

## **RAPTORS IN NEW HAMPSHIRE ORCHARDS**

*Alan T. Eaton, Extension Specialist, Integrated Pest Management*

It may be possible to enhance your rodent management program by careful placement of nest boxes for hawks and owls. Each species varies in its nest site preferences and box dimensions, so it is critical to construct and place the boxes according to what species are likely to live in the available habitat. Some boxes may require annual cleaning and careful placement to attract the desired residents. There are three raptors here that accept nest boxes, and prey on voles (sparrow hawk, saw-whet owl, barred owl). Two others may be of interest (great horned owl, screech owl).

### ***Sparrow Hawk or American Kestrel***

This species is a daytime hunter. It commonly forages in fields, meadows, and semi-open habitats like orchards. It prefers open sites for its nest (on a fence row for example). Boxes should be placed on an isolated tree or free standing post, 15 to 30 feet up. A high, undisturbed spot on the side of a barn may be appropriate. The entry hole should be three inches in diameter and face south or west. Two to three inches of wood chips should be placed on the bottom. Starlings frequently take up residence in these boxes, so regular checking and removal of starling nests would increase chances of kestrels using them. Use box plan A.

### ***Saw-Whet Owl***

The saw-whet owl is night active. It hunts in a wide variety of habitats, but prefers woodlands. Nest boxes should be placed in clumps of live conifers, a minimum of 14 feet up. Areas near water seem to be

preferred. Perhaps you have such sites at the edge of your blocks. The opening should be three inches, and two to three inches of wood chips should be placed in the bottom of the box. You can check occupancy by tapping on the side of the box. Saw-Whet owls will usually look out the entrance hole without flying away. Use box plan A.

### ***Screech Owl***

Screech owls are rare here, but take readily to boxes at the edge of forest, adjacent to fields or wetlands. They like hardwoods, and often forage or nest in orchards. Nest boxes have three inch entrance holes, two to three inches of wood chips, and are at least 10 feet up (box plan A). This owl would be most likely to appear in Southern NH, but probably is too rare to target for nest boxes.

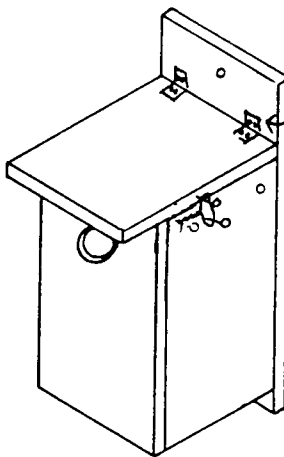
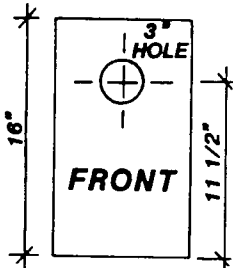
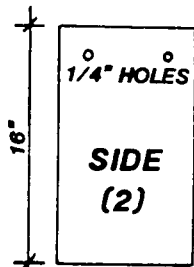
### ***Barred Owl***

Barred owls are common in New Hampshire near wooded swamps. Don't confuse them with barn owls, which do not occur here.

Nest boxes for barred owls (plan B) should be 20 - 30 feet high in a mature hardwood area, preferably within 200 feet of water. Do not place it at the edge of a clearing or close to a house. A perch near the nest box is desirable, but there should be an unobstructed flight path to the box -- no obscuring low branches or leaves. A large living conifer or hardwood with a relatively exposed, open trunk is good. A two to three inch layer of wood chips should be on the bottom. The box should not be stained or painted.

*Box Plan A*

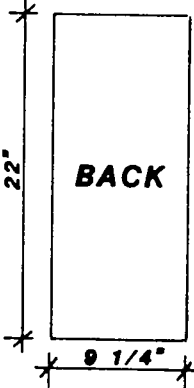
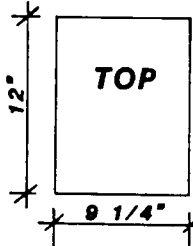
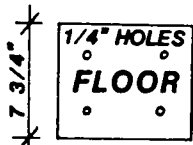
AMERICAN KESTREL  
 NORTHERN SCREECH-OWL  
 NORTHERN SAW-WHET OWL  
 BOREAL OWL (?)  
 NEST BOX



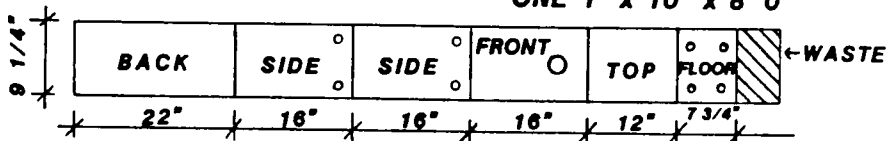
HINGE OR CLEAT  
 ROOF FOR CLEANING

Wire top shut.

Place 3" of sawdust  
 in bottom of box.

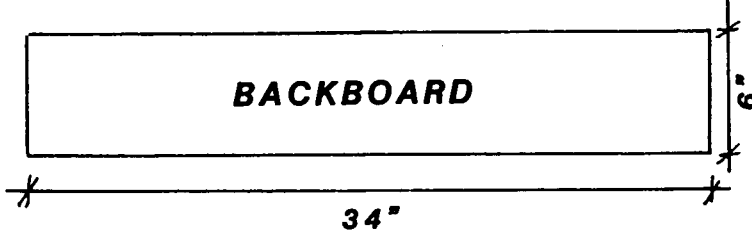
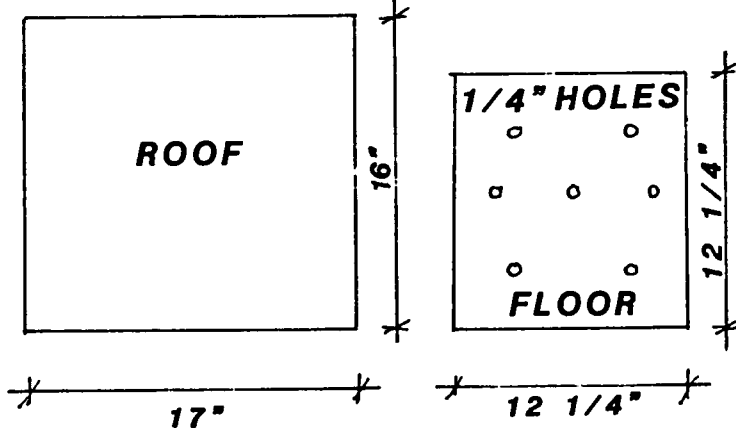
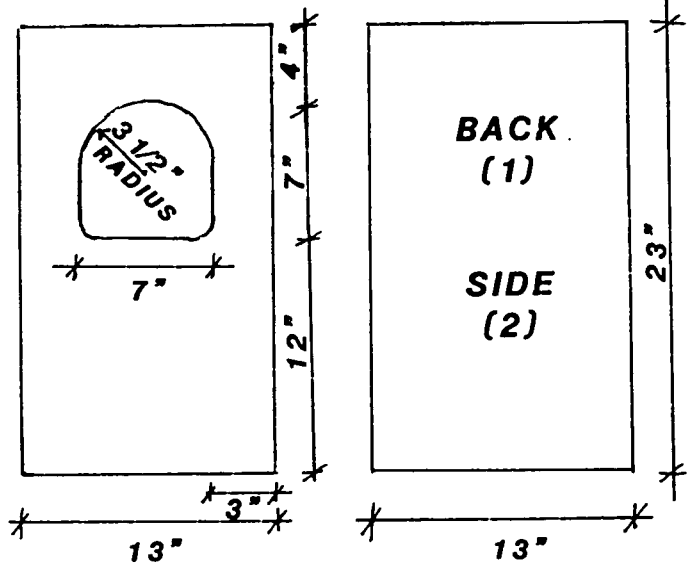
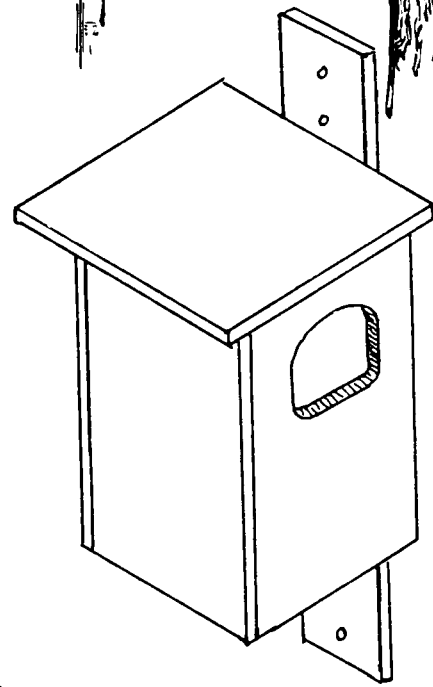
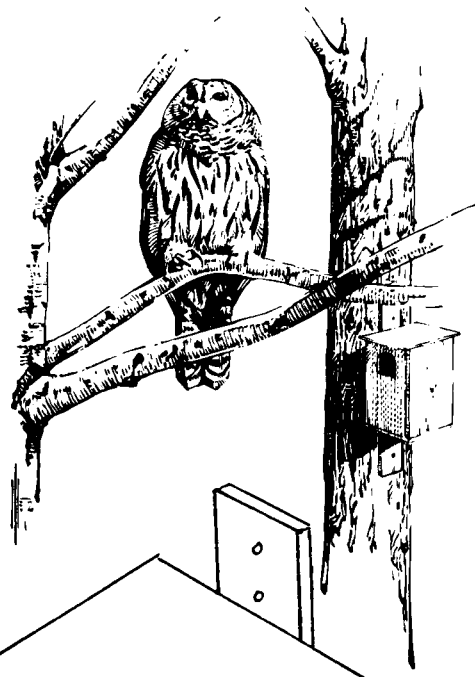


LUMBER:  
 ONE 1" x 10" x 8' 0"

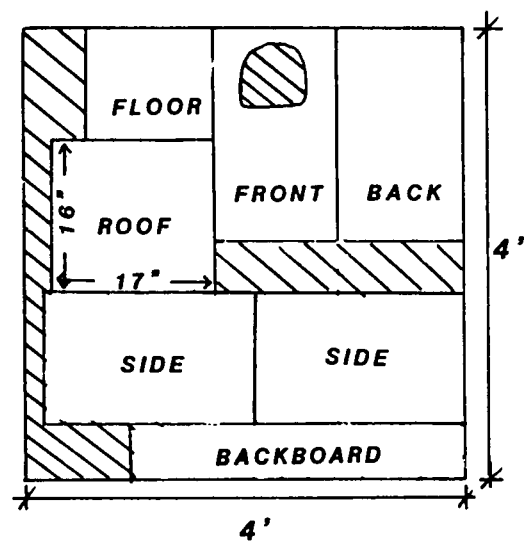


*Box Plan B*

**BARRED OWL NEST BOX**



**NOTE:** No hinged door needed.  
Clean through entrance hole.



**LUMBER:** One 4'x4'x3/4" sheet exterior plywood,

## ***Great Horned Owl***

This is our largest resident owl, and it prefers larger prey than voles. Not a cavity nester, it can be encouraged to use platforms that are carefully placed. Nest sites should be in woods, in large hardwood trees at least 12" in diameter. Look for one with a high crotch that would facilitate placement. 20 feet is recommended as minimum height; higher would be better. Be sure edges of wire cloth have been bent backwards, so they do not protrude. Great horned owls begin nesting in winter, so platforms must be set out by fall if the owls are to find and use them the next year. If pliable sticks can be interwoven into the platform somewhat (not just piled on top) it may be more acceptable to the birds. See plan C.

## ***General Comments on all Boxes***

Annual inspection of boxes will improve the chances that they are used by the targeted species. Unwanted debris can be cleaned out, and repairs can be made. Winter is usually the best time. If boxes are attached to live trees, use long lag screws, and unscrew them a little bit each year, to allow for growth of the tree. Nest predators can sometimes be a problem, and use of smooth metal posts or application of used aluminum litho plates around the trunk can discourage raccoons from reaching the box. The best time to set out owl boxes is January; owl platforms in the fall, and kestrel boxes before April.

Perhaps there is a neighborhood group (scouts, 4-H, Audubon club) that would love to turn this into a long term project. Records of bird use, repairs of boxes, observation of inhabitants would extend the initial activity of determining which species to target, box construction and erection. With luck, your trees may benefit from lower vole populations.

## ***Perches and Roosts***

Many raptors hunt by quietly sitting on a branch with good visibility, while watching and listening for prey. Retaining (in some cases, creating) a few such

perches can improve the chances that they will hunt in or around your fields. Any high perch with good visibility will do. This could be a dead stub, telephone wire, or pole. Leafy branches are less frequently chosen presumably because foliage reduces visibility.

For most owls, clumps of thick conifers are essential for roosting. Here they can hide from the crows, blue jays, and other birds that pester them during the day. Even though some species will roost in cavities or next boxes, no conifers (pines, hemlock, spruce, fir, cedar) means few or no resident owls.

## ***Raptors and Pesticide Use***

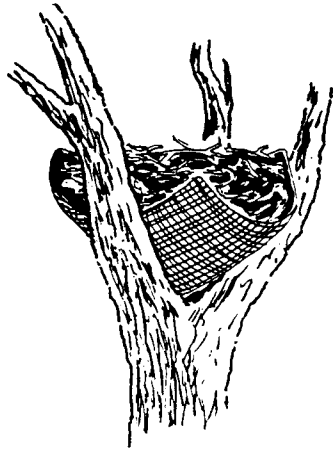
Historically, raptors have suffered greatly from human use and misuse of pesticides. They are at the top of the food web, and many species suffered when chlorinated hydrocarbon pesticides were heavily used. The fact that today some species (sparrow hawk is an example) thrive on farms is evidence that they can coexist with careful use of modern pesticides. Never the less, raptors have great public interest, and misuse of pesticides could result in bird deaths and considerable public attention. Nest boxes probably should not be placed where they will be directly sprayed. As always, weigh carefully any decisions regarding pesticide use. The greatest potential for pesticide problems with raptors probably involve insecticides and rodenticides.

## ***Acknowledgment***

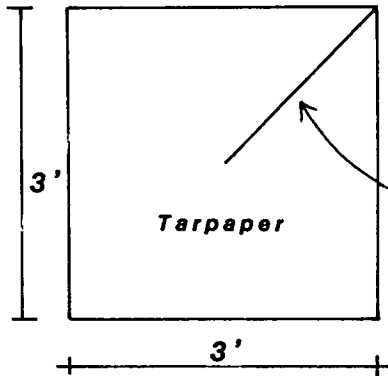
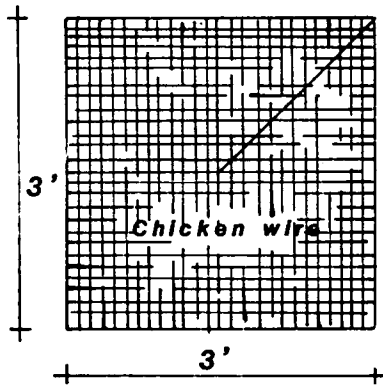
Much of the information here was gleaned from "Woodworking for Wildlife" by Carroll L. Henderson, Minnesota Dept. of Natural Resources. I am grateful to the author for permitting reproduction and use of the information. More detailed information and plans for other species can be obtained by ordering the 50 page booklet by telephoning 1-800-657-3757. Don Black and John Kanter, UNH Cooperative Extension, and Becky Suomala, Audubon Society of New Hampshire, were helpful in locating material for preparation of this guide.

*Box Plan C*

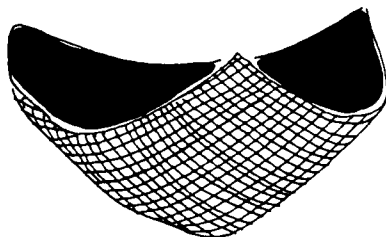
**GREAT GRAY OWL  
GREAT HORNED OWL  
NEST PLATFORM**



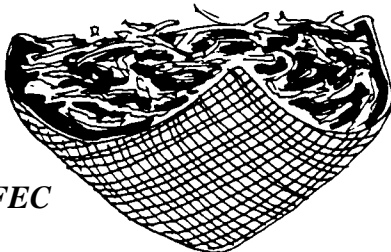
**MATERIALS:** One square yard 1" mesh chicken wire  
One square yard tarpaper



**CUT ALONG THESE LINES AND  
OVERLAP EDGES TO MAKE A CONE  
14" DEEP.**



**LINE INSIDE OF WIRE CONE WITH TARPAPER.  
CUT DRAIN HOLE IN BOTTOM.**



**CONSTRUCT STICK NEST INSIDE CONE, WIRING  
BRANCHES TO CONE THROUGH TARPAPER.  
RAISE FINISHED NEST INTO TREE WITH ROPE AND  
WIRE INTO A CROTCH OF THE TREE.**