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AGRICULTURAL EXPERIMENT STATION
UNIVERSITY OF CALIFORNIA

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December 11, 1995

Dear barn owl enthusiast,

I have enclosed some information on barn owl boxes, as you requested. I have received over 400 requests for information since the Associated Press article appeared in newspapers (and several hundred previously). Because the distribution of this information is costly, we would appreciate a small reimbursement to cover the postage, duplicating, and preparation costs of the enclosed information. ~~Therefore, please send a \$3.00 check or money order, payable to UC Regents, to me at the address below.~~ Also, fill out and include the enclosed form if you wish to receive our newsletter.

There are a few things I'd like to tell you about barn owls and nest boxes. (1) There is little or no research data showing the effects of attracting barn owls on rodent *populations*, although will soon be conducting such a study. We simply do not yet know how effective barn owls are; they should be considered one of several strategies for rodent control. The enclosed article summarizes the barn owl prey studies in California. (2) Nest boxes are used to *attract* barn owls -- it may not work to put an owl in the box, since it may simply fly away. (3) Barn owls are found throughout California and the U.S., although they are rare in higher elevations and the far northern U.S. (4) Owls usually don't look for nesting sites until early January, so have boxes up by late December; an exception may be in trees and barns where they are already roosting. (5) Barn owls are not territorial as are hawks and great horned owls, so several nest boxes can be installed in fairly close proximity to each other (e.g., a few feet); also, great horned owls (which hoot) are known to prey upon some barn owls (which screech). (6) Barn owls will readily nest in urban areas, although they won't tolerate much human activity, especially at night. Regarding the plans, the California Raptor Center barn owl box design (excellent in trees) has a minor flaw: the bottom board should be cut to 23" rather than 24". Also, suspending a nest box, as shown in the SCS plan has proven unsatisfactory due to high winds.

I am very interested in what you decide to build and I need your help in evaluating the construction of boxes and/or perches. Because of the nationwide interest in the subject, I am conducting a survey for people who have built them. I will send you a questionnaire in 1996. If you know of anyone else who has built raptor boxes or perches (whether they had success or not), please have them call me or tell me how I can contact them.

Good luck in your rodent control!

Sincerely,

Chuck Ingels

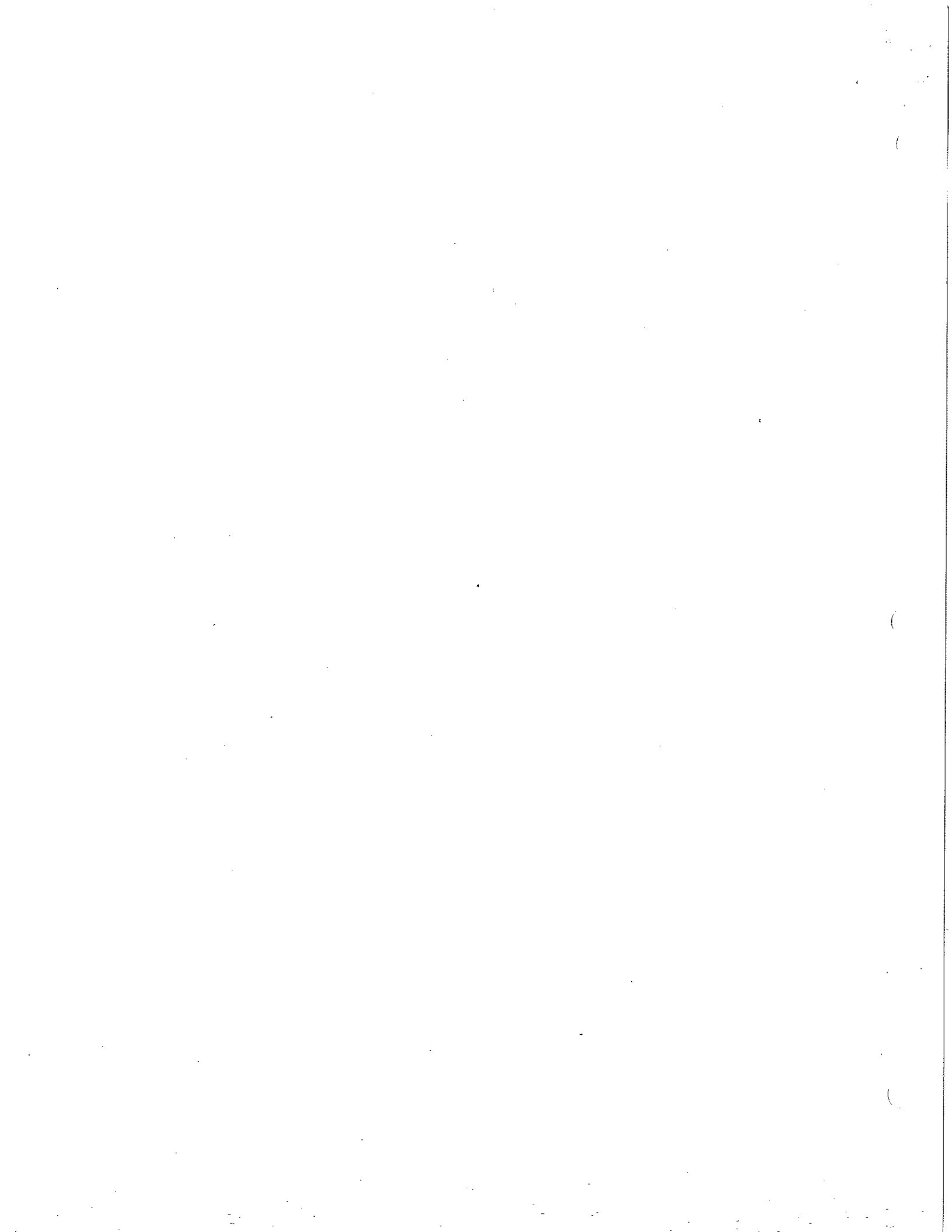
Chuck Ingels

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*Thanks for your participation
in the barn owl project!*



Selected References for Agriculturally-Important Raptors (Birds of Prey)

Compiled by Chuck Ingels
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Davis, CA 95616

If you know of other related references, please send to me at the above address.
(** These references contain one or more nest box and/or hawk perch designs.)

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ATTRACTING BARN OWLS TO FARMS

by Chuck Ingels

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April, 1995

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.

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Birds of Prey Assist Farmers

by Chuck Ingels, SAREP

Farmers seeking to reduce or eliminate chemical inputs are often frustrated by their inability to control vertebrate pests. Preventive strategies, such as 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 grass-

Owl Nest Box Construction

There are many different methods of constructing barn owl nest boxes. Almost any closed box with a suitable hole in the front will suffice. Boxes can be installed in trees or on tall poles; they can even be placed inside barn walls, with a hole in the wall serving as the entrance.

In Trees. The Soil Conservation Service (SCS) has produced plans and instructions for building barn owl nest boxes in trees (Figure 1). Ideal tree species include oak and sycamore. Boxes should be hung or mounted 15 to 30 feet above ground, using six boxes per square mile. The building material can be 3/8-inch or 1/2 inch plywood, assembled with marine-grade plastic resin or exterior wood glue. The top is hinged to aid cleaning. The entrance is 12 inches tall. Boxes should be painted with drab green, black and brown to reduce human disturbance. A two-inch layer of sawdust or wood chips is placed in the bottom of the box; the shavings are replaced each year.

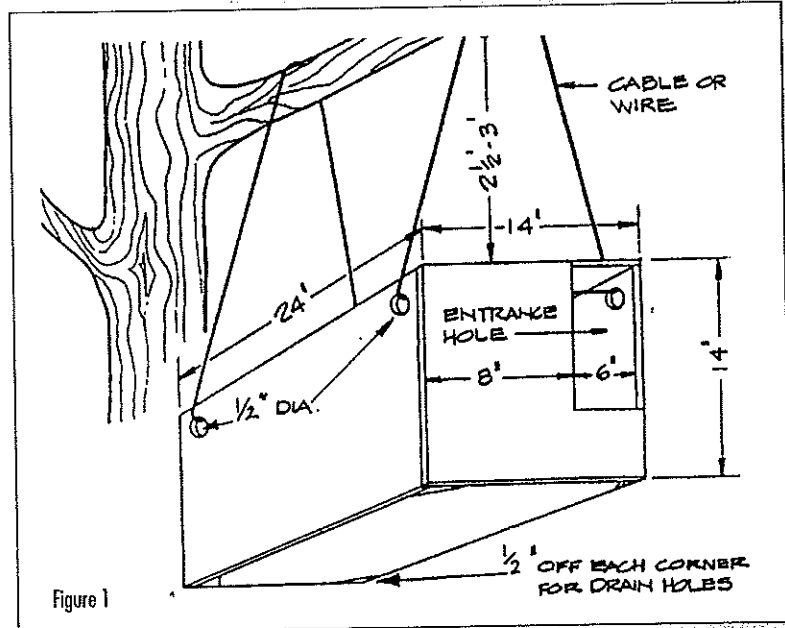


Figure 1

On Poles. Hilmar farmer Bill Genn has mounted nest boxes 15 to 25 feet high on utility poles. His boxes are 18 to 24 inches in each dimension with a six-inch opening. He faces the open end to the east away from the sun and prevailing wind. He also uses a double west wall with a couple of inches of space between walls and a shade over the roof to keep the nests cooler. Shavings are placed on the bottom for nesting material.

In Barns. Barn owls, of course, like to nest in barns. The Illinois Audubon Society recommends placing nesting boxes inside barn walls, 20 to 25 feet high, with a six-inch square entrance hole cut into the wall. (See Figure 2.) The barn wall acts as the front of the box. The top is hinged but kept securely latched. The box is nailed against the interior barn wall, and if necessary, is supported with wire or additional boards.

Barn Owl Nest Box

- A. Interior of barn wall
- B. Wire (or wood) support if beam is narrow
- C. Latch
- D. Entrance
- E. Cross Beam
- F. Entrance (6" x 6")

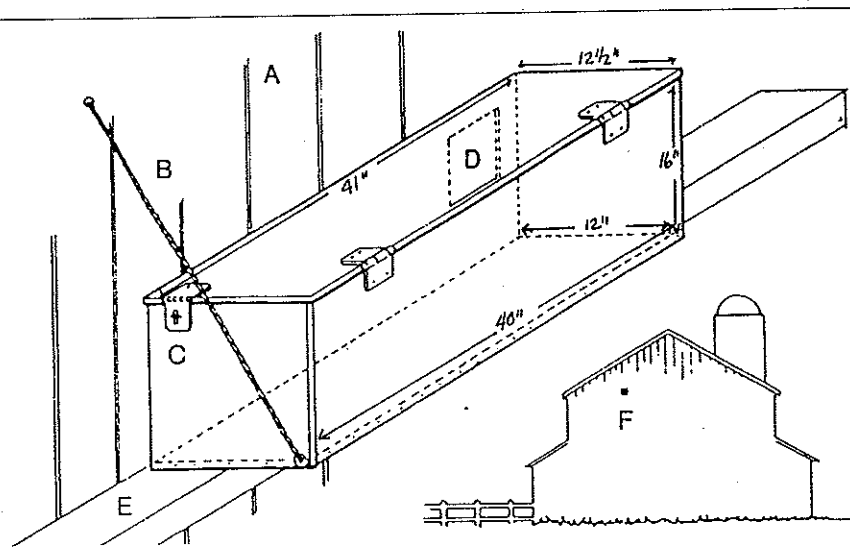


Figure 2

land 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



Homemade barn owl nest box built by Hilmar grower Bill Genn.

(photo by Chuck Ingles)

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.

(We gratefully acknowledge the information provided by Paul Gorenzel, Cooperative Extension Wildlife Unit, University of California, Davis.) ■

FOR MORE INFORMATION:

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FOR MORE INFORMATION:

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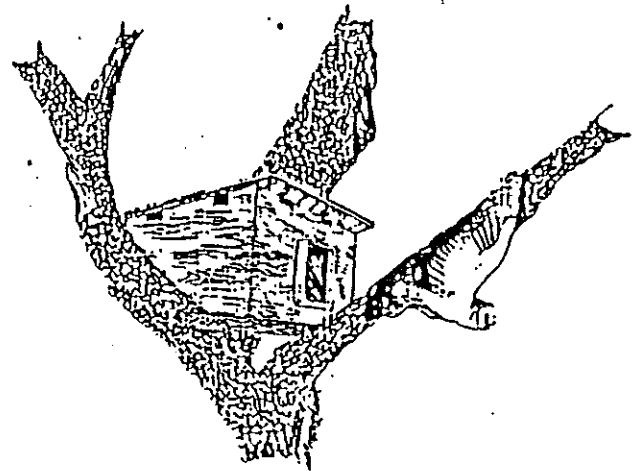
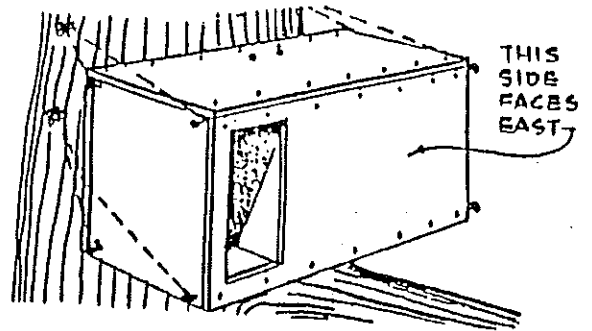
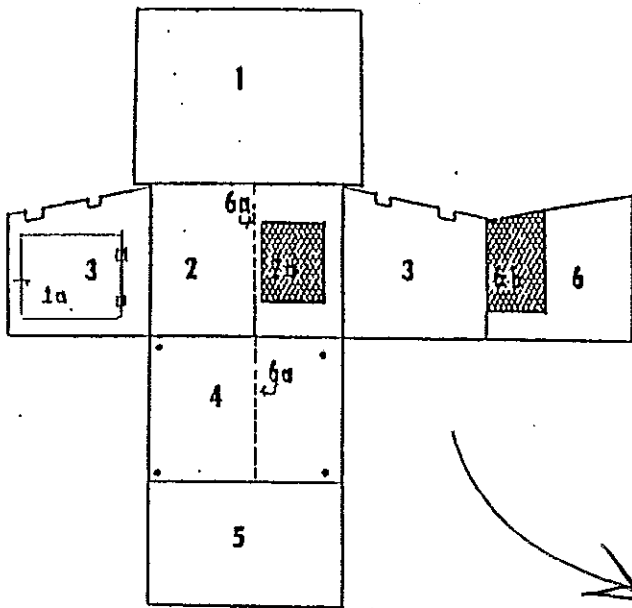
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BARN OWL NESTBOX PLANS

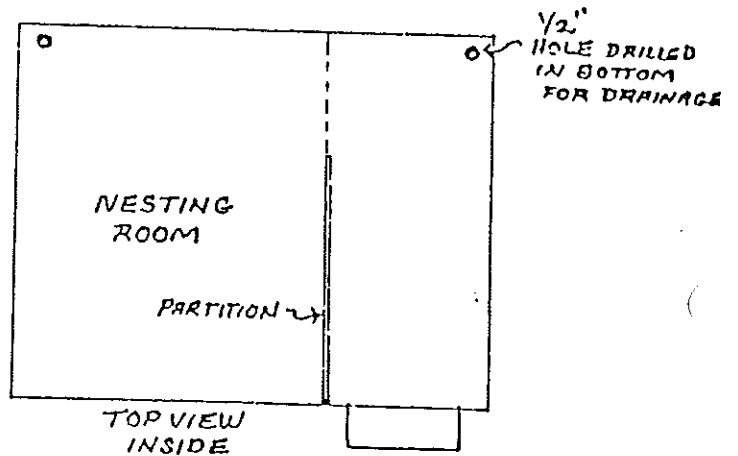
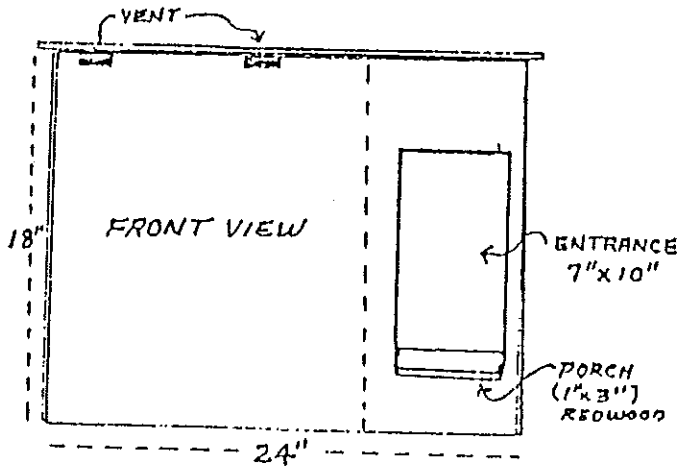
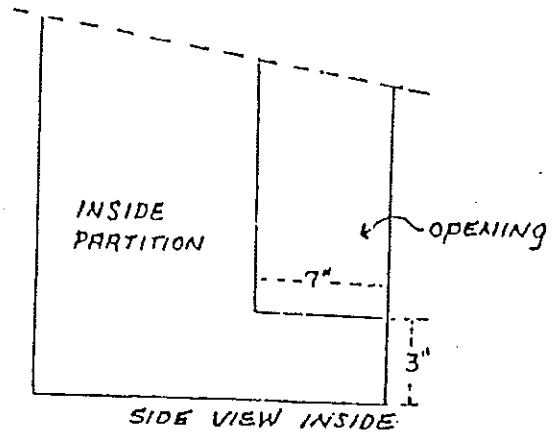
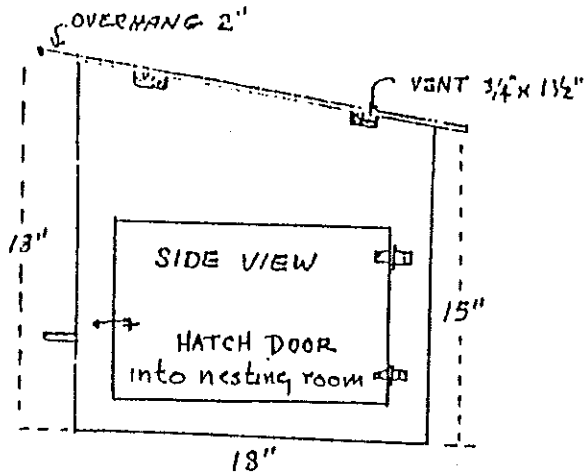
1. Top 26" X 21" (2" overhang in front and 1" overhang, sides and back). a. Hatch door with hinges.
2. Front 24" X 18", a. Entrance 7" X 10" cutout with optional 1" X 3" frame.
3. Sides 18" X 18" X 15" with two 2" air vents.
4. Bottom 24" X 18" with 4" drain holes.
5. Back 24" X 15".
6. Inside Wall or baffle. a. Position of baffle with cutout, 6b, at back of box. Wall should allow 8"-9" for entrance hallway.

Materials: Exterior siding or exterior plywood 1/2" box 1/4" nails; wood glue; wood preservative; small hinges; redwood 1" X 3" (optional).

The Barn Owl nest box should be placed 20-40' high in a large tree which provides shade during the afternoon sun. The entrance should face away from the prevailing winds and afternoon sun. (East in the Sacramento Valley). The box may be bolted to 2X4" (treated) lumber which is secured to the tree with two 8" lag bolts. Another method of placement is hanging the box with strong cable wire (see drawing). It should be cleaned out in the fall of each year.

California Raptor Center
 School of Veterinary Medicine
 Davis, CA 95616

OVER →



CONSTRUCTION MATERIALS:

- EXTERIOR SIDING 1/2"
- REDWOOD 1"x3"
- 1 1/2" BOX NAILS
- WOOD GLUE
- HINGES OR 2" WIDE INSULATION STRIP
- WOOD PRESERVATIVE

PLANS FOR BARN OWL NESTBOX
 RAPTOR CENTER 1980
 adapted from LENTON & TROLLOPE.

KESTREL HOUSE Plans and Instructions



United States
Department of
Agriculture



Soil
Conservation
Service
Davis, CA 95616

The American Kestrel (*Falco sparverius*) is our smallest falcon and the most brightly colored of our hawks. It is the only small hawk with a facial mask and rusty red back. Also known as the Sparrow Hawk or Kitty Hawk, it is about the size of a robin or mourning dove.

The Kestrel is often seen hovering (hunting) over a field or meadow and frequents poles and wires along roadsides. Its principal diet is insects, grasshoppers, and mice.

Nesting Sites

Historically, Kestrels have been cavity nesters but will also use secluded buildings and crevices. Removal of dead trees and old buildings and increased competition with Starlings have reduced nesting sites. Fortunately, Kestrels take well to houses you can build.

Picking a House Site

Good locations for Kestrel houses are open fields and meadows or along fence rows. Houses can be mounted on utility poles, buildings, lone trees, or your own post. The house should face south or east. Pick a location where a tall tree or pole and wire is within 100 to 200 yards, as Kestrels like high perches near the house. The house should be 10 to 15 feet from the ground and the entrance should not be hindered by twigs or branches as the Kestrel prefers an uninhibited exit from the house. The best time to erect a Kestrel house is November through January.

When picking your house location, keep in mind that the house needs to be cleaned and checked periodically. Therefore, do not erect it where it is impossible to reach later — with a ladder or from your vehicle. An alternative to ladders is to put up your own post (an eight-foot-long 4 x 4 attached to a twelve-foot-long 2 x 4) with six-inch bolts to enable you to swing the house down. It is often difficult to find a tree or pole facing the right direction which isn't miles from your car! With your own post, you can dig a hole wherever you find an ideal spot. The only tools you'll need later are a wrench (and a screwdriver for opening the box). The height of the box can be 14 to 15 feet from the ground (see diagram on this page).

Monitoring the House

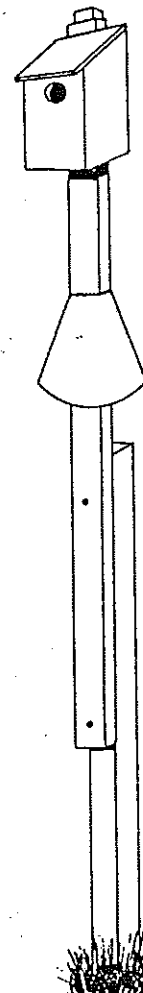
It is very important to check the house weekly in the spring to keep Starlings and other undesirables out of the house. Kestrels take no nesting materials into the house, so 2 to 3 inches of wood shavings or coarse sawdust should be put into the house. Straw or dry leaves are

acceptable. Screech owls also will use a Kestrel house and are desirable tenants. They also bring no nesting material, so any nesting material found in the house will almost certainly be Starling material and should be removed. Starlings are persistent, so check the house at least weekly during the nesting season. (Starling eggs are pale blue, Screech Owl eggs are white, and Kestrel eggs are white/cinnamon colored with spots of brown and 4 to 6 in number.) Incubation is about 28 days. One brood is reared during the season. Birds fledge between 27 and 34 days.

CAUTION — Don't overdo the checking as this will inhibit the Kestrels.

Building a House

Kestrel houses are easy and fun to build. Ideal materials are rough redwood and cedar because they are long lasting. Wood which is subject to warping can be stained or painted a natural color; avoid very dark colors that will absorb excessive heat.

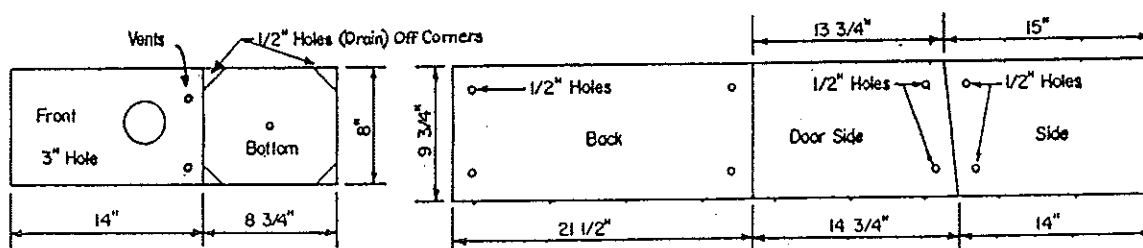
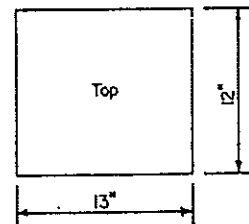
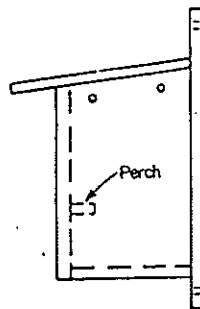
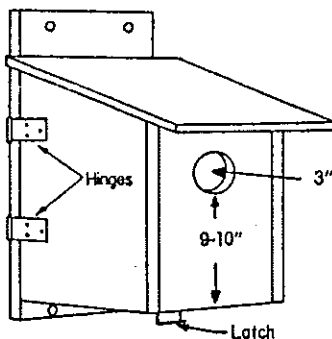
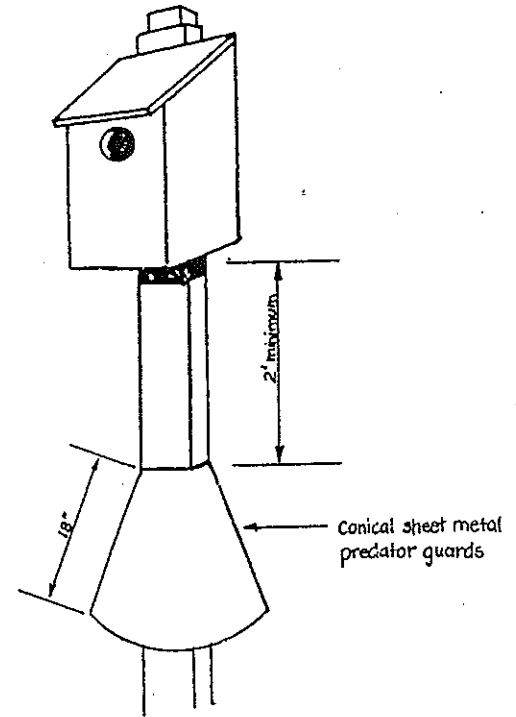


KESTREL HOUSE

Plans

Guide

1. Entrance hole is 3" in diameter and 9-10" above floor.
2. An inside perch should be placed 3" from bottom of entrance hole. Use half of entrance cut-out and attach with screw.
3. Use a screwdriver or auger to make indentations inside the front and under the entrance hole to enable the young to climb to exit.
4. Five 1/2" holes should be drilled in floor for water drainage.
5. Two 1/2" holes should be drilled at top of both sides for ventilation.
6. CONSTRUCTION TIPS: For easier construction, the roof should be put on last. First step is the side being nailed to back; then front to side; then floor; hinged side is next before the roof. The roof and top of front could be beveled 5 degrees for a tighter fit.
7. A six foot board, 1" x 10" can be used with no waste. For the roof, a 1" x 12" board 13" long should be used.
8. Hinged side is shorter by 1/4" to allow side to swing open.



Hinge - 1/2" x 1"
 Nails - #4 Box (Coated)
 Latch - 1 1/4" Hook

Participate in the North American Bat House Research Project

PUTTING UP BAT HOUSES and making careful observations offers an excellent opportunity to learn more about bat roosting requirements. To encourage experimentation, BCI has established the North American Bat House Research Project. We invite bat house enthusiasts to make an important contribution to our understanding of bat roosting behavior by participating as active volunteer Research Associates in this long-term project.

Even the most abundant bats of North America are rapidly losing roosting habitat. Although we know that at least seven species are using bat houses, we need much more information before we can consistently accommodate even these bats' needs. High priorities include learning more about preferred roost chamber dimensions for individual species and the effect of insulation and solar heating under various climatic conditions.

The amount of time each volunteer needs to commit will range from minimal to as much as you care to devote to the project. From spring to fall, depending on your area, you will be asked to make regular monthly inspections of your bat houses. In addition, it will be critical that you complete and return a simple data report to BCI for each house erected and then a status follow-up

at the end of each summer.

Participants will receive a copy of BCI's new *Bat House Builder's Handbook*, which contains detailed plans for building various types of houses. You will also receive complete instructions on how to begin conducting the experiments most needed in your area along with report forms. The most significant data on temperature preferences will result from erecting groups of at least two or three houses, but those who can erect only one house will also contribute valuable information about the incidence of occupancy when single versus multiple roost choices are available.

Individuals unable to build their own bat houses may still participate by purchasing them from the BCI catalogue. We strongly encourage those who have unoccupied bat houses to participate by moving them or making other appropriate changes and reporting conditions before and after. When data report forms are returned to BCI at the end of the first season, experimenters will receive a personalized Research Associate certificate.

Participants will receive special spring and fall reports on bat house research progress and will also be able to use this forum to share their experiences and exchange ideas with

other project experimenters. Those who successfully attract bats (or who already have done so) and complete and return the data forms, will be eligible to compete for grants to conduct further experiments. In addition, Exceptional Achievement Awards will be made to those who contribute most to new knowledge.

The resources required to mount a national species-specific study of bat roosting needs are truly formidable. Establishing a special project fund by enlisting the participation of contributing volunteers will enable this important work to continue. The project fund will support the costs of phone and mail consultation with participants and data gathering and analysis. It will also support small grants and awards to encourage successful participants to expand their research. The North American Bat House Research Project is open to current BCI members and to non-members.

Participation as a Research Associate in BCI's North American Bat House Research Project offers a unique opportunity to help your own backyard bats while sharing in the excitement and satisfaction of scientific discovery. Your participation can yield important information. Please fill out the application below and return it to BCI.

Clip and mail

BAT CONSERVATION INTERNATIONAL RESEARCH ASSOCIATE APPLICATION

Yes! I want to become an active volunteer Research Associate in BCI's North American Bat House Research Project for one full year. Enclosed is my contribution of:

- \$10 (current BCI member) Member # _____
 \$15 (Research Associate only, does not include BCI membership)
 \$40 (Research Associate and special \$25 BCI membership rate—membership materials will arrive separately)
 I can't become an active volunteer at this time, but I would like to contribute \$ _____ to the project research fund

Name _____

Address _____

City _____ State _____ Zip _____

Country _____

Daytime phone _____
(very important)

Become an active Research Associate and receive:

- The new *Bat House Builder's Handbook*
- Twice-a-year project research reports
- Instructions on how to conduct experiments most needed in your area, along with data report forms
- Opportunities to compete for grants and awards
- A chance to exchange ideas with other project experimenters
- Personal consultation, as required
- Personalized Research Associate certificate

This project is open to residents of the United States and Canada only. Make check or money order payable to Bat Conservation International. (Canadian residents: All checks must be in U.S. funds, drawn on U.S. banks only.)

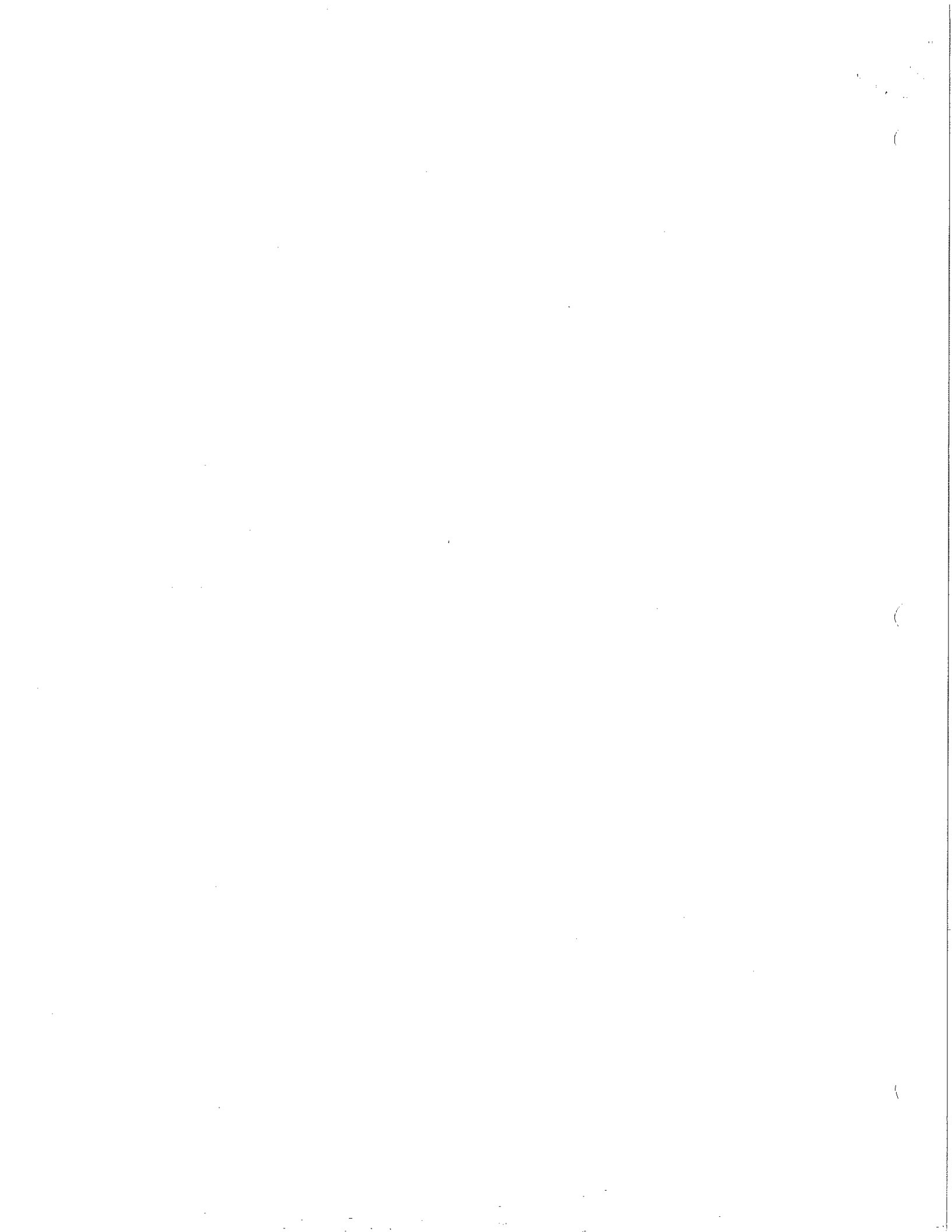
Or, charge my Mastercard Visa

Card # _____ Exp. date _____

Signature _____

We're sorry, but we cannot accept gift memberships for Research Associates.

Return application to BCI/North American Bat House Research Project/P.O. Box 162603/Austin, TX 78716



COOPERATIVE EXTENSION
AGRICULTURAL EXPERIMENT STATION
UNIVERSITY OF CALIFORNIA

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January 19, 1996

TO: John Bree, Dave Devine, Steve Felten, Doug Fritz, Jerry Fry, Ernie Heckenlable, Tom Hoffman, Brad Lange, John Ledbetter, Lloyd Martel, Bing Taylor, Layne Wade, John Wetmore



FROM: Chuck Ingels

I wanted to update you on the status of the barn owl research project. As I indicated when I visited you, we were attempting to determine if there were differences in gopher activity by resulting from 3 treatments with 4 reps each (12 farms): 1) nest boxes present, 2) nest boxes absent, and 3) nest boxes present one year but the entrance holes boarded up after one year. We were also going to determine the diet of barn owls in the Lodi area by analyzing the contents of pellets.

We have decided not to impose these treatments and therefore not to count mounds because of the variability and other problems inherent in this type of project. As I'm sure you are aware, gopher activity can be highly variable from year to year and from site to site. There is also great variability in the gopher control methods used by growers. As you might expect, trapping and poisoning would impact gopher abundance, therefore confounding the results of our study. Other problems include the differences in cover cropping practices, affecting our ability to see mounds; vine growth, obstructing the view of the soil on the vine row; and the distance barn owls may fly to hunt (perhaps up to 2-3 miles), making it difficult to exclude other barn owls and making it difficult to ensure that a vineyard's resident barn owls are hunting in that vineyard.

However, we would like to answer some questions about the diet of barn owls in your area. We will therefore collect pellets from beneath about 20 boxes once per month through 1996. Because most boxes on poles are vacated after about May, we will include pellets under some palm trees and in some barns. We will also collect pellets from inside vacated boxes in June; this will give us more information on their overall diet, but not on their monthly diet.

I will be contacting many of you shortly to ask if we can collect pellets. We have a small budget to begin the work and we are seeking funds to continue the project for the full year.

Thank you all for your time and interest in this project.

cc: Dirk Van Vuren, Desley Whisson, Paul Gorenzel

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