

## USE OF BARN OWLS TO CONTROL RODENTS ON FARMS

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The common barn owl (*Tyto alba*) is the most widely distributed land bird in the world (Bunn et al. 1982). It is often called the most beneficial bird in the world because of its hearty appetite for voles, gophers, mice, and rats. Several farmers have observed that gopher populations are substantially reduced when sufficient barn owl nesting sites are present on the farm. Unfortunately, little or no long-term research has been conducted to document an effect on rodent populations by installing nest boxes.

Each adult barn owl may consume about 1-2 rodents per night; a nesting pair and their offspring can eat over 1,000 rodents per year (Colvin 1986). The actual species taken depends in large part on the species abundance in the area; in heavily farmed areas, meadow voles and pocket gophers are often the main staple. Barn owls usually swallow their prey whole and later regurgitate large pellets (usually one to two per day) containing undigested bones, teeth, and fur. Skulls found in these pellets can be keyed out to determine the identity of the prey species. The prey species taken most often are California meadow voles, pocket gophers, white-footed mice, and pocket mice (Ingels 1995).

Barn owls naturally nest and roost in barns, silos, haystacks in barns, tree cavities, stream bank holes, and palm trees. Nests in haystacks are often destroyed when hay is removed and those in palm trees are problematic, since the young owls often fall to the ground during heavy winds. Barn owls will readily take up residence in nest boxes provided by farmers. Some people have stated that barn owl boxes should be installed at one box per 10 acres, but there is no scientific basis for this or any other rate.

The distance a barn owl will fly to hunt depends on the availability of prey. Depending on the availability of food locally, barn owls often fly 1-2 miles or more to hunt each night, and may fly up to 3.5 miles (Colvin 1986). In a 1947 study in Davis, CA, researchers determined that a single barn owl hunted over an area of only 165 acres (Evans and Emlen 1947).

### Nest box construction and installation

Barn owls are cavity dwellers; they do not build nests. They will readily nest in sheltered structures larger than about 1 to 1½ ft. in diameter. Nest boxes can be built from on-farm materials, such as barrels (see Ketner reference), beehives, and raisin sweat boxes. Nest boxes can also be constructed from plywood. Below are some design and installation suggestions for building and installing barn owl nest boxes:

- Build the box at least 12 in. wide by 16 in. long by 16 in. tall; even larger spaces are more conducive to the production of large broods.
- Use ½ in. plywood and use 1½ in. galvanized nails and wood glue to attach sides; alternatively, use dacronized screws and 2 in. x 2 in. framing boards where the sides join.
- Make the entrance hole 6 or 7 in. wide and locate it near the edge of the widest side rather than in the middle.
- Provide a hinged door for removing old bedding and pellets.
- Provide shading for the top and western exposures. The shading could be provided by plywood boards or simply by the leaves and branches of a tree. When boards are used, the top baffle should extend over the sides several inches, especially over the south side and over the entrance hole.

- Paint the box exterior and baffles white (or another light color) to reflect heat and protect the wood. Use two coats initially, and repaint every few years.
- Install the box at least 12-15 ft. high, but low enough to allow easy access for cleaning.
- Where possible, orient the box so that the entrance hole faces east. This reduces the exposure of the hole to hot summer sun and to prevailing winds.
- Provide a 1 in. thick layer of nesting material, such as wood shavings or small wood chips, to prevent eggs from rolling. In the fall of each year, remove the old nesting material and add new material.
- Provide protection from predators. One method is to wrap a 14 in. section of thin sheet metal around the tree trunk or post. Predators are usually unable to gain access if the box is centered on top of the post or if a metal pipe is used as the post. Problem predators, which will eat eggs or young owls include tree squirrels, opossums, and raccoons.

How can you tell if barn owls are nesting in the boxes? Signs that owls have inhabited the boxes include white excrement ("whitewash") below the entrance hole, pellets on the ground below the box, and screeching and clicking sounds made by the owls—as well as the owls themselves—near the box at night. It is best avoid disturbing the nest, especially when eggs are present, since this may cause them to abandon the nest. This period is usually about late February through March for the first brood. However, eggs have been found in nests during most months of the year except late fall/early winter.

What if no barn owls inhabit the boxes? Be patient. They usually begin looking for nesting sites in early January, so it may take many months before they show any interest. Also, they may use the box for nesting only, abandoning it during the summer and fall in favor of a tree or barn roost. If you have installed several boxes, it may take one or two years before they are all inhabited. Also, nest boxes may be abandoned as a result of the high mortality rate of barn owls. Fifty percent or more of all barn owls may die in their first year, and collisions with vehicles are usually the main cause of death. If the box(es) have not been occupied for up to two years, try using a different box design and/or a different location.

## References

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