



# American Kestrel Nest Boxes

## Instructions for Assembly and Installation



### ***About the American Kestrel: Life History***

The American Kestrel (*Falco sparverius*) is distributed throughout North America in open habitats (grasslands, open marshes, agricultural lands, parks and urban areas). Kestrels are found statewide in Kentucky, though they are more scarcely distributed in the forested-dominated, portions of eastern Kentucky. Our state's common falcon, the American Kestrel hunts for small mammals, small birds, larger insects, and occasionally reptiles and amphibians. Kestrels are usually seen looking for prey from a tall perch (often a tree branch in an open area or a power line), but they can also be seen hovering in flight with intent to drop down on prey.

The American Kestrel is our state's smallest falcon (7-8 in long) and both sexes have two distinct black stripes on each side of their face. However, males have a bit more colorful plumage than females, with a rufous back, blue shoulders and a blue crown.

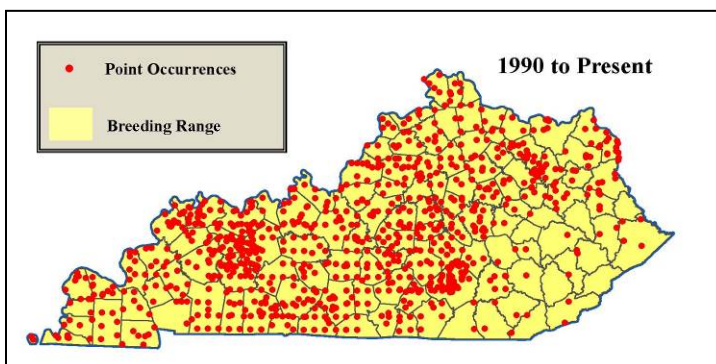
The American Kestrel is a cavity nester, usually nesting in tree cavities, building crevices, rock shelters or nest boxes. They do not bring nesting material into the nest and eggs are often laid directly on the floor of the nesting structure. Nesting is usually initiated between late March and April, when 3-7 eggs are laid. Although the female generally does more of the incubating, both sexes will incubate the eggs for about 30 days. The young spend around 30 days in the nest until they fledge (learn to fly), typically by the end of June.

Once a pair of Kestrels selects a nest site, the same site is often used for many years. Pairs which nest in Kentucky will typically be seen near the nest site, year-round, often using the nest site as a place to sleep or roost during the winter. On the contrary, American Kestrels in Canada and the northern United States usually migrate south in the winter. Consequently, since Kestrels that nest in Kentucky are typically non-migratory, our state hosts more Kestrels in the winter than any other time of year.



American Kestrel with prey (mouse)

Photo by: Rex Graham



Kestrels are distributed statewide in Kentucky  
Map and data by: KDFWR

### ***Conservation Efforts***

Due to the abundance of open habitat in Kentucky, the state should support abundant wintering and nesting populations of Kestrels. In 2010, the Kentucky Department of Fish and Wildlife Resources (KDFWR) added the American Kestrel as a Species of Greatest Conservation Need, listed in our [State Wildlife Action Plan](#) (SWAP) because of concerns on recently documented region-wide declines. One possible cause for

decline could be competition for nest cavities or an overall decrease in the availability of suitable nest structures. In hopes to see an increase in nesting populations by providing more nest sites, KDFWR has installed over 50 nest boxes for Kestrels on public lands with appropriate habitat in recent years. KDFWR does not have the resources to install Kestrel nest boxes on private lands, but private landowners are encouraged to build and install their own Kestrel nest box.

### **Deciding Whether to Install a Nest Box for American Kestrels**

Installing a nest box for American Kestrels has many benefits. By providing a safe nest site for this species, you not only help to increase nest site availability, but you will also have the pleasure of observing the Kestrels raise their young. Furthermore, Kestrels play a valuable role in our natural communities by helping to keep rodent and insect populations in check. Even so, there are many considerations that should be taken into account before deciding to install a nest box for American Kestrels:



Kestrels prefer perches in very open areas.  
Photo by: Brainard Palmer Ball

1. **Available Habitat:** A pair of Kestrels will often defend a territory over 100 acres in size. Nest boxes should be placed in locations surrounded by at least one acre of open space, with plentiful contiguous open habitat nearby. In Kentucky, Kestrels are often found in agricultural settings where pasture and hayfield habitats seem to be preferred over row crops. Reclaimed strip-mines and power line right-of-ways also provide good habitat. Although Kestrels are found in urban and suburban settings in Kentucky, installing a box in these areas is only recommended when Kestrels have been seen using the area. (Installing nest boxes in urban areas can often encourage European Starlings (*Sturnus vulgaris*), an introduced competitor for nest cavities).
2. **Installation Structure:** Unless you have the ability to install a nest box on a pole, there will need to be a suitable existing structure to support the nest box. Barns and silos provide great structures for nest box placement. It is not recommended to install nest boxes on trees since doing so will make them more likely to be chewed by squirrels or used by non-target species.
3. **Proximity to Disturbance:** To the extent possible, nest boxes should be placed in an area away from human disturbance. Proximity to dogs, roads and repeated human access should be considered. Young birds sometimes end up grounded temporarily during fledging and may succumb to traffic or pets. If an area away from potential dangers does not exist on your property, it may not be wise to encourage Kestrels to nest there.

### **More Ways to Benefit Kestrels**

- Leave dead trees when they do not endanger homes or other structures. Kestrels often use tree hollows or old woodpecker holes as nesting and roosting sites. Snags also provide another essential habitat component for Kestrels: hunting perches.
- Provide Kestrel foraging habitat by leaving areas of lawn, pasture or old field unmowed until the end of the summer allowing Kestrel prey (small mammals and grasshoppers) to flourish. Furthermore, allowing grassy habitat to grow back before the winter provides foraging habitat through the colder months.



Male Kestrels have blue shoulders  
Photo by: Kate Heyden

## Constructing the Nest Box

Materials needed:

- Lumber- One 1" x 10" x 8' board of cedar (best) or a portion of a 4' x 8' sheet of AC plywood. Cedar is more durable and helps to deter squirrel damage. Cedar boards can be found at many lumber distributors and local sawmills in Kentucky. Do not use treated lumber.
- Hardware- Up to thirty 1 ½" wood screws, two 2" hinges and one spring-loaded safety hook. All hardware should be galvanized. Additional hardware will be needed for mounting the box, depending on the installation structure.
- Varnish or Paint- The outside of the box can be painted with non-toxic paint or varnished to increase durability. Do not varnish the interior of the box. Avoid dark paint colors as they can absorb the sun's heat and increase the inside temperature of the nest box.
- Optional- A handful of wood shavings or chips can be placed inside the box. Predator guards can also be installed for boxes on poles. Wrapping the pole tightly at eye-level with 2' of steel sheeting or installing a conical steel "baffle" prevents predators from climbing the pole.

To assemble the box:

1. Cut lumber into the sections detailed in Figure 1. Bevel the back edge of the roof so it will end up flush with the back. Beveling the top edge of the front provides better roof closure.
2. Drill or cut a 3" diameter entrance hole in the box front, approximately 3" from the top.
3. Drill four ¼" diameter holes in the floor for drainage and two in each side for ventilation.
4. Assemble the box as shown in Figure 2. Recess the box floor ½" to prevent weather rot.
5. Attach the hinges at the rear of the roof (Figure 3). This will allow the box to be opened for cleaning (Figure 4).
6. Attach the spring hook as shown in Figure 5 to keep the roof closed.
7. Varnish or paint the outside surface of the box.

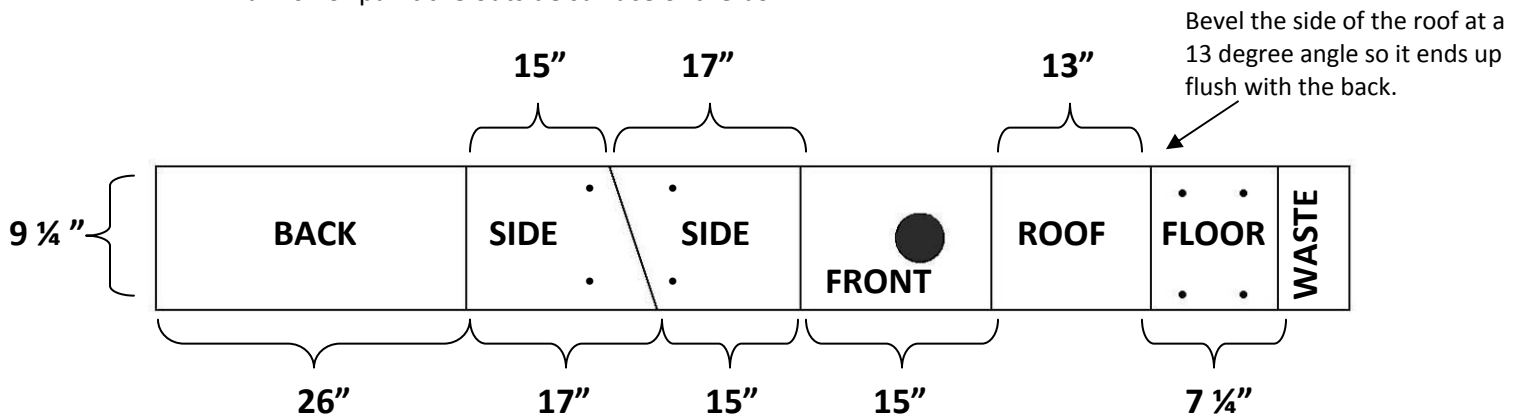


Figure 1. A 1" thick board should be cut to the above specified measurements. If you elect to use ¾" or ½" plywood, you will need to adjust the measurement of the floor accordingly.

## Before Installing the Box

Make sure your box is ready to provide a safe nesting area and stand up to outdoor conditions. Check the following:

- The roof meets flush with the back of the box (Figure 3). Water should not be able to leak into the box. Rebevel or reattach hinges if necessary.
- There should be no sharp edges (no screws poking out) inside of the box.
- The spring hook or comparable latch should be sturdily attached with no risk of the wind blowing the roof open.



Figure 2. A view of the front of a finished nest box.



Figure 4. A view of the finished nest box when the roof has been opened for access. Cedar shavings (optional) line the bottom of the nest box.



Figure 3. A view looking down at the roof of the box. Hinges are attached at the rear of the roof to allow access. The rear edge of the roof is cut at an angle to allow the roof to meet up flush with the back.

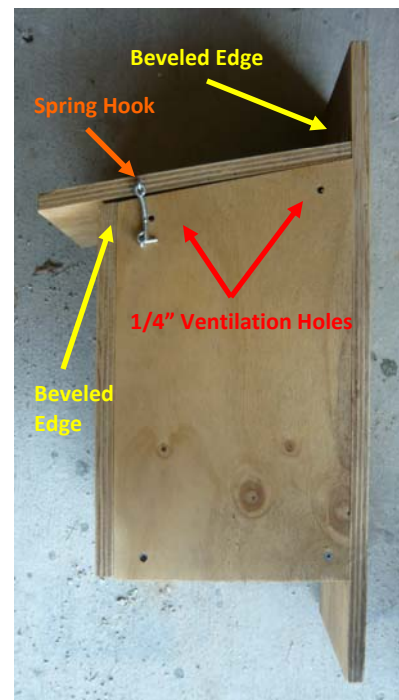


Figure 5. A view of the nest box side, showing the spring hook attachment.

### Placement of Kestrel Nest Boxes

Great care should be taken when deciding where to install your nest box. Nest box installations can be challenging and dangerous, often requiring working on a ladder. Your safety should come first during the nest box installation. To install the nest box:

- Attach the box to a pole, outbuilding or silo 15 to 30 feet above ground. Higher nest boxes tend to appeal better to Kestrels.
- Most boxes can be mounted using 2 ½"-3" galvanized screws through pre-drilled holes in the back of the box. Provide extra support with steel straps, wire or brackets if needed to ensure ice and wind will not loosen the box.
- If you put your nest box on a pole, obtain a pole that is at least 20 ft in length, since it will need to be sunk at least 4 ft into the ground.
- Do not install nest boxes on active power poles.
- Place Kestrel boxes in the most open area possible. Do not place nest boxes in the woods or on the edge of the woods.
- Boxes should be out of the reach of squirrels (not within jumping distance if on a pole). Squirrels will often chew boxes if accessible. Using cedar to construct boxes also helps to deter squirrel chewing.
- Avoid installing boxes near houses or known starling populations.
- Face the box entrance North or East, when possible. The entrance should also face an open area with no trees or shrubs obstructing it.
- If mounting the box on a building, select a face of the building which does not have a door and faces away from the bulk of human activity.
- Consider future access to the box. Future repairs or cleaning may be necessary.



This Kestrel box was installed on a retired power pole at a Wildlife Management Area (WMA).  
Photo by: KDFWR

- If you decide to install more than one nest box, space the boxes, a minimum of ½ mile from each other.



KDFWR staff used a ladder to place this nest box on a retired power pole on a WMA. Galvanized screws hold it securely to the pole.  
Photo by: KDFWR



KDFWR staff placed this Kestrel box on the side of an old tobacco barn. The door on this side of the barn is rarely used and faces northeast, making it an ideal location for a Kestrel nest box.  
Photo by: KDFWR

## ***Nest Box Monitoring and Maintenance***

Monitoring your box will no doubt be an enjoyable experience and will allow you determine if your installation has been successful. Nest boxes are easily checked for use earlier in the nesting season by viewing the box at sunrise or sunset to see if a Kestrel flies to or from the entrance. Nesting activity will be much more conspicuous later in the season when there are nestlings. During this stage, the parents will be observed delivering food from mid-morning to late afternoon and older young may be seen peeking out of the nest box entrance. When you monitor your nest box, be sure to stand 150-300 feet away (a pair of binoculars is helpful) so you do not disturb the nesting pair. If the Kestrel flees from the box as you approach or vocalizes and flies in circles around you, you are standing too close. Please be aware that disrupting normal nesting behavior can affect nesting success.



A Kestrel takes flight.  
Photo by: John Rice

A few other welcomed species have been known to use this design of nest boxes as well including: Eastern Bluebirds (*Sialia sialis*), Eastern Screech-Owls (*Megascops asio*), and even Wood Ducks (*Aix sponsa*). Unfortunately, a less welcomed, exotic species- the European Starling- will also use this box design. If your Kestrel nest box remains inactive for several years or you have problems with Starlings using the box, you might try relocating it to another area to see if you'll have better luck at attracting Kestrels. However, be patient! It often takes more than one nesting season to attract a pair American Kestrels to a newly installed nest box.



This nest box needs maintenance! A young Kestrel peeks out of the box.  
Photo by: Brainard Palmer-Ball

Your nest box will likely require maintenance at some point. Be sure to check it annually to ensure it continues to hold up to the elements and provide a safe nesting place. When checking your nest box you'll want to consider:

- Timing: Nest boxes should only be accessed between September and February to ensure nesting will not be disturbed.
- Cleaning: Boxes can be cleaned out yearly and new wood shavings provided. A small scraper or trowel may come in handy for cleaning.
- Durability: A new coat of paint or varnish may be needed every 5-10 years to prolong the life of the box.
- Maintenance an Open Entrance: If trees, shrubs or vines grow up in front of the box, trim them or relocate the box. Vegetation near the box entrance can allow predators easy entry and Kestrels may abandon nest sites which become overgrown.



An Eastern Screech-Owl utilizes a nest box.  
Photo by: Kate Heyden