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Birds of Prey Assist Farmers

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Farmers seeking to reduce or eliminate are often frustrated inability to control vertebrate pests. Preventive strategies, such controlling vegetation around orchard tree trunks and field borders, can help with meadow mice and gopher control. Common non-chemical methods include shooting, trapping, and flooding. While these methods can be very effective, they are not without limitations; flooding is not always possible, and trapping and shooting can be very time-consuming and impractical where large areas are infested.

Birds of prey can contribute to vertebrate pest management, especially in fields located near riparian areas. While raptors are seldom relied upon as the primary means of vertebrate control, they can, with a little help, be more effective than many people think. This article explores the effectiveness of owls and hawks in vertebrate pest management and techniques for enhancing their populations.

Barn Owls

There are many different species of owls, but the barn owl (*Tyto alba*) is the most helpful to farmers. It is often called "the most beneficial bird in the world" because of its hearty appetite for gophers, ground squirrels, and meadow mice. Farmers who have learned of the barn owl's virtues strive to keep this "cat with wings" in close proximity to crops. One nest of six young barn owls and two adults may consume more than 1,000 small mammals during the nesting season.

Because of their high first-year mortality, short life-span (four years maximum), and dependence upon the fluctuating nature of rodent populations, barn owls have developed a tremendous reproductive capability in order to survive. They are often referred to as "reproductive machines." This capability functions in response to availability of prey; they can quickly colonize an area if suitable habitat (prey and nest sites) is available.

Barn owls are strictly nocturnal hunters, having the remarkable ability to see their prey in complete darkness. They hunt from perched or flying positions, and have been known to spot prey from a distance of several hundred feet. Barn owls routinely fly one mile from their nests to hunt, and may venture up to three miles or more. Their preferred hunting sites are grassland and wet meadow habitats, either with a few trees or in wooded areas.

Barn owls do not build nests. They lay eggs in hollow trees, crevices in cliffs, and holes in sandbanks, and also find home sites in abandoned buildings,

granaries, or barns. According to many researchers and farmers, it is fairly easy to attract barn owls to fields, orchards, or vineyards by constructing nest boxes.

Grower Success

Merced County farm advisor **Lonnie Hendricks** reported that several almond growers have drastically reduced gopher populations in orchards by installing barn owl nest boxes. One such grower, **Bill Genn** of Hilmar, had orchards so badly infested with gophers that his flood irrigation water often spilled onto neighbor's land from gopher holes at the edge of the orchard. Genn was advised to install nesting boxes for owls in trees and on poles near the orchard. Owls now live in the boxes and Genn's gopher problems have disappeared; rodent bones litter the ground under the boxes.

Hawks

Hawks can also aid in vertebrate pest management. Important species include the red-tailed hawk (*Buteo jamaicensis*), and the American Kestrel (*Falco sparverius*), also known as a small falcon, sparrow hawk or kitty hawk. Hawks eat meadow mice, small birds, grasshoppers and other insects. To encourage hawks, whose presence also frightens starlings and other pest bird species, some farmers install perches and nest boxes near their crops. Perches may be especially important in winter and early spring to aid hawks in spotting food sources before the rodents' breeding season, and when many crops are either absent or provide little cover.

Kestrel Houses

Kestrels prefer to nest in dead trees and other crevices, but also use secluded buildings and wood raptor houses. Open fields, meadows and fence rows are good locations for kestrel houses. Houses can be mounted on utility poles, buildings, lone trees or posts. According to a Soil Conservation Service (SCS) bulletin, the house can be made of long-lasting redwood or cedar, and should be mounted 10 to 15 feet from the ground with the entrance clear of branches. Because the house needs to be checked and cleaned periodically, it should be erected where it can be reached. Complete kestrel house plans are available from SCS. November through January is the best time to build a kestrel house. Houses should be checked weekly in the spring to make sure starlings and other pest birds are not using the box. Kestrels bring no nesting material into the house, so any material found in the box is from pest birds and should be removed. Kestrel eggs are white/cinnamon colored with spots of brown and hatch in about 28 days. Starling eggs are pale blue. Screech owls, which may also use the boxes and are desirable birds, have white eggs. Kestrel houses should face south or east, and should be located within 200 yards of a tall tree or pole because the raptors like high perches nearby.

Davis Survey

How effective are perches and nest boxes, and how effective are hawks in vertebrate pest management? The data is mixed; many growers report success, yet others contend that avian predators alone cannot keep populations of meadow mice low for extended periods of time because predators leave the area when prey abundance is low. Surveys show mixed results of perch and box effectiveness.

Shawn Smallwood, a researcher in the agronomy and range science department at UC Davis, recently completed a two-year survey of the use of perches by hawks. His survey covered 200 miles in the Sacramento Valley, and included farms of all major crops grown in the region. He studied artificial perches, trees, telephone poles, and fenceposts.

Smallwood found that most hawks avoid the smaller perches installed by farmers (horizontal dowels or boards supported by posts or metal pipes); only occasionally did he find a small hawk using one of them. Most hawks were found using telephone poles or vertically-oriented "snags" on trees. Hawks prefer large perches which can comfortably hold their whole body, according to Smallwood. He also found that the height of a perch was not as important to the raptors as the fact that it provided a broad view of the surrounding land. Large trees are ideal roosts, Smallwood reported, but they function best as perches if the canopy is opened so raptors can get a clear view. Dead limbs sticking up above leaves are used more than branches within the canopy.

Washington Study

Researchers in Washington state conducted a study examining the use and effectiveness of artificial perches and nest boxes. Three orchards in the Wenatchee area were used in the study. Researchers made direct observations and examined predator pellets.

In this study, none of the barn owl boxes and only 13 percent of the kestrel boxes were inhabited. However, more birds were attracted to the orchards where perches were placed than those without perches. The biomass and height of the understory vegetation had no bearing on the use of perches in this study. The effect of raptors on meadow mice populations was unclear; populations were reduced in one orchard only. However, the level of human activity may have played a major role. Where houses and roads were most heavily used, few birds visited the perches. Human activity was minimal near the orchard in which raptor use of perches was high and the mice population was reduced.

Other Studies

In an Oregon study, American kestrels and great-horned owls showed a preference for 5-meter perches over 2.5-meter perches, but the raptors accepted the shorter perches in the absence of taller ones. Barn owls did not show a height preference.

Pest bird activity in vineyards was not affected by the presence of artificial

perches, according to a Napa study. Although four hawk species were observed in the area, none was seen using the artificial perches. Pest birds were not deterred by hawk models on some of the perches.

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FOR MORE INFORMATION:

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