

# *American Kestrel*

## *Box Plans*



**CALIFORNIA  
RAPTOR CENTER**  
University of California, Davis

# American Kestrel (*Falco sparverius*)

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## General Information

The American kestrel is one of the most common and colorful birds of prey in North America. Because of its small size and colorful plumage, it can easily be mistaken for a songbird as it sits atop a utility pole or wire. However, once witnessed hovering over an open field in search of prey, the kestrel's predatory nature becomes apparent. A member of the falcon family, the American kestrel is closely related to the peregrine falcon and merlin. The bird is often referred to as the sparrow hawk because of its small size. Its scientific name, *Falco sparverius*, holds the Latin meaning, "falcon of the sparrows." Although its scientific name and the commonly used name "sparrow hawk" imply that the kestrel feeds exclusively on small birds, the majority of the kestrel's diet consists of insects and small mammals. As is the case with many beneficial predator species, the kestrel's value lies in the role it plays in

keeping insect and small rodent populations in check.

In the early and mid-1900s, American kestrel populations declined in many parts of North America as a result of the loss of nesting habitat in the form of tree and other natural cavities. A growing human population contributed to the loss of nesting habitat as fencerows and tree-lined field borders were removed to provide crop fields and make way for expanding urbanization. In recent years, the removal of dead standing trees, or snags, for firewood, and the continued clearing of fencerows and hedgerows has had a significant impact on the success of the American kestrel. A management practice that has helped to improve the kestrel's status is the placement of artificial nesting structures on road signs along highways and other areas of suitable kestrel habitat. Due in part to the provision of artificial nesting structures throughout North America, the American kestrel is once again a commonly seen bird of prey. The ongoing recovery of the American kestrel is an example of how sound wildlife management practices have been used to increase the survival success of an individual wildlife species.

*Important American kestrel food items.* The following species are known to be important food items in the diet of American kestrels. Those species in bold print are of particular value for their usefulness as a winter food source.

### Insects:

Grasshoppers, crickets, beetles, moths, and others

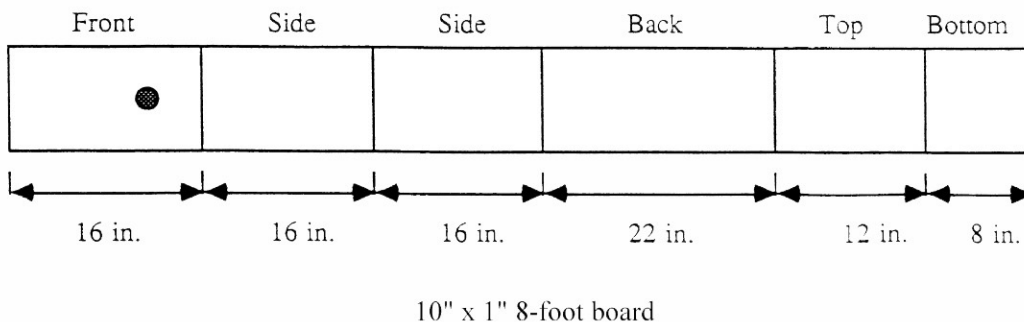
### Small Mammals and Birds:

**mice**   **rats**   **shrews**   **gophers**   **ground squirrels**   **small birds**   frogs   small snakes   bats   lizards

**Fig. 1. American kestrel nesting box design.**

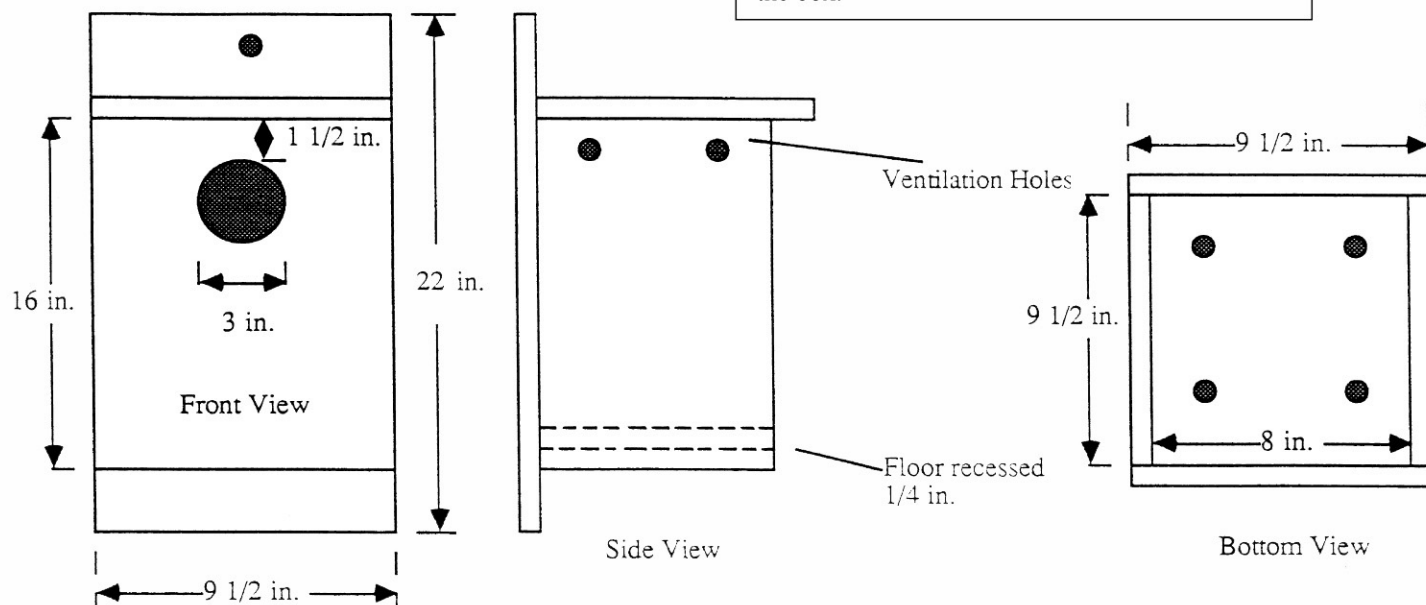
**Construction Notes:**

Use a planed 10" x 1" 8-foot piece of wood and cut into sections as shown below. Drill four drain holes in the box floor and two ventilation holes in each side piece as shown. Recess box floor 1/4" to prevent weather rot. Lid or a side should be hinged to facilitate monitoring. Box may be painted or stained on outside surfaces only.



**Nest Box Design.** -- Nest boxes should be constructed of a weather-resistant wood such as cedar. The wood can be painted or stained but only on the outside surface. The entrance hole should be 3 inches in diameter. Numerous nest box designs have been used with success; Fig. 1 provides one example. A good method of assisting fledglings in their climb from the nest to the entrance hole is to roughen up the inside wood surface under the hole with a chisel. It is recommended that the outside surface below the entrance hole be roughened as well. The bottom of the box should be lined with 2 to 3 inches of wood chips or shavings, straw, or pine straw.

The lid or one side of the box should be removable or on a hinge to facilitate monitoring and cleaning. Three or four 1/4-inch drain holes should be drilled into the box bottom. Recessing the box floor 1/4-inch into the bottom edge of the walls will help protect the floor from weather rot. Ventilation and shade requirements are met by overhanging roofs and construction designs described in Fig. 1. All kestrel boxes affixed to poles should be fitted with a galvanized sheet metal predator guard (see Fig. 2). The predator guard should be placed on the pole 6 to 12 inches below the bottom of the box. Also, to help deter predation, an even coating of non-drying crankcase grease or carnauba wax can be applied to the pole from the ground to six inches below the box.

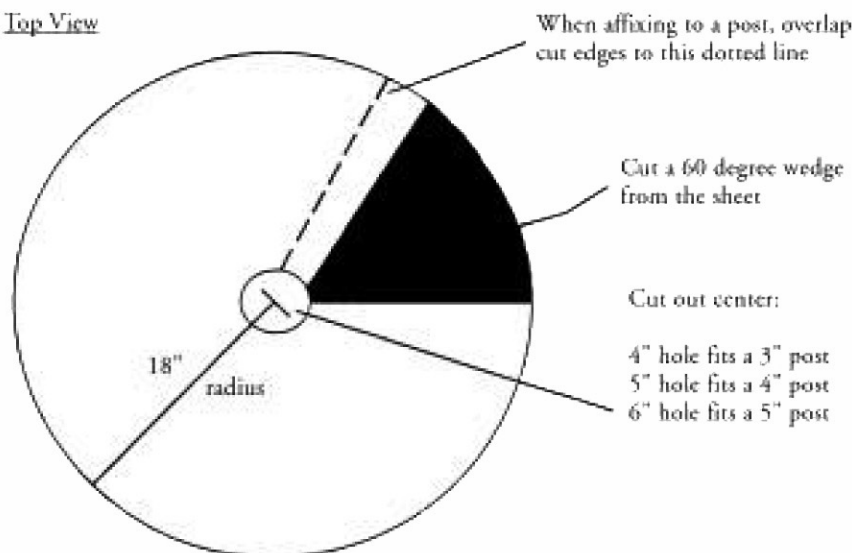


**Fig. 2. Standard cone-shaped predator guard.**



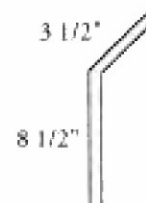
Below is a top view layout for cutting a predator guard from a 3 ft. x 3 ft. sheet of 26-gauge galvanized metal. The first cut is to remove a 60-degree wedge from the sheet. The center hole is then cut.

Top View

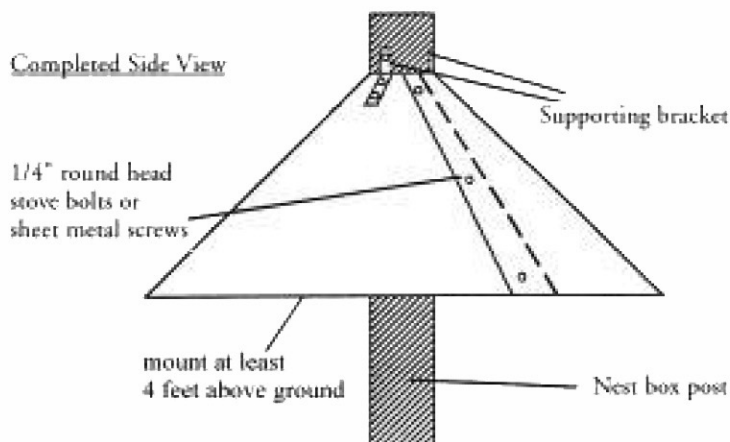


The side view shows a guard affixed to a nest box post. This is done by overlapping the edges of the 60-degree wedge to the shown dotted line. Bolts or screws are then used to form the sheet into a cone. Fasten the guard to the post with supporting brackets. Note: 3 wooden mounting blocks can also be placed on the underside of the guard to fasten it to the post. Fasten the blocks to the guard and post with screws. The predator guard should be placed on the post so that the bottom of the guard is at least 4 feet from the ground.

Supporting Bracket



Completed Side View

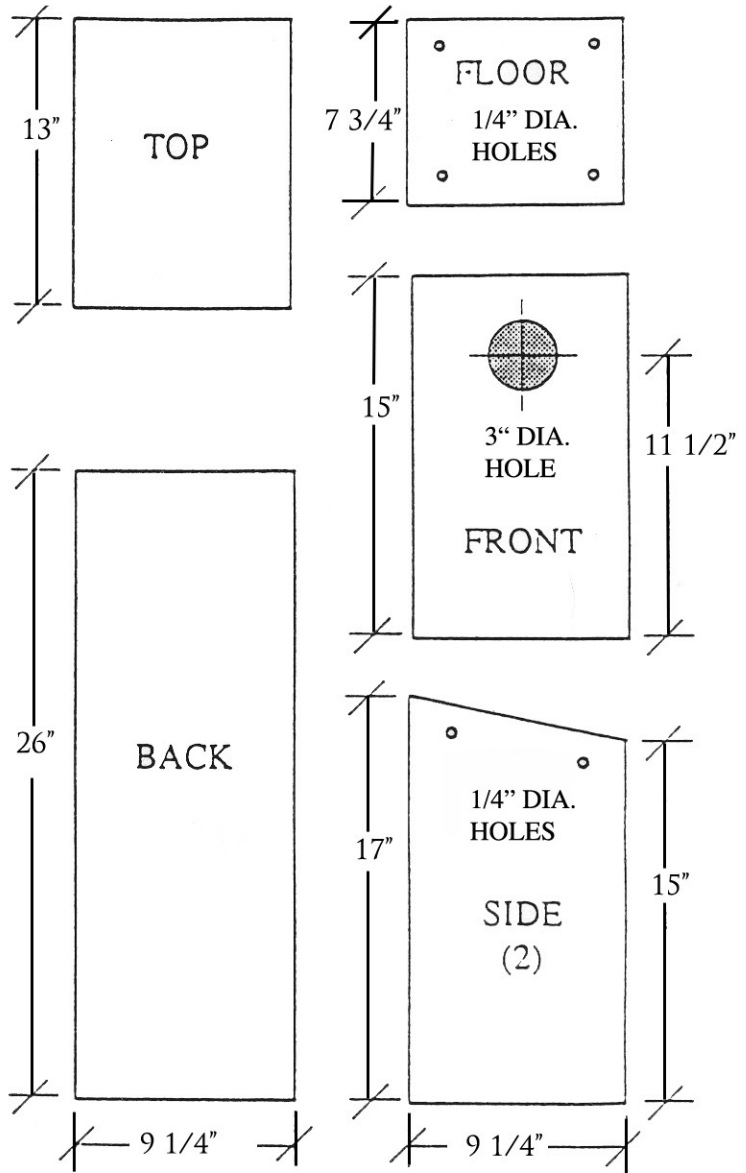
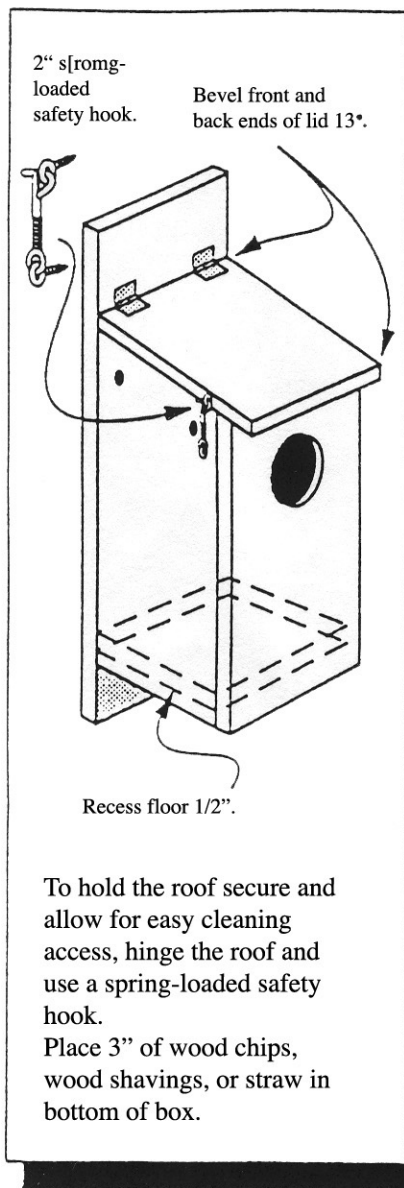


***Nest Box Placement.*** -- Kestrel nest boxes should be placed on a tree, post, or the side of a barn or outbuilding with the entrance hole 15 to 20 feet above the ground. Boxes placed on posts should be equipped with a predator guard as shown in Fig. 2. The box entrance should face southeast to avoid direct winds and to take advantage of the sun's rays. Open fields, pastures, hedgerows, and highway and power line rights-of-way comprised of or surrounded by at least one acre of space within 20 yards of a tree with dead limbs, a utility pole, or other perch make up the best habitat in which to place nest boxes. These habitat types in close proximity to creeks and wet areas have proven to be very productive for kestrels as well. Place boxes well away from buildings and other human habitations that may harbor starling populations. Also, placing boxes more than 50 yards from woodland edges will help reduce competition for boxes with squirrels. Open areas will provide food for hunting and adjacent trees, utility poles, and fence posts are used as plucking perches by the male kestrel to dismember prey before the female feeds it to the young. Perches are also used for preening, courting, and by fledglings when learning to fly. Individual nesting pairs require an adequate territory in which to nest and forage. Therefore, nest boxes should be placed at least one-half mile from one another. Boxes placed near or along roadsides should be placed with the entrance hole facing away from the road.

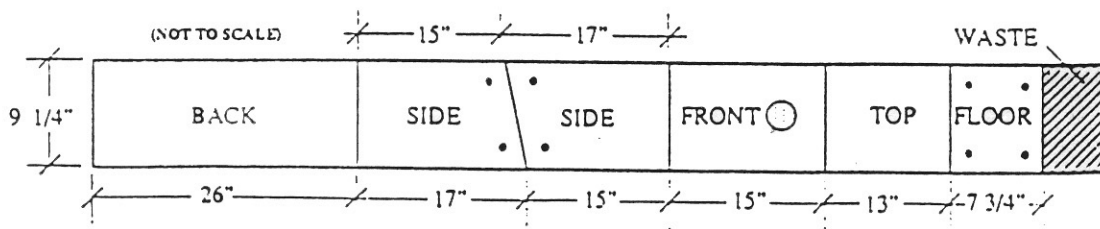
In agricultural areas, it is important that nest boxes be located a distance away from fields that are heavily treated with pesticides since the birds feed primarily on insects. Overall, one should attempt to accommodate the bird's natural nesting instincts and requirements while still allowing for routine monitoring during the nesting season. If predators such as raccoons or snakes discover an occupied nest box, they likely will continue to return for eggs or nestlings in the future. If such predation becomes a problem, relocating troubled nest boxes after a few seasons may be beneficial.

# AMERICAN KESTREL NEST BOX PLANS

This plan modified from kestrel nest box plan featured in *Woodworking for Wildlife: Homes for Birds and Mammals*, (Published by Minnesota DNR; Carrol Henderson author).



**LUMBER**: One 1" x 10" x 8'0" (#2 white pine recommended). Painting the box will increase its useful life.  
**HARDWARE**: Twenty-two 1 1/2" wood screws (#6), two 2" hinges, and one 2" spring-loaded safety hook.



# HOW TO Construct a Nest Box for Kestrels

## You Can Attract These Little Falcons to Nest Near Your Home

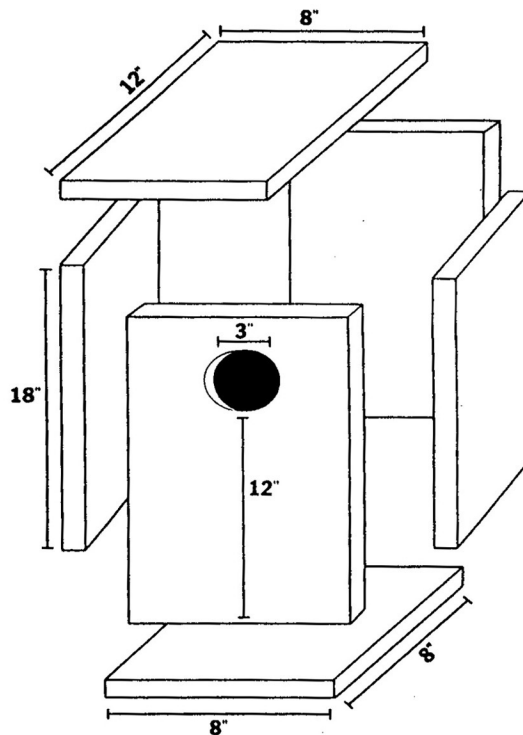
by **JUNE KIKUCHI**  
and **PAUL M. KONRAD**

American Kestrels are the smallest North American falcons and have an extensive range from central Alaska to the southern parts of South America. These beautiful little raptors are one of the most common birds of prey found near urban areas and open rural habitats.

American Kestrels most often nest in cavities, either natural cavities in trees or cliffs, or in cavities excavated by woodpeckers. Where conditions are right, many people have been able to attract American Kestrels to their property by providing a kestrel nest box—an artificial nesting cavity—for kestrels to use.

Large natural cavities are in limited supply in most areas, and a scarcity of natural or woodpecker-excavated cavities may limit the nesting potential and population size of American Kestrels. By providing an artificial nesting site in the form of a kestrel nest box, you will help to improve the nesting success of these small falcons. You will also have the pleasure of observing their behavior during this interesting period in their life cycle.

### BUILDING A KESTREL NEST BOX IS EASY!



**STEP 1** Prepare six pieces of  $\frac{1}{2}$ - or  $\frac{3}{4}$ -inch wide untreated wood or plywood by cutting:

- four pieces into 8x18 inch rectangles to use as the sides
- one piece measuring 8x12 inches for the top
- one piece measuring 8x8 inches for the bottom.

**STEP 2** Drill or cut a 3-inch diameter entrance hole 12 inches from the bottom in the panel that will be used as the front.

**STEP 3** Use screws to assemble the pieces together; nails usually give way with time.

**Building a kestrel nest box is just that simple!**