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# Creating Shelter for Texas Wildlife

**Shelter is one of the most important components** of wildlife habitat and will make the difference in whether or not a species will occupy your property. In general, wildlife seldom moves far from a shelter bank it can comfortably retreat to. This makes providing shelter a vital part of any plan you might have for attracting wildlife to your property.

Texas has a great wealth of wildlife and these animals can be beautiful and welcome guests in our gardens and rangelands across the Lone Star State. By restoring shelter, providing food and ensuring water is available; Texans can restore some of the habitat lost to wildlife with the daily urbanization of our state.

But how do we restore the shelter that wildlife needs to comfortably visit and live in our backyards? In nature, shelter comes in many different forms including the way plants work together to screen and protect the animal, fallen and decaying plant materials that might produce a cavity or brush pile for the animal or rocks and dens that provide nesting and escape opportunities. In trying to establish shelter for wildlife on our properties we work to optimize these naturally occurring opportunities and to supplement them with man-made structures. This publication will provide you with some guidance in creating and protecting important shelter features for wildlife that may be using your landscape.

## Providing Shelter with Plants

Creating or protecting shelter with plants involves maintaining the naturally occurring plant layers on your habitat. In nature we do not find landscapes of a few tall trees surrounded by a sea of 1- to 3-inch grass and ground cover. Instead we find ground cover, bunch grasses of assorted size, wildflowers that rise above the ground, brush of assorted sizes and textures, short trees with both thick and open canopies, taller trees with canopies of varying texture and vines weaving throughout the cluster. All of these plants are important shelter provisions for wildlife.

While samples of all of these plant types occurred in all regions of the state naturally, they did not all occur with the same frequency in all habitats within those regions. For example, in a prairie ecoregion large trees would be found in good numbers along the riparian corridors, but they would be much less common in the upland areas where grasses would be the dominant plants. Brush would be rare on these prairies, and in many cases were the plant types that would be controlled by fire or other mechanisms to maintain the integrity of the grassland ecosystem.

Protecting this shelter when it is present on your property is easier, and less expensive, than restoring it once removed. In planning construction and landscape activities, take time to consider the plants you will be moving or impacting carefully. Will your activities maintain strong diversity of plants in each of the plant classes that are appropriate for your setting? Shrubs and short trees, as well as the tall bunch grasses native to Texas, are the plants most often missing in significant numbers when we finish a construction project. These plants are generally cleared to make access to the area so that we can build and landscape our residences. In doing so, we remove some of the most valuable wildlife shelter, thus excluding the animals.

If you are attempting to restore shelter in an area where it is lacking, selecting the right plants to “fill the hole” left when the property was developed becomes the challenge. The first priority should be to select a plant that is native to the region and will thrive in the situation you have available. If your location is wide open to the sun, and you are hoping to place a plant that prefers shade, your plant is not going to do well if it survives the transplant at all. The needs of the plant should be paramount in your selection process. By choosing a plant native to the region, you reduce the probability that the plant will become an environmental nuisance in the area. Another concern is the amount of area the plant will need. While the root ball itself may be small, spreading branches of a tree or shrub need room for the plant to thrive. Do not rely on the ability to trim or prune the plant to the appropriate size – this seldom results in a healthy, thriving plant and the branches are a significant part of the shelter you are trying to provide.



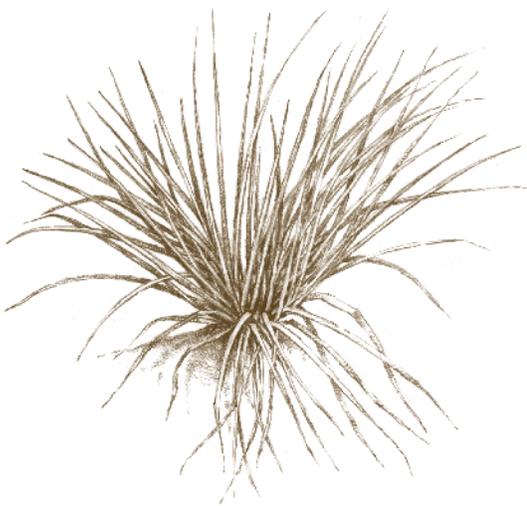
In selecting the plants for your project, you may want to consult some good resources like *Native Texas Plants* by Sally Wasowski and Andy Wasowski, or *Texas Wildscapes; Gardening for Wildlife* by Kelly Bender. You might also consider websites like [www.wildflower.org](http://www.wildflower.org), or [www.npsot.org](http://www.npsot.org) for guidance.

When placing your plants, consider both the needs of the plant and the needs of wildlife visiting your landscape to select the spot where the plant will be most effective. For example, if you have an effective food source for adult monarchs, but no milkweed close by, you might want to consider adding an appropriate milkweed patch near, or within the stand of nectar plants. This will allow the females to feed and deposit eggs in your garden, increasing the probability that you will have monarchs.



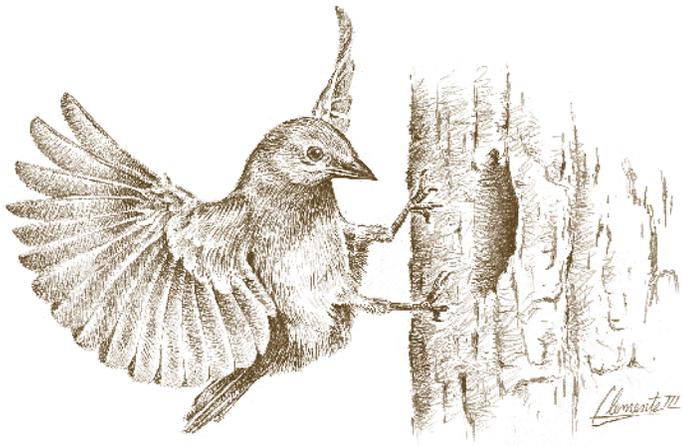
Identifying vacant layers of habitat in your garden may become easier by placing a camera at the usual level of the animal's eyes and taking pictures of the landscape. For example, if your goal is to attract bobwhite, placing a camera six to eight inches above ground level and taking a series of photos will reveal what the bird is seeing when it walks through your fields. This will allow you to look at your garden from angles you do not normally see, and select plants to "fill the holes" where shelter is lacking.

One way to create a bank of shelter is to create a thicket. Thickets may consist of evergreen plants, deciduous plants, or a mixture, although deciduous plants are likely to provide less screening (escape) shelter for most animals when their leaves are absent. Natural thickets are areas of dense vegetation including trees of various sizes, brush, vines and even some bunch grasses. These thickets will require some maintenance since they are great locations for seedlings of invasive plant species to take hold and eventually thrive.



Another important feature, especially in prairie and savannah regions, is the bunch grass that characterized these regions. Native grasses in Texas grow in clumps with open space between the clumps in which seed eating wildlife feed and through which birds and other animals would move. Exotic grasses, like St. Augustine, often form a carpet with no bare space between the grass plants. These carpet grasses do not form the shelter to protect wildlife movements, or the clumps of root and stem that wildlife often nest in. Native bunch grasses are integral to restoration of habitat for ground nesting birds, lizards and other wildlife. Unfortunately, native grasses are often invaded by exotic grass species and overwhelmed by the carpet forming plants so maintaining the integrity of these systems by removing exotics is essential.

Creating shelter with living plants by combining them in a layered habitat appropriate for the region is an essential first step in providing effective habitat for wildlife on the range, but it is not the whole story.



## As Your Plants Mature and Die

Some plants will develop cavities or holes in the main trunk or larger branches that are used by birds, mammals and other animals as a place of shelter. These cavities often form where limbs or stems are broken off or where woodpeckers have worked to carve out a nest or roost site in the tree. Once established, these holes will be used by a wide variety of wildlife, sometimes with multiple species even sharing the same, or

nearby cavities on a single plant. These cavities should be protected when they are found, as competition for this scarce resource is intense. Declining numbers of cavities, and increasing competition from non-native cavity nesting bird species, contributed to significant declines in some nesting bird species, like the Eastern Bluebird, in the early part of the 20th century. Cavities are used for a variety of purposes including nesting, roosting, and escape. They remain a valued wildlife resource through the life of the plant, and long after the plant dies.

Another variation of cavity develops when wood in the heart of the tree rots, and creates a hollow area with access to the open air. These hollowed openings create a chimney like structure in the trees, and will be used by some species of birds and bats as roosting sites or for maternal colonies. These cavities, and the animals that depend on them, are becoming very rare.

Dead plants, often referred to as snags, while often treated as an eyesore or even a danger within our communities, are an extremely valuable resource for wildlife. Usually riddled with cavities, they can shelter an amazing number of animals and provide a food resource for others. This is a great use for exotic trees – stripping a patch of bark about 8 to 12 inches wide all around the tree will starve the upper branches and result in the death of most species, creating a standing snag. This should be avoided in trees that sprout from the roots, like Chinese Tallow, since it will result in a worse infestation of the plant.

Once they fall, snags remain a shelter resource by providing cover for dens and roosting sites for some animals. Reptiles, amphibians, insects and even mammals will burrow under and into logs seeking refuge from weather and predators. In cooler weather, these animals may also use the log as a perch on which to bask while seeking the sun's warmth.

## Enhancing Brush for Shelter

If brushy shelter low to the ground is lacking, but there is an abundance of shrub and short tree species nearby, half cutting selected plants and knocking them over, so that the top will remain green but will be much closer to the ground, will help fill the hole you have identified. Species that root when branch nodes touch the ground are especially valuable when used in this manner, since they are now allowed to create a much thicker green brush stand with low branches.



Creating brushy shelter with dead plant material is done through a similar concept – bringing the brushy materials at the top of the plant closer to ground level. Anytime you trim, cut or pull woody materials from your landscape, you have a very valuable resource on hand that can be used to provide shelter for brush and grassland bird species, for small mammals, for reptiles and even for some insects. Piling this left over “brush” and allowing it to remain in place is a valid use of this often burned or discarded material that will significantly benefit wildlife on your lot. The materials will break down slowly over time, and more material can be added on top of the pile as needed and available.

## Ponds

The plants we use in our landscape projects form the base of most of the shelter available to wildlife on our properties however they are not the only shelter features in a well planned landscape. Some wildlife will escape quickly to water when threatened, while other animals, most notably amphibians, will spend half their life or more in water.

Ponds or tanks present some unique shelter features, not only in the ready escape to the water for a variety of animals, but also in the plants that might be found in ponds. Emergent plants will provide places for the metamorphosis of insects including dragonflies, damselflies, mayflies and others to be completed. Some emergent plants however, like cattails, can be very aggressive and will quickly overwhelm a small, confined tank. Guidance on selecting appropriate plant species for ponds can be found in the Texas Wildscapes book.

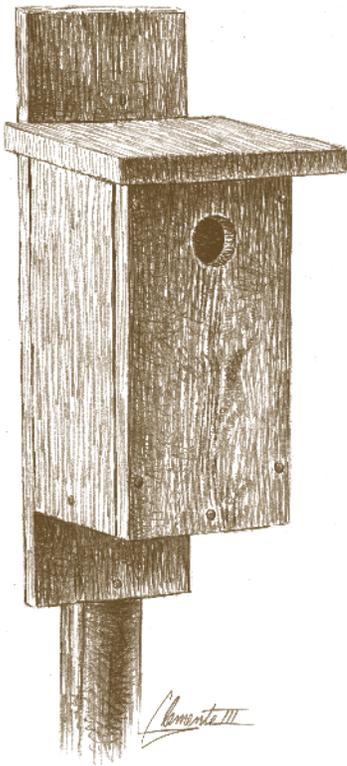
## Geophysical Features

The edges of ponds found on our landscapes are often decorated with rocks. These rocks present another valuable opportunity to provide shelter for amphibians, insects and other creatures associated with our ponds. In placing the rocks, avoid mortar above the waterline so that lizards, snakes, toads and other animals can move freely between the rocks. Wood piles, appropriately placed, will provide a similar habitat feature, though usually not close to a pond.

Another way to provide shelter for these same animals is to reuse old clay flower pots by chipping them and then placing them upside down in quiet corners of your garden. Animals will crawl under the lip of these chipped planters and use them as a “cave” or “den” during their quiet hours.

These above ground dens are valuable, but if you can create a similar den below ground a whole new palate of wildlife become possible guests. This can be done by digging out an area and placing a short piece of PVC or other pipe into the ground at a slight angle. These dens have been used by Burrowing Owls, among other animals.





## “Bird Houses” or “Nest Boxes”

Another way we can provide shelter for wildlife on our property is provided by the use of artificial cavities we build to provide birds, squirrels and other animals with shelter. Plans for some of these “nest boxes” can be found in the booklet “Providing for Backyard Wildlife” by Walter Brown. This publication, which can be found at [www.tpwd.state.tx.us/publications/pwdpubs/media/pwd\\_bk\\_w7000\\_0950.pdf](http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0950.pdf) is a valuable resource for anyone who would like to build shelter or feeders for wildlife in their back yard.

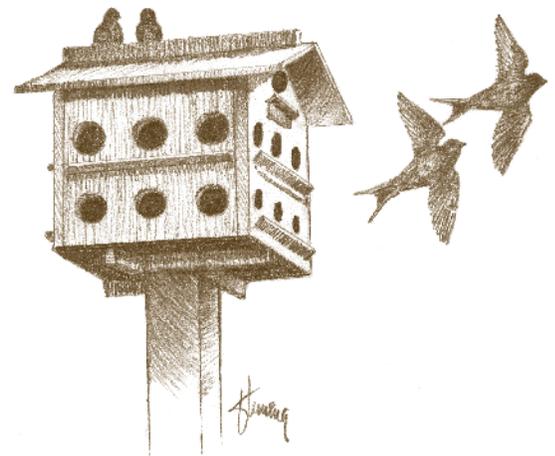
Typical “birdhouses” or “nest boxes” are designed to provide cavity nesting birds a place to nest and raise their young to the fledgling stage. Once a young bird leaves the nest, they seldom return to the nest site, making it possible for a single box to provide a nursery for two or more clutches of the same or multiple species of bird in a single year. For example, a carefully placed nest box might shelter Carolina Chickadees, Tufted Titmice and even Eastern Bluebirds in a single year. This makes them a very valuable tool for your wildlife management efforts.

Typical “nest boxes” are a square or rectangular based box with a roof that extends in front of the box and an opening into which the bird can fly. Important features are:

- The size and location of the opening above the base of the box. Each species of bird has a size and location of that opening that they will use since it provides access for them while protecting their young from most predators.
- The size of the base or the amount of room provided by the box so that the young birds can grow to fledging size.
- Air circulation within the box to maintain the eggs and the young birds at a comfortable temperature.
- Drainage so that eggs and young are not flooded.

Another important feature for the landowner will be an easy means of accessing the inside of the box so that they can be cleaned and monitored effectively. This is usually provided by a side that will lift (often requiring the removal of a pin). Nest boxes should be cleaned after each clutch of young birds fledge, and most ornithologists recommend monitoring a clutch of young weekly until they fledge to protect against predation and other concerns. Your opening the box, having a quick peek inside, removing insects or other threats and closing the box again will not cause the parent birds to abandon their young. See “Bluebirds in Texas” written in cooperation with the Texas Bluebird Society at [www.tpwd.state.tx.us/publications/pwd\\_bk\\_w7000\\_0512.pdf](http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0512.pdf) for more details.

A feature needed only by Purple Martins, and that readily invites pests to other nest boxes, is the perch. Purple Martins will use a perch outside the entrance to their box, but other native species do not require it. House Sparrows, an invasive non-native bird, will use perches readily and so make easy use of a nest box equipped with them.



During the winter months in Texas, these boxes take on a different role – they provide a break from wind and other winter weather elements for these same birds. It is not unusual to find as many as eight bluebirds in a nest box on a windy winter night. Provide additional protection during the winter by placing a sheet of cardboard over the holes in the base of the box thus reducing wind.

Owl boxes have to take into consideration the unique nature of these birds and their preferred natural nesting sites. For example, Barn Owls are more likely to use a box that is “laid on its side” in relation to most nest boxes. Screech-owls often prefer a box with the front open for about 3 inches as compared to a circular hole in the front of the box. Researching the needs of the animal will reduce your frustration and improve your chances for success.

Nest boxes, with the possible exception of owl boxes, should not be attached to trees or other wooden structures – these are too easy for predators to climb and provide easy access to the nest box. A good mounting feature is created by driving a 4-foot length of rebar two feet into the ground and then sliding a 6- to 8-foot piece of metal conduit over the rebar to sit snugly on, but not driven into, the ground. This allows the conduit to move easily back and forth on the rebar and discourages mammals from climbing. Predator guards and snake traps placed on the pole or on the box will also discourage predation. See [www.texasbluebirdsociety.org/documents/kingstonpredatorbaffle.pdf](http://www.texasbluebirdsociety.org/documents/kingstonpredatorbaffle.pdf) for designs to build an effective predator baffle.

Some animals will readily share nesting territory with other species, often very close by, creating an opportunity to make multiple use of a single mounting bar. A good example of this is placing a Prothonotary Warbler box on the side or top of a Wood Duck box. Since these birds use similar habitats but are not competitive for resources, the birds can live in harmony with this set up and the resources you require are reduced.

Placing your nest boxes is important, and having the box in the right spot will often determine success or failure in attracting a particular bird species. For example, bluebird boxes should never be placed in a wooded setting, but rather just inside the “drip line” of a tree looking out over a grassy prairie. Similarly, wren boxes should be placed very close to a brush line to allow the birds to exit immediately into brushy shelter. Research the habitat needs of the birds you hope to attract, or place multipurpose boxes (boxes with a 1.5-inch hole diameter) in a variety of areas, to enhance the diversity of birds using your nest boxes.

To reduce nest box use by non-native species, some landowners will plug the holes of their box through the winter months. This will not allow for native birds to use the box as a roost box however. If you must plug your holes, find out what the return date for your target species is each spring (or the approximate date that nesting activities begin) and remove the plugs at least two weeks in advance of that date. For example, Eastern Bluebirds begin nesting in Texas around the middle of February, so boxes should be opened in late January. Waiting until you hear the songs of “your bird” in the spring may have allowed for territories to have already been established, and reduce the probability of your nest box being used.

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To summarize, protecting and enhancing existing wildlife shelter features is easier than restoring shelter on a cleared site. Your efforts, if you are faced with restoring a property, should be focused on providing shelter at all levels of the landscape – from ground level to the top of the canopy typical for your ecoregion. This will not only enhance the wildlife habitat in your garden, but will also provide you with a landscape that is typical of what would have been seen in your region when the settlers first arrived. Your efforts will protect native plant species in the area; reduce your impact on the environment by using less water, fertilizers, pesticides, and other common garden chemicals; enhance your lands ability to store any rainwater that falls on the property thereby reducing runoff; and provide you with a wealth of enjoyment in watching the abundant wildlife that will visit and make use of your property.

A word of caution though, some communities will have guidelines that impact on the choice and location of plants in your landscape. Please be sure to work within the guidelines of your community.

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