

SPIFFY BARN OWL BOX DESIGN

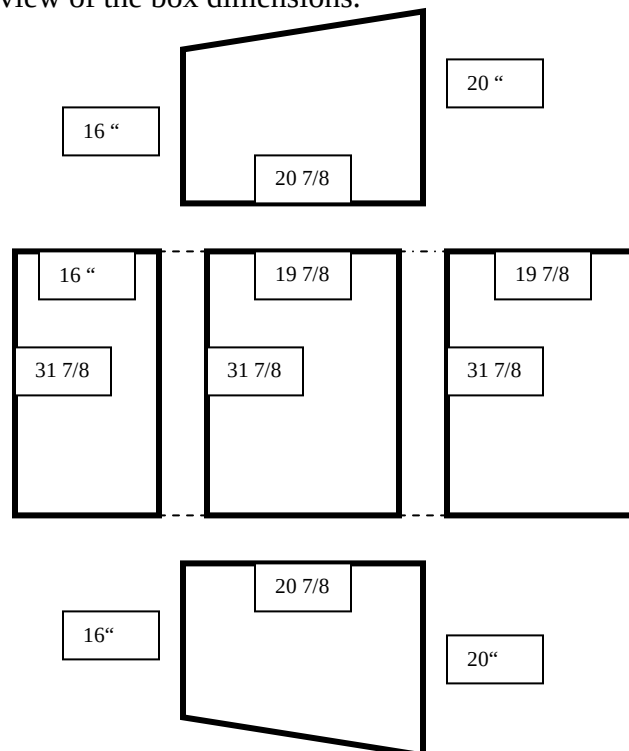
Andy Harris - 6 February 2007

We were in need of barn owls to decrease the pocket gopher population in our vineyard in Ramona, CA. I did a little searching on the Web, talked with some neighbors who have had great success with owl boxes in their vineyards (thank you, Paul Griffin) and came up with the following criteria:

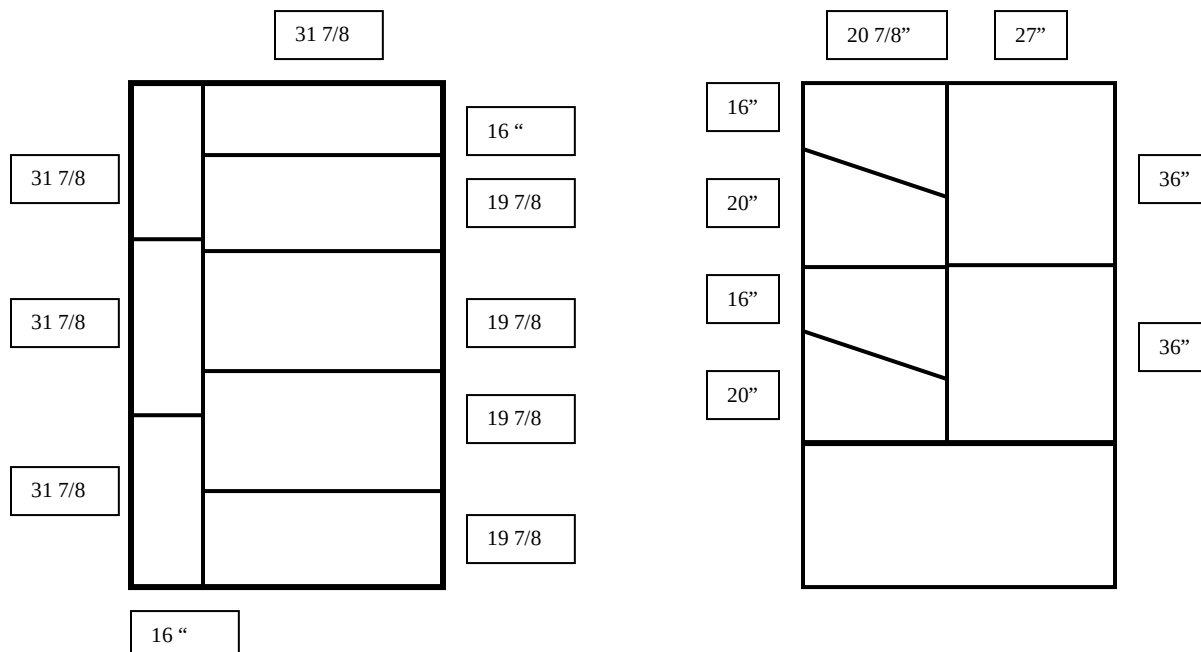
1. Major predator for barn owls is the great horned owl. A barn owl box should therefore have an opening no larger than $5\frac{1}{2}$ " x $7\frac{1}{2}$ " plus a baffle at the entrance to keep great horned owls from sticking their heads/claws into the nest and eating the young barn owls;
2. A larger inner chamber makes the nesting barn owl pair more comfortable (14-17" wingspan). They may lay more eggs and raise more young – implying more gopher kill.
3. Barn owl boxes get very 'messy' after a season of use and should have a quick method for cleaning out once a year (sometime in October-November) that doesn't involve reaching into the box and scraping, shoveling etc.

Based on these requirements I adapted several different designs and developed a design with a hinged lower portion to allow easy cleanout of the box after each season's use. The box is made mostly of $\frac{1}{2}$ " plywood. The plywood is framed on the interior with 1x2 pine strips to add structure to the boxes required to accommodate the hinged box bottom/side used for box cleanout. The hinges allow for cleaning by simply removing two wood screws on the lower ends and standing back. The bottom and side swing downward away from the top and high side, dumping the internal contents of the box. It is best to make certain a barn owl is not present when you remove the screws, particularly if you are on a ladder and somewhat vulnerable.

Here is the exploded view of the box dimensions.



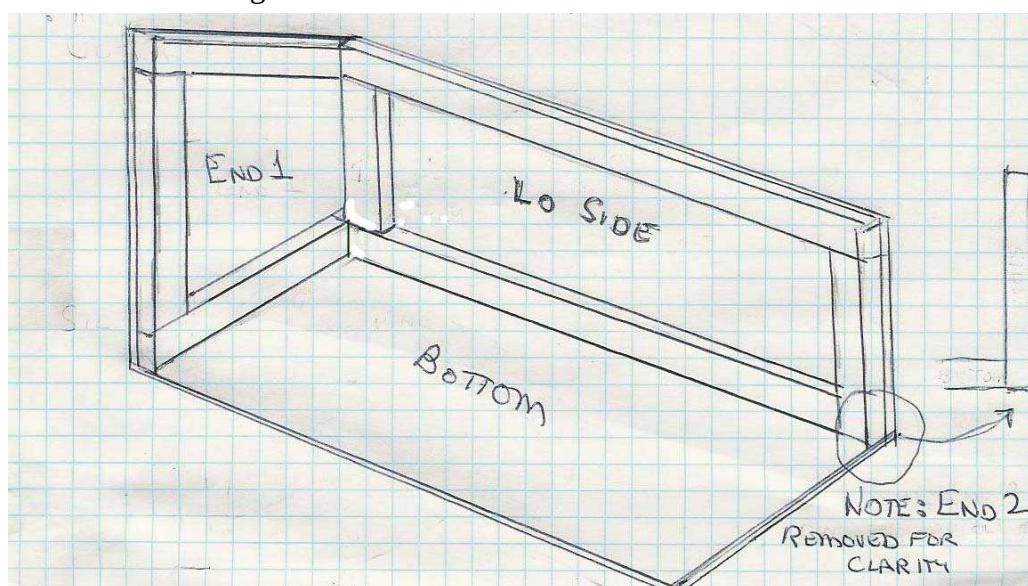
Plywood 4x8 Cut Pattern



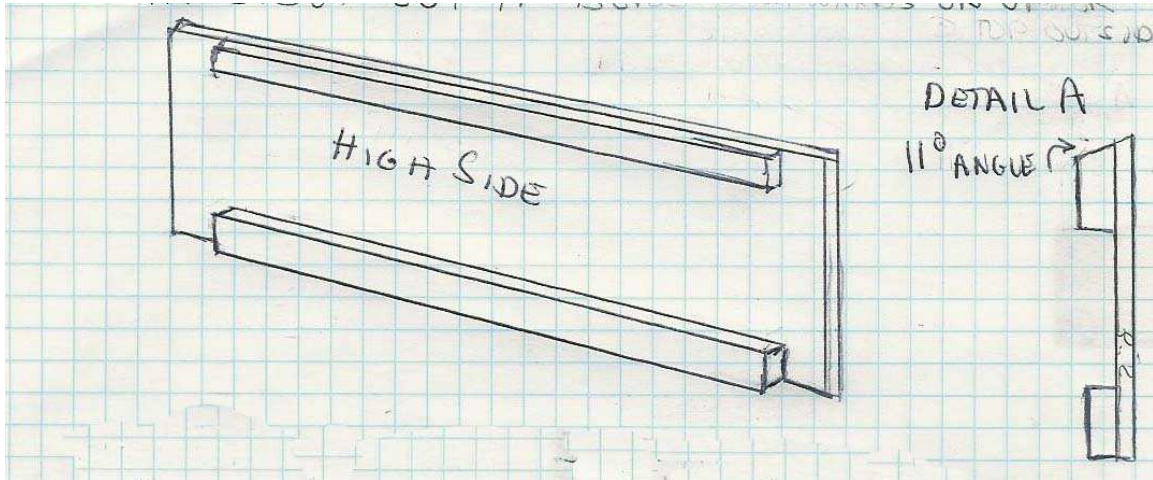
Using 4 sheets of plywood (2 for each cut pattern) will produce a total of 4 owl boxes plus some scrap. I sanded all the sharp edges after ripping the plywood on a table saw to keep young owls from getting slivers and splinters of wood. I did NOT paint the interior of the finished boxes because young owls try to eat anything, including paint chips. I did prime and paint the exterior of the boxes using an enamel suitable for outdoor use.

I have included a series of sketches divided into steps below to show the assembly details of these owl boxes.

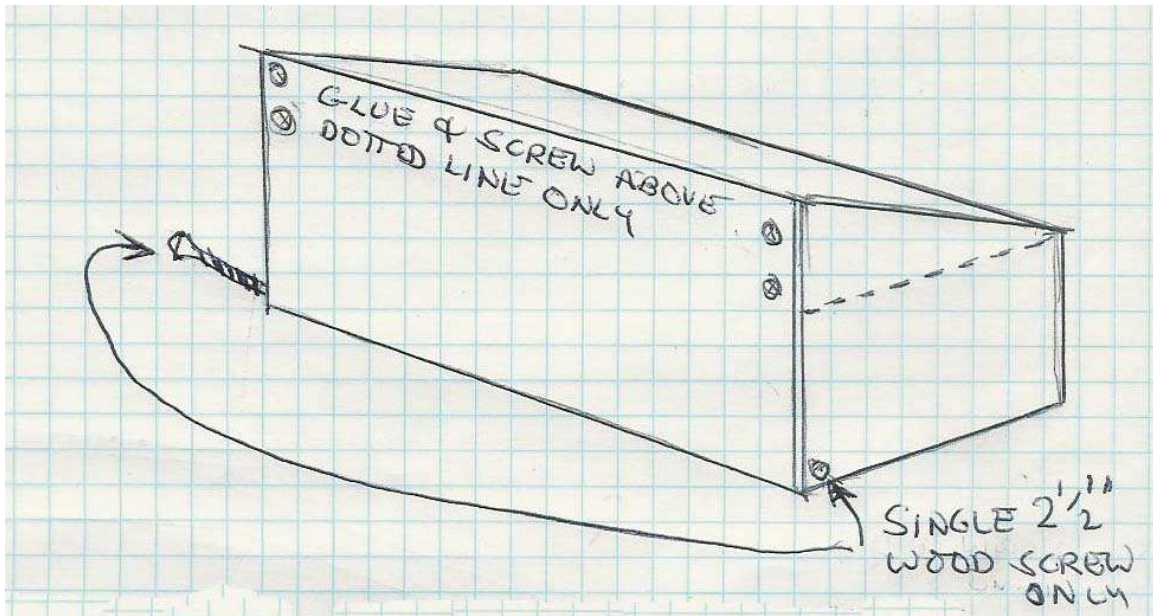
STEP 1: Assemble the bottom to low side and both ends using 1x2 pine backing strips as shown. Use exterior glue and deck screws.



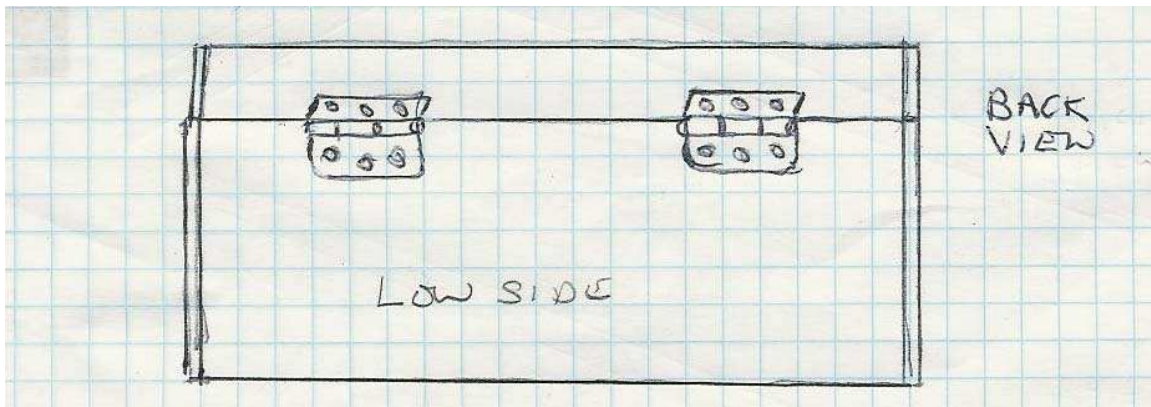
STEP 2: Attach 1x2 pine to upper & lower edges of high side. Cut 11 degree bevel downwards on upper end. Start angle at top outside face of plywood.



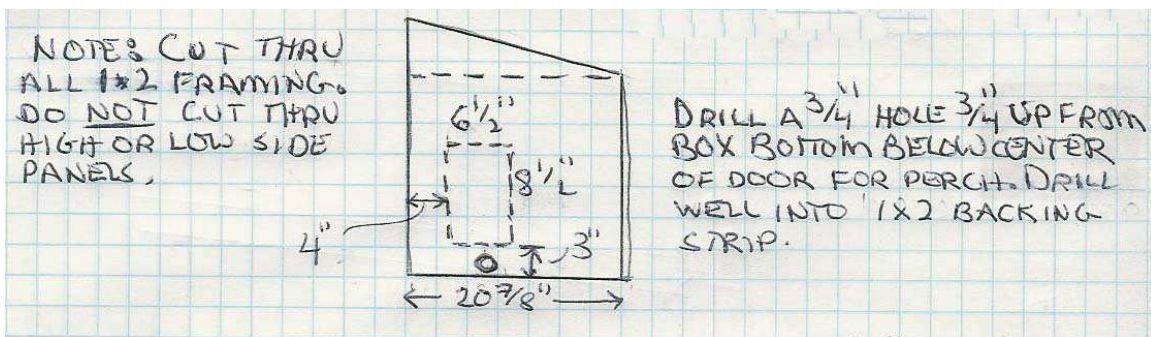
Insert high side piece onto assembly from STEP 1 and screw or screw/glue at the locations indicated below.



STEP 3: Mount a set of door hinges on the **outside** upper edge of the low side wall as shown in the figure below. Cut insets for the hinge pins so the top will remain flush with the wall. Note that the figure below does not show the roof of the owl box.

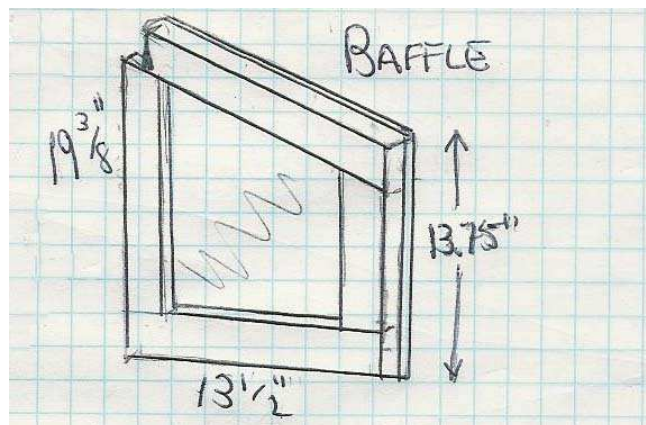


STEP 4: Using a sabre saw, cut both ends 1 & 2 along the dotted lines shown in the figures (see STEP 2) to form a rectangular and a triangular piece from each end piece. Use the sabre saw to cut a rectangular $6\frac{1}{2}'' \times 8\frac{1}{2}''$ hole favoring the high side of the box as shown on the figure below.

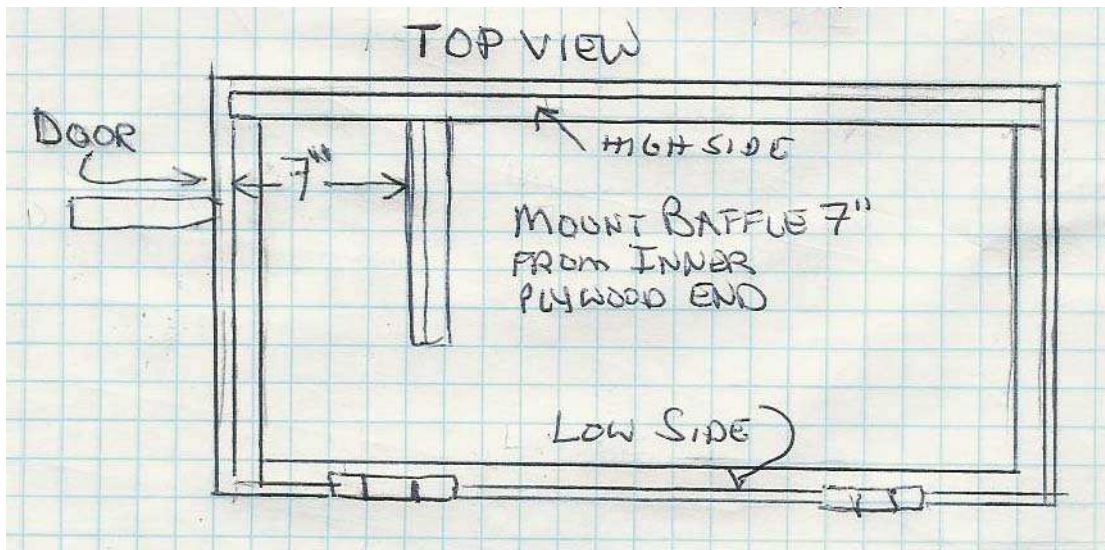


I framed the opening with 1x2" scraps to reduce the final size to $5\frac{1}{2}'' \times 7\frac{1}{2}''$. This trim keeps the owls from getting plywood slivers as they land and take off. These maneuvers can be pretty rapid, so I inset the trim to cover the plywood edges.

STEP 5: Fabricate an interior baffle from spare $\frac{1}{2}''$ plywood. Cover one side of this baffle with 1x2 backing strips, remembering to cut a notch in the upper edge to accommodate the pine backing strip on the high side wall. Attach baffle to box using screws and glue **to top and high side only**. Cut an 8" long 1x2, turn one end to $\frac{3}{4}''$ diameter, round the square edges, and glue in hole for bird perch at door opening.



This baffle prevents great horned owls from entering the box, or reaching inside the inner box area with their talons. It also provides structural support for the top and high sides that the remainder of the box swings from when opened for cleaning. A top view of the box with the baffle and perch installed is shown in the figure below.



STEP 6: Place roof section (36" x 27" top piece) on a work table. Turn owl box upside down and center on top section, leaving equal spacing on all sides. Brace the high side up to gain access to hinge faces inside box. Mark holes for drilling.

Remove box base, and drill holes in top. Put box base back into place and bolt box top to hinge faces. Remember to place bolts facing outward (up through the top) so baby owls won't gouge themselves on the ends of the bolts. Screw and glue top to high side end pieces, and inner baffle.

STEP 7: Add ventilation holes along the top to the side walls (under the "eaves").

OPERATIONAL CHECKS:

Remove 2 end screws from lower edge of ends 1 & 2 to check for proper opening of box. This is important, because once the owl box is mounted, the removal of these screws will be done on a ladder and the owl box bottom must freely swing downward to empty accumulated "stuff" from last year's occupants. If it doesn't swing freely and you are up on a ladder trying to force the issue, you will either fall or end up covered with owl stuff when the bottom does spring open. Check operation prior to installation.

Here is what the box should look like when it is opened and upside down lying on the ground.



Here is a picture of the completed owl box closed and ready for installation.



INSTALLATION:

Barn owls seem to like nests no lower than about 16 feet in the air. They also like the immediate surrounding area to be free of trees or other climbable objects to minimize the chance of raccoons stealing the eggs, or other varmints gaining access to the nest. Some owl box installations in trees also seem to attract occupants quickly.

The owl box should be mounted via bolts or screws from the high sidewall to accommodate the hinged cleanout feature. The picture below shows one of my owl boxes between tenants. (Yes, that's permanent orange slurry on the hillside, which burned in the Cedar Fire in October 2003).

