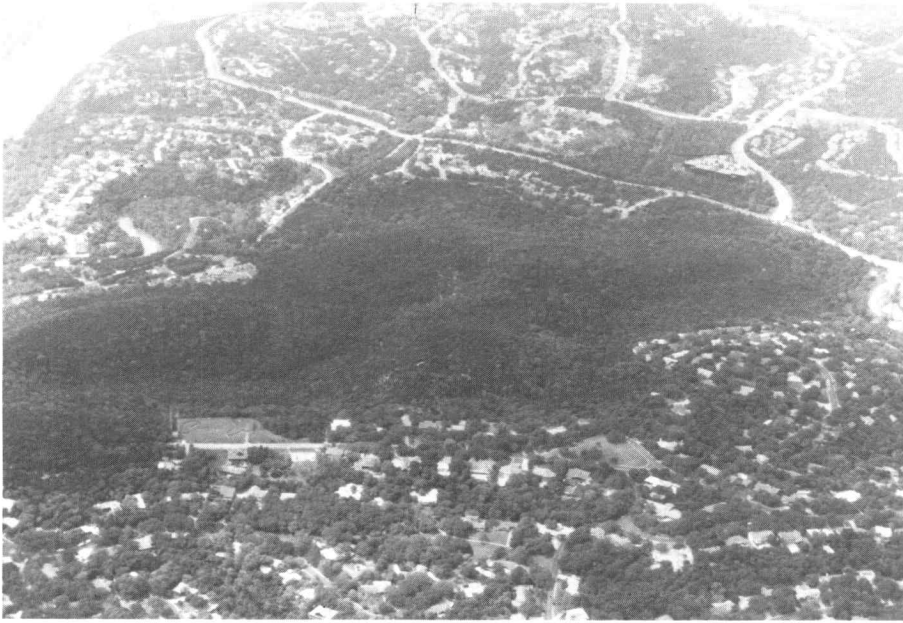
Habitat Restoration—Solving the P_uzzle of Wildlife Diversity in Texas

Matt Wagner and Jenny Pluhar

Texas is blessed with over 170 million acres of mostly rural countryside. From Chihuahuan Desert to pine forests, over 97% of this acreage is managed by private landowners. Private land stewardship insures the perpetuation of wildlife habitat through sustainable agricultural and wildlife management practices.

As a public land steward, the Texas Parks and Wildlife Department (TPWD) has been engaged in habitat restoration on wildlife management areas, state parks, and state natural areas totalling over one million acres. Although management objectives differ among these land areas, quality wildlife habitat is a common goal to meet the needs of folks wishing to hunt, camp, watch wildlife or simply enjoy the outdoors. Consider all that has been learned about creating habitat for game species like white-tailed deer. Opinions from different areas of the state, and even within the same area still vary widely on the issue. How is an agency charged with the management of **all** wildlife going to deal with nongame species which we know relatively little about?

One approach may be to concentrate on restoring what is known to be missing in the habitat puzzle, instead of focusing on the biological aspects of the wildlife themselves. Like a jigsaw puzzle missing a few pieces, changes in wildlife populations today are a reflection of missing habitat pieces lost over time. The general picture is still visible, but a few pieces have been lost. As grasslands are converted to shrublands, forests are converted to pasture, wetlands are drained, exotic species proliferate, and bottomland hardwoods continue to be lost, dramatic changes in wildlife populations have been occurring. The physical structure of habitat reflects the function of that habitat, and what kinds of species will find a home there. As habitat changes, either due to natural factors (flood, drought, fire, etc.) or by the hand of man, so will the wildlife populations that depend on that habitat.



Bright Leaf is a 200 acre urban natural area in upscale West Austin. Photo by Matt Wagner

Restoring habitat actually re-creates important missing pieces in the natural system, and may provide refuge for a whole suite of wildlife species not considered previously in management plans for a particular site. Examples of restoration of tallgrass prairie, freshwater marsh, oak savannahs, subtropical thorn woodlands and semiarid grasslands can be seen on TPWD holdings. Land restoration techniques are many, and include prescribed burning, selective herbicide treatments, various mechanical techniques, managed grazing by livestock, and enhancement of natural means like seed dispersal through wind, water and animals.



A term used a lot today is "habitat fragmentation". Habitat fragmentation occurs where discontinuous land use creates irregular patches across the landscape. Today, habitat fragmentation is occurring rapidly in suburban areas as development expands into former farm and ranch operations. Large land holdings are being subdivided. Roads, boundary fences, and utility easements are being constructed.

Fragmentation is not always bad. Row crops were fragmented with permanent grass cover when lands were enrolled in the Conservation Reserve Program. A parking lot can be fragmented with islands of native plants. Habitat fragmentation will continue as long as people need places to live and work. Resource managers are forced to look at restoration as means to miti-

gate fragmentation, as well as a linking remaining habitats along common corridors such as drainages and fence lines.

The greatest threat to wildlife habitat in Texas is the subdivision of large land holdings into smaller tracts. More than half of the population of Texas is located in six cities: Austin, Dallas, El Paso, Ft. Worth, Houston and San Antonio. As human populations continue to grow, resource managers are forced to develop technologies to restore and maintain habitat fragments in order to support viable wildlife populations. Changes in land use from agriculture-based to suburban development mean additional habitat fragmentation. Under these conditions, corridors or "linear habitats" are extremely important. Fence lines, drainages, and roadways are all potential linear habitats that, when linked together, can form mutual corridors for wildlife traveling between small blocks of habitat.

Consider TPWD's Bright Leaf tract in Austin, Texas. Bright Leaf is about 200 acres of prime live oak-juniper woodland completely surrounded by urban development, a true "island" of habitat. This beautiful piece of property harbors rare plants. Even the endangered Golden-cheeked warbler nests here. Unfortunately, this urban preserve may not meet the needs of



Chinese tallow threatens large areas of the Upper Texas Coast such as coastal prairie at Peach Point Wildlife Management Area near Houston. Photo by Matt Wagner.



*Big Bend Ranch State Park in far West Texas is the largest TPWD holding at 270,000 acres.
Photo by Matt Wagner.*

those special resources over the long term.

If habitats become fragmented enough, the survival of organisms is threatened. At Bright Leaf, an abundance of exotic landscapes are invading from the surrounding neighborhoods. The invasion of exotic species into native habitats can devastate wildlife populations. Seemingly harmless plants such as Chinese tallow and insects such as the imported fire ant have altered entire ecosystems. The question is: Is there a way to make tracts like Bright Leaf viable ecosystems? Is there a way to maintain the quality of these tracts so that they can sustain wildlife populations into the future?

At the other end of the habitat spectrum is Big Bend Ranch State Park.

As the largest land holding for TPWD, it covers nearly 270,000 acres in West Texas. It's a fragment, a big fragment, but still a fragment. To illustrate

this fact, mountain lion research conducted on the area reveals that the average home range for adult male

lions is over 200 square miles. When two or more male lions are involved, this means much more habitat than can be provided on the park alone. It doesn't take long to realize that even if enough money was made available to purchase land for public ownership, it would never be enough to make a substantial difference for conservation of some species in Texas.

As habitat in Texas continues to change, some wildlife species will decrease in number and some will increase. Certainly, nothing will remain the same. The job of resource managers is to balance the needs of all wildlife by providing the mosaic of habitats necessary to sustain populations over the long run. In Texas, many challenges and opportunities lie ahead as together we learn more about the natural history of lesser known species and integrate their needs into existing plans for private and public property.

"Urban Sprawl and its Effect on Rangeland Resources" will be highlighted at SRM's summer meeting in San Antonio. Those attending will look at rangeland resource management from a somewhat different perspective than the conventional. Field trips and programs dealing with water issues, endangered species, habitat restora-

tion, and many other exciting and entertaining activities are planned as well. Come and be ready to enjoy yourself Texas style, learn a bit, and carry home lots of new ideas!

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