Barn Owl Research Foundation *P.O. Box 680183, San Antonio, TX 78238*

BARN OWL NEST BOX – BARN TYPE

For Barns Within One Mile of Grassland or Wetland Habitats

WOOD PARTS

Bottom: 38½" x 11¼" (1" x 12" pine)
Back: 40" x 16" (1/2" exterior plywood)
Ends (2): 16" x 11¼" (1" x 12" pine)
Top (2 sections): 24" x 11¾" and 16" x 11¾" (1/2" exterior plywood)

HARDWARE and TOOLS

- About 25, 1 5/8" galvanized drywall screws (alternatively, galvanized 6d or 7d Box **Nails** can be used)
- Two **Hinges** (1½"), 1 **Hasp** (2½"), 3 metal **Corner Braces** (1½") with screws; and exterior caulk
- Tape Measure, Power (or Hand) Saw, Hammer, Power Screwdriver (Phillips head), Keyhole Saw, and possibly two pieces of 18-gauge galvanized wire - 3 feet long (depending upon installation conditions), and Pine Shavings (pet bedding)

ASSEMBLY

1. Screw the ends to the Bottom, so the total length of the assembly is 40".
2. Screw the back to the assembled Ends and Bottom, so the total height is 16".
3. Screw the long Top section to the assembly. (The barn wall will act as the box front.)
4. Place the short Top section on the assembly, set back about 1/8" from the open face of the box (so that it will not rub on the barn wall when opened). Install the hinges to connect the two Top sections.
5. Install the hasp so it extends from the short Top section down onto the box End.
6. Install corner braces: one on each End about 12" from the Bottom, and one on the top near the box center, so that each brace when secured is even with the open face of the box and can be screwed to the barn wall.

INSTALLATION

1. Identify an end (or side) of the barn that faces open space, and does not have tree over-growth or excessive vehicle or equipment activity directly below. Then select a crossbeam inside the barn upon which to install the box. The ideal height for the box entrance is about 22 feet above the ground. (Lower heights can work when grassland or wetland habitat is abundant and nearby for foraging.)

2. Cut a 6" x 6" hole in the barn wall using a keyhole saw, between about 8" and 14"above the beam where the box is to be mounted. When the box is installed, one side of the hole should be about 1" from the box end that has the hasp. The hole will provide direct entrance into the box from outside the barn.

3. Set the box on the beam and screw the corner braces to the barn wall. Screw the box bottom to the crossbeam. Add support braces, or run wire from the bottom outer corners of the box to the barn wall above the box, for extra stability if needed. (See diagram.) If a beam does not exist where the box ideally should be placed for height, then a couple of angled supports can be built and screwed securely between the barn wall and box bottom.

4. Some ventilation of the box can occur through the barn wall front. However, if the barn wall has obvious gaps between boards, the gaps should be filled with exterior silicon caulking to reduce infiltration of light and wind. For extensive gaps, a ¼" plywood front (with entrance hole) can be screwed to the box face before installation. Cover the box floor with about a ½-inch layer of pine shavings to help drainage, especially in situations where the barn wall is solid (preventing ventilation).

BARN OWL RESEARCH FOUNDATION
A Cooperative Effort

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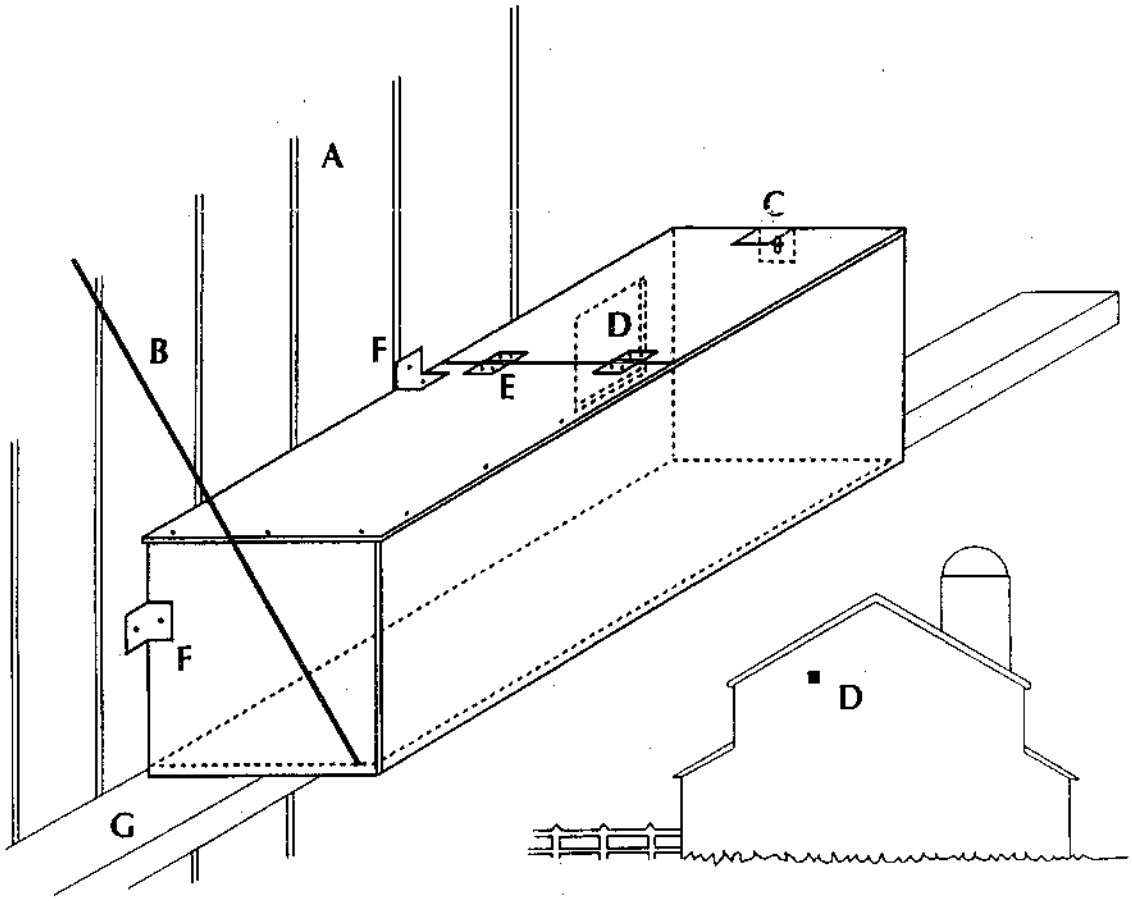
Barn Owl Nest Box

Key:
A. Interior of barn wall
B. Wire (or wood) support if beam is narrow
C. Hasp
D. Entrance (6" x 6"), 20 – 25 feet above the ground
E. Hinges
F. Corner brace
G. Cross beam



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BARN OWL NEST BOX – OUTSIDE-MOUNT TYPE

For Outside Attachment on Buildings or Silos within One Mile of Grassland/Wetland Habitat

WOOD PARTS

Bottom: 38½" x 11¼" (1" x 12" pine)
Back: 40" x 17" (1/2" exterior plywood)
Front: 40" x 16" (1/2" exterior plywood)
Ends (2): cut angled, ranging from 16" to 17" tall x 11¼" wide (1" x 12" pine)
Top: 42 x 14" (1/2" exterior plywood)

HARDWARE and TOOLS

- About 25, 1 5/8" galvanized **Drywall Screws** (alternatively, galvanized 6d or 7d box nails can be used)
- Two **Hinges** (1½") and 1 **Hasp** (2½"). *For buildings*, 2 metal (heavy duty shelf) **Brackets** (16" x 11") with screws (2 to 3" No. 10 pan head or 3" lag screws, depending on building surface), four ¾" #10 pan head or sheet metal screws, and 2 **Corner Braces** (e.g., 2½"; to attach the box to the wall surface) with screws (for wood or masonry). *For silos*, 10 feet of **Chain** (e.g., 2/0 double-loop poly-coated), two 36" pieces of 1½"flat-punched sheet **Metal Strip**, 8 galvanized ¼" x 1¼" hex bolts with nuts and 16 washers, and four 2 ½" "S" hooks for attaching the chain to the box and silo.
- Tape Measure, Power (or Hand) Saw, Hammer, Level, Pliers, Power Screwdriver (Phillips head), Keyhole or Jig Saw, 11/16" and ¼ "drill bits, quart of white exterior Paint and paint Brush, and Pine Shavings (pet bedding).

ASSEMBLY

1. Screw the ends to the Bottom, so the total length of the assembly is 40"and the height is 17"in the back and 16" in the front. Screw the back to the assembled Ends and Bottom.
2. Draw a 6" x 6" square (entrance hole) on the front, so the bottom edge is 8" from the bottom edge of the box and the right side of the square is 2" from the box end.
3. Draw a 7" (wide) x 9" rectangular (access door) on the box end that is nearest the entrance hole, starting 3" from the front and 3" from the bottom edge. Cut out both the entrance hole and access door using a keyhole saw.
4. Install the hinges on the side of the access door closest to the box front. Install the hasp on the other side of the access door. Insert a bolt or clip through the hasp to keep the door closed.
5. Drill 4 drain holes in the Bottom, from inside the box using the 11/16" bit. Position the holes in two parallel lines in front of the entrance hole.
6. For a silo-mount box, bend the sheet metal strips so they will extend flush from underneath the box, up the box back; bend that which extends above the top, back onto itself so that only about a 2" tab extends above the box top. Using the strips for a guide, drill four ¼" holes for each strip (2 in the bottom, 2 in the back), about 2 ½" from the ends of the box, and attach the strips to the box with the hex-head bolts. Put one washer on each bolt, and push them through from the inside of the box. Place the metal strips so the bolts protrude through them, put a washer and nut on each bolt; tighten.
7. Screw the Top section to the assembly, so it is flush with the back and over-hanging the front.
8. Paint the entire outside of the box white, two coats.

INSTALLATION

1. Identify an end (or side) of the building that faces open space, and does not have tree over-growth or excessive vehicle or equipment activity directly below. The ideal height for the box entrance is about 22 feet above the ground.
2. For buildings (houses, barns), attach the support brackets using pan head or lag screws. If attaching to a masonry surface, use appropriate masonry anchor screws. Be sure to level the brackets.
3. Place the box on the support brackets. Secure the box to the brackets using the ¾ " #10 pan head (or sheet metal) screws. Be sure the screws do not protrude up through the bottom of the box. Secure the box to the wall with the small corner braces and appropriate screws, with one brace on each end of the box (about 2" down from the top).
4. For silos, hang/loop chain from the silo rings and use the "S" hooks if needed to secure the chain back onto itself. Put a hook through the dangling chain end, hoist the box up using a pulley, and hook an "S" hook through one of the sheet metal tabs. Move the ladder to the other side of the box and repeat the process. Adjust the hooks to obtain adequate box height and level conditions; partially close the hooks using pliers.
5. Once installed, cover the entire box floor with about a ½-inch layer of pine shavings for drainage.

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BARN OWL NEST BOX – POLE TYPE

For Installation Within 1/4 Mile of Grassland or Wetland Habitats

BOX PARTS

Bottom: 38 ½" x 11 ¼" (1" x 12" pine)
Back: 40" x 16" (5/8" exterior plywood)
Front: 40" x 16" (5/8" exterior plywood)
Ends (2): 20" x 11 ¼" (1" x 12" pine)
Ridgepole: 38 ½" (2" x 2" treated pine)
Top: 43" x 20" (about 0.032" thick aluminum, or about 20-gauge galvanized tin)

BOX HARDWARE and TOOLS

- About 25, 1 5/8" galvanized **Drywall Screws**; 2 **Hinges** (1½"); 1 **Hasp** (2½"); 15 **Sheet Metal Screws** (no. 6, ¾"); and 1 quart of exterior **White Paint**
- Tape Measure, Power (or Hand) Saw, Hammer, Power Screwdriver (Phillips head), Keyhole or Jig Saw, Power Drill with 11/16" bit, Hot Melt Glue with glue gun or Caulking Compound, Wood File or Power Sander, Pliers, Paint Brush, and Pine Shavings (pet bedding material)

BOX ASSEMBLY

1. Cut each end so that the mid-point is 20" long (the peak) angled down to 16" at the side.
2. Screw the ends to the Bottom, so the total length of the assembly is 40". (See diagram.)
3. Draw a 6" x 6" entrance hole on the front piece, positioned about 8" from the (long) bottom edge, 2" from the top edge, and 2" from the end.
4. Draw a 10" x 10" service door on the Back piece, 2" from the bottom edge and 4" from the end, so it will be positioned *opposite* the front entrance hole when assembled.
5. Drill a small hole at one corner of each square marked, and use a saw from that point to cut out the pieces.
6. Install hinges and hasp on the service door and Back, so the hinges are near the box end and the hasp is near the box middle. Slip a bolt or metal clip through the hasp to secure it shut.
7. Screw the Back and Front to the assembled Ends and Bottom, so the front and back of the box is 16" tall.
8. Bevel the top edge of the Front and Back with a file or sander, so their upper edges slope outwards, matching the angle of the End pieces.
9. Drill about 4 drain holes in the Bottom, from inside the box using the 11/16" bit. Position the holes in two parallel lines in front of the box entrance.
10. Stand the assembly on end and install the Ridgepole between the Ends using drywall screws; position the Ridgepole so it's ends match the angle of the box End pieces.
11. Check the inside of the box for any protruding screw points, and cover them with hot melt glue or caulk.
12. Fold the edges of the sheet metal over ¼" using clamps or pliers, so there no sharp edges. Bend the sheet metal lengthwise so it will form the roof. Place the sheet metal on the assembly (so there is about 1 ½" overhang on all sides of the box) and attach it to the Ridgepole, Front, Back, and Ends using sheet metal screws. Seal the top of the sheet metal screws with hot melt glue or caulk.
13. Paint the entire *outside* of the box with two coats of white paint. (See page 2 for specifications on pole design and installation.)
14. Cover the entire box floor with about a ½-inch layer of pine shavings, after box installation on the pole, for drainage and to limit light intrusion through the floor drain holes.

POLE PARTS

Upright Post: 16' (4" x 6" pressure treated)
Support Posts (2): 8' (4" x 6" pressure treated)
Upright Supports (2): 12' (2" x 4" pressure treated)
Stakes (2): 2' (2" x 4" pressure treated)
Box Supports (2): 40" (2" x 4" pressure treated)
Box Bracing (4): ends cut at 45 degree angles, 28 ½" the long side (2" x 4" pressure treated)

POLE HARDWARE and TOOLS

- About 35, galvanized 12d **nails**; 6 metal **Corner Braces** (2") with screws; 2 metal (flat) **Mending Plates** (3") with screws; 12" long ½" **Carriage Bolts** with a washer and nut on each; a piece of **Sheet Metal** 20" x 40" (to use as a predator guard) with 14 roofing nails; and 2 bags of **Concrete** gravel mix
- Post-Hole Digger, Shovel, Power (or Hand) Drill with a ½" bit 12" long, Level, Adjustable Wrench, Hammer, and Sledgehammer

POLE ASSEMBLY and INSTALLATION

1. Pick a location out of the way of equipment, vehicles, and excessive activity by people. Make sure a ladder can be placed on the pole from the back and on the end of the Box Supports closest to the entrance hole. The box entrance hole should face plenty of open space; a location on a hill slope or soil berm can provide added box height. Dig a 4-foot deep hole, about 2-feet square, using a post-hole digger and shovel.
2. Place the two 8' Support Posts on the ground parallel to each other, with a 4" side on the ground. Nail a small piece of 2" x 4" lumber between them at one end, as a 4" spacer. Lower these two Supports into the hole, nailed-end down, so that 4 feet of post remains above the ground surface.
3. Stand the Support Posts up and use a level to determine their vertical position. Temporarily place another piece of 2" x 4" lumber (e.g., a Stake) between them, at ground level, so there is a 4" gap their full length. While one person keeps the supports positioned straight and uses the level on multiple sides, the other must slowly fill the hole using soil and (dry) concrete mix. Compact and add a bucket of water when the hole is half full. Fill the rest of the hole in the same manner, keeping the support posts in position at all times and checking their position frequently with the level. Leave the supports (with the 2" x 4' between them) to harden in place overnight.
4. Nail the two Box Supports to one end of the Upright Post (one to each of the 6" sides of the Post), so they are parallel to each other, level, perpendicular to the Upright, centered, and flush with the Upright top surface. Check their position carefully before nailing.
5. Nail the four Box Bracing pieces to the assembly, so each extends from the underside end of a Box Support to the mid-point of the Upright Post (in a V shape).
6. Remove the temporary 2" x 4" lumber between the Support Posts, and position the base of the Upright Post (while on the ground) so it lies between them. Place the box on top of the Box Supports and position it evenly. Install corner (angled) braces on the underside of the box (three each in front and back), screwed to the Box Supports. Screw (flat) mending braces between the box End and the end of the Box Supports, for added durability. Use a bolt or clip to secure the hasp closed. Wrap the sheet-metal predator guard around the Upright Post, just below the Box Bracing, and nail it in place.
7. Raise the Upright so it is wedged evenly between the Support Posts and its base is flush with the soil surface. Check the vertical position with a level, and make sure the box is situated in a level position.
8. Drill a ½" hole through the Support and Upright Posts, about 6" below the top of the Support Posts. Drive a carriage bolt through the hole with a hammer. Check vertical position, place a washer and nut on the bolt, and tighten the nut with a wrench. Repeat this process with a hole drilled about 10" above the ground.
9. Nail one end of each Upright Support to the Upright Post, about 10 feet above the ground, so that one support is nailed to the Upright back and the other to the Upright side that is farthest from the box service door; extend the Supports to the ground surface. Use a sledgehammer to drive a Stake into the ground about 18 inches deep, beside the end of each Upright Support, so that the 4" surfaces of the Supports and Stakes are flush to each other. Nail the ends of the Upright Supports to the Stakes.