

Pileated Woodpecker Nest Box Plans

Dryocopus pileatus

Inviting the majestic Pileated Woodpecker to your property requires a nesting site of epic proportions. Building this specialized, deep-cavity box provides a crucial home for North America's largest woodpecker, offering a rare window into their powerful excavating behaviors and striking family life.

Nest Box Specifications

Entrance hole	4 inches (102 mm)
Floor dimensions	9.25 x 9.25 inches (235 x 235 mm)
Interior depth	24 inches (610 mm)
Mount height	15-30 feet (4.5-9 m) above ground
Facing direction	East or South, to catch early morning light while shielding the interior from harsh afternoon sun and prevailing westerly winds.

Mount the box on a large-diameter, sturdy tree within a mature woodland or near a forest edge. Ensure there is a clear flight path to the entrance and avoid placing it near bird feeders to reduce stress and competition from other species.

Cut List

From a 1x10 x 16 ft

Panel	Dimensions	Qty	Notes
Front	9.25" x 28"	1	Drill 4" diameter hole 20" from the bottom; score the interior surface with a saw to create a 'ladder' for fledglings.
Back	9.25" x 34"	1	Provides 3" mounting tabs at top and bottom; pre-drill for lag bolts.
Side (Fixed)	9.25" x 28"	1	Angled at 10 degrees at the top to shed water.
Side (Door)	9.25" x 27.75"	1	Shortened slightly for clearance; attach with hinges at the top for easy cleaning.

Roof	11.25" x 14"	1	Use a 1x12 board to ensure a 2" overhang on all sides; slope 10 degrees forward.
Floor	7.75" x 7.75"	1	Recess 1/2" up from the bottom of sides; trim corners for drainage.

All primary panels are cut from 1x10 stock (9.25" actual width). Because of the height, two 8-foot boards are required. The roof is wider (1x12) to provide a drip edge that protects the side-opening door and the entrance hole from rain.

Materials & Construction

Wood: 1-inch (25 mm) or 3/4-inch (19 mm) untreated cedar or cypress. Do not use pressure-treated wood or plywood.

Boards: Two 1" x 10" x 8' untreated cedar boards and a 14" scrap of 1x12 for the roof.

Hardware: 30x 2" stainless steel deck screws, 2x 2-1/2" exterior zinc-plated hinges, 1x heavy-duty brass gate latch, 4x 4" galvanized lag bolts with washers for tree mounting, 4 inches of kiln-dried cedar shavings

Ventilation: Gap the side panels 1/4" below the roof line and drill two 1/2" holes near the top of each side panel for cross-ventilation.

Drainage: Drill four 1/2" holes in the floor panel and clip all four corners by 1/2" to ensure the deep cavity stays dry.

Predator guard: Install a 30-inch wide metal flashing wrap or a commercial stovepipe baffle on the tree trunk below the box to deter climbing raccoons and snakes. Ensure the metal is smooth and securely fastened.

Materials Checklist

2x 1" x 10" x 8' untreated cedar boards

1x 1" x 12" x 14" cedar board (for roof)

30x 2" stainless steel deck screws

2x 2-1/2" exterior zinc-plated hinges

1x heavy-duty brass gate latch

4x 4" galvanized lag bolts and washers

4 inches of kiln-dried cedar shavings

Exterior wood glue

4" hole saw

Drill and pilot bits
Wood rasp or saw for interior scoring
Measuring tape and pencil
Ladder and safety harness for high mounting

Seasonal Timeline

Install: Early winter (December to January) to allow the box to weather and to ensure it is available before early spring territory establishment.

Nesting start: In the Southeast, nesting begins as early as March. In the Northeast and Midwest, expect activity in late April to May, while Pacific Northwest populations typically begin in mid-May.

Clutch size: 3-5 eggs (usually 4)

Incubation: 15-18 days

Fledging: 24-31 days after hatching

Cleaning: Clean the box in late autumn after all nesting activity has ceased. Remove old nesting material and debris, then replace the bottom 4 inches with fresh cedar shavings.

Regional Considerations

The Pileated Woodpecker is found throughout the eastern half of North America, the Great Lakes region, across the boreal forests of Canada, and down the Pacific Coast. They require mature forests with large-diameter trees for natural nesting.

Nesting occurs earlier in southern latitudes where spring arrives in February. In high-elevation mountain ranges or northern Canadian forests, breeding may be delayed by several weeks due to lingering snow and late insect emergence.

Raccoons and larger climbing snakes are the primary threats to eggs and nestlings. The heavy-duty 1-inch thick cedar walls and a properly installed trunk baffle are the best defenses against these predators.

Camera Placement

Given the exceptional depth of a Pileated Woodpecker box (up to 24 inches), an interior camera must be mounted at the very top, angled sharply downward to capture the floor where eggs are laid. Because these woodpeckers are sensitive to light and deep cavities are naturally dark, high-quality

infrared (IR) night vision is essential for clear footage without disturbing the birds with white light.

A wide-angle lens is preferred to capture both the adults entering the hole and the activity at the bottom of the cavity. Because of the box's size, you have more room for a small USB-powered interior camera or a specialized bird box cam, but ensure all cables are stapled securely to the corners to prevent the birds from snagging them while excavating.

For exterior monitoring, a trail camera or a Blink-style outdoor camera should be mounted on a neighboring tree 8-10 feet away. This provides a spectacular view of the adult's arrival and the fledglings peering out of the 4-inch entrance hole during their final days before flight.

We recommend a hardwired interior POE (Power over Ethernet) camera for this species, as the height and remote forest placement of these boxes make frequent battery changes difficult and disruptive.

Powering with a USB solar panel

Mount a 5V USB solar panel with a built-in battery 1-2 ft above the box on the same post, angled 30-45 degrees from vertical and facing south. Run the USB cable down the post inside split loom conduit (squirrels will chew unshielded wire), enter the box through the same grommeted hole as the camera cable, and seal with exterior silicone. Choose a panel with a 5-10 Ah battery buffer so the camera runs through cloudy days.

Common Problems & Solutions

European Starling competition: Starlings are the main competitor; monitor the box frequently and remove starling nests immediately. Pileateds are large enough to defend the box, but starlings are persistent.

Birds ignore the box: Ensure the box is packed with 4-5 inches of wood shavings. Pileateds have a biological drive to 'excavate' their home; they rarely use a completely empty box.

Box is too heavy to mount: Use a pulley system or a 'hoist and bolt' method. This box can weigh 25+ lbs; always use lag bolts rather than nails for safety.

Bees or wasps in the cavity: Apply a thin layer of unscented bar soap to the interior ceiling to prevent comb attachment without harming the birds.

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