



Burrowing Owl Artificial Nest Site Management in the Trans-Pecos Region of Texas

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Recommendations for Creating Artificial Nest Burrows in Desert Regions.



Natural habitat loss is occurring throughout the desert region to urbanization and development. Providing artificial burrows is a conservation measure that helps maintain local burrowing owl populations. Construct artificial nest burrows with the aid of a wildlife biologist to ensure success for the owls. The optimum time to install artificial burrows is after the breeding season from September through February. Owl occupation is more successful when artificial burrows are created in areas where burrowing owls are known to occur.

Two nest boxes are needed for successful burrowing owl artificial nest sites. The owlets grow rapidly and soon outgrow the nest box. One nest box is constructed using a 5-gallon bucket with a screw-on lid attached to half of 30-gallon drum. The second box, (called a satellite) may be smaller and constructed using two 5 or 7-gallon buckets. The additional nest box is used by the male while the female lays eggs and during incubation and provides additional habitat for the rapidly growing owlets and fledglings. Habitats may be created on level ground, gently sloping hills or soil mounds if flooding is an issue. Burrows are best constructed from 4" corrugated non-perforated drainage pipe (see Step by step instructions on constructing and installing artificial nest burrows for burrowing owls, pages 5-16).

Nest boxes need two entrances to provide ventilation and multiple escape routes should a predator, (snakes, skunks, etc.) enter the burrow. One entrance may be enough in areas without predators. Providing a 4-6" adapter to the entrance allows a greater area for a rapid escape for owlets. Wrap the ends of the artificial burrows in hardware cloth, insert into sections of 6" drainage pipe, and fill with foam to discourage and prevent digging and destruction of the flexible pipe by coyotes and feral dogs. Rocks securing the entrance also deter predators and prevent erosion. The artificial habitat often fills or get clogged with soil and must be maintained yearly to be functional for the burrowing owls.



Recommendations for Artificial Nest Site.

Criteria in Selecting a Site:

1. Open habitat with 40-70% bare ground and <15% shrub coverage having a slight rise in the landscape with good drainage;
2. Existing burrowing owls located near the site;
3. Enough habitat to install at least 2 nest boxes approximately 10 meters from each other;
4. Ample foraging opportunities, generally 10-20 acres of burrowing owl habitat for each nesting pair of owls;
5. Lack of disruptive human activities, such as construction, uncontrolled public access, or traffic;
6. 4 – 8 m³ of soil may be required to construct a single nest mound.

Materials Used to Construct One Artificial Nest Burrow with Two Entrances:

1. ½ 30-gallon plastic drum
2. 5-gallon plastic bucket with a screw-on lid
3. 20' of 4" black corrugated non-perforated drainage pipe, cut in 2-2' sections and 2-8' sections
4. 2 - 4" couplings
5. 2 - 4-6" ADS 4x6" snap reducing couplers
6. 4' of 6" hard drainage pipe, cut in half
7. Circular piece of wood
8. 6' wooden perch (buried 2')
9. ½" hardware cloth
10. Great Stuff insulating foam sealant, duct tape, and wire
11. 4 pieces of ½" 4' tall rebar
12. 2X2' piece of plywood

For further information or assistance contact the El Paso Urban Wildlife Biologist.

Step by Step Instructions on Constructing and Installing Artificial Nest Sites for Burrowing Owls

CONSTRUCTION OF AN ARTIFICIAL NEST SITE USING A 30-GALLON DRUM AND 5-GALLON BUCKETS



One entrance nest box



Two entrance nest box

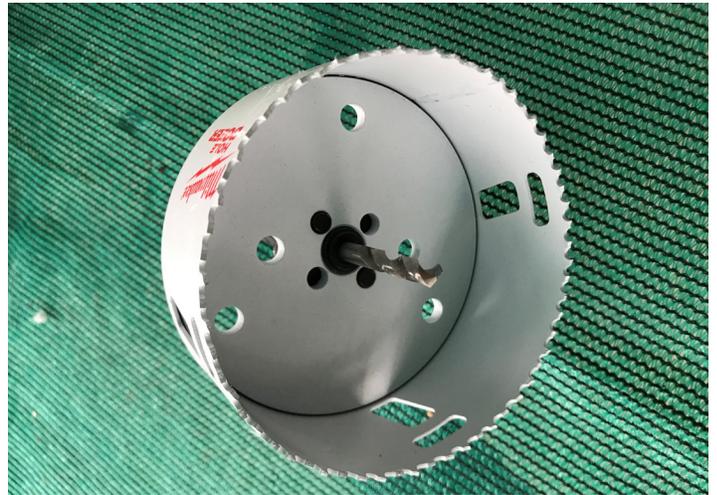
Tools needed

- Regular saw and jigsaw
- Drill
- Caulking gun
- Rivet gun



STEP 1

To make 2 nest boxes, measure and mark a 30-gallon plastic drum in half. Cut holes with a 4.5" hole saw on the sides of the drum for two 2-entrance nest boxes.



STEP 2

Cut holes in both ends of the barrel slightly smaller than the bottom of the 5-gallon plastic bucket.



STEP 3

Saw the barrel in half.



STEP 4

Prior to attachment to the barrel - Cut a hole in the bottom of the bucket leaving a 1" rim for a cover. Cut a circular piece of plywood to cover the hole in the bottom of the barrel.



STEP 5

Insert the bucket into the top hole and the short sections of drainage pipe into the side holes of the barrel.



STEP 6

Cut and fold back sections of the drainage pipe and permanently secure to the inside of the drum with rivets.



STEP 7

Caulk both the inside and outside attachments of the drainage pipe and bucket insertions.



STEP 8

In the field, connect 4" couplings to the short sections of pipe connected to the drum. Wrap duct tape around the connection.



STEP 9

Attach the screw-on lid to the bucket and secure it with duct tape.



CONSTRUCTION OF A SATELLITE NEST SITE USING PLASTIC BUCKETS

For the smaller nest box, insert a 5-gal. bucket into a 5 or 7-gal. bucket and rivet them together. The procedure for the drainage pipe is the same as for the plastic drum. Caulk all connections inside and outside of buckets and drainage pipes.



INSTALLATION OF ARTIFICIAL NEST SITE IN THE FIELD

STEP 1

Dig nest site hole so that the top of the bucket is 1- 2" below ground level. When the ground is level, dig burrows for the drainage pipe so they slowly rise to ground level and the entrances lay perpendicular to the ground.



STEP 2

Connect a 4-6' long section of flexible pipe to the coupling and duct tape the connection to ensure no soil leakage.



STEP 3

Ease the artificial nest box and burrows into the trenches and bury. Desert sandy/silty soils need to be compacted regularly as you bury the habitat.



STEP 4

Cut a 1-1.5' section of 1/2" hardware cloth and attach to the drainage pipe. Cut a 1-1.5' section of 6" drainage pipe and secure over the hardware cloth.



STEP 5

Attach an ADS 4x6" snap reducing coupler to the end of the drainage pipe. Fill the 6" drainage pipe with Great Stuff insulating foam sealant.



STEP 6

Burrow entrances must lay level and perpendicular to the ground preventing rain from entering the burrows. Secure the entrance with rocks to control erosion and deter digging mammals.



Burrow trenches will gradually rise to meet the surface soil if installing the nest site on level ground



Burrow entrances on a hillside

STEP 7

Construct 1-2 perches 4' above ground and place close to the burrow entrance. Protect the wood with several coats of paint.



STEP 8

Construct a shade structure from a 2X2' piece of plywood and 4' sections of rebar and place close to or over the burrow entrance. Paint both sides of the shade structure prior to installation to protect the wood. Caulk the rebar to the wooden shade structure in the field.



STEP 9

Mark the sites where nest boxes are located with large rocks and sticks to easily locate them for maintenance.



STEP BY STEP ARTIFICIAL NEST SITE MAINTENANCE INSTRUCTIONS

Conduct maintenance between October and January. Be sure no owls are present at the artificial habitat before conducting any nest box or burrow maintenance. Use a leaf blower or fish tape to maintain the nest box and burrows.



LEAF BLOWER METHOD

STEP 1

Uncover the lid and remove excess soil build-up in the nest box.



STEP 2

Make an extension piece from a 4-inch 45° PVC elbow and connect it to the leaf blower tube (duct tape) that will fit inside the burrow hole at the bottom of the nest box.



STEP 3

Insert the leaf blower tube extension into the burrow hole at bottom of the nest box.



STEP 4

Connect the blower tube extension to the leaf blower tube.



STEP 5

Turn the leaf blower on and blow out any soil blockages or build up. Do both burrows when the nest box has two entrances.



STEP 6

Clear out invasive or undesirable vegetation that is encroaching near or at the artificial nest site. Open areas at the nest site will increase the owls searching efficiency for predators and their visibility for hunting prey.



Before vegetation habitat maintenance



After vegetation habitat maintenance

FISH TAPE METHOD

STEP 1

Uncover the lid and remove excess soil build-up in the nest box.



STEP 2

Use 2 segments of fish tape if leaf blower is not available. Attach fish tape to a laundry cleaning brush and feed the tape end without the brush through the nest box out the burrow entrance.



Attaching laundry brush segment of fish tape to the section of fish tape being pushed out the burrow to the entrance.



Pulling the fish tape out from the nest box.

STEP 3

Continue pulling the fish tape and attached cleaning brush through the burrows and out the entrance to clean excess soil out the burrows. Repeat until clean. Put a fresh coat of paint on the perches and shade structures.



Best Management Practices to Help Burrowing Owls

- It is a violation of State Law, TPWD Code Sec. 64 to disturb the nest, eggs, or young of burrowing owls. Activities conducted should be a minimum of 100 feet from the nest burrow to prevent abandonment or destruction of nest burrows, eggs or owlets. Conduct any activities near burrowing owl nest sites from September to February to avoid the breeding season.
- Place artificial nest sites 10 meters apart if installing habitats for multiple pairs of owls.
- Avoid using pesticides < 250 meters away from nest sites.
- Keep dogs and cats on leashes. Dogs may dig out the nest, while cats kill owls. Support a removal program for all feral dogs and cats on public lands.
- Support restriction of recreational off-road vehicle usage in burrowing owl habitat.
- Support land use practices, natural open space, and habitat projects to benefit the owls.
- Provide artificial nest burrows whenever possible.
- Observe owls from a respectful distance of 50 feet.

