



Structures for Wildlife – *Wood Duck Nest Structures (649C)*

Conservation Practice 649C – Specifications

April 2015

OVERVIEW

Why do wood ducks need nest boxes? Wood ducks (*Aix sponsa*) are mostly found in riparian areas along waterways across most of the North America. Unlike the flooded forest areas of the eastern half of the United States wood ducks in the West are only found in those Pacific Coast states. Beginning in the mid-1800s vast expanses of forested wetlands were drained and cleared throughout North America for agricultural purposes and other human developments. In the Pacific Flyway 1.9 million acres of wood duck habitat were lost or degraded. At one time over 900,000 acres of those riparian forests existed California, but only a fraction of those exist today. Consequently, wood duck populations across North America plummeted. Conservation efforts through significant hunting restrictions of wood ducks for over 50 years with the passage of the Migratory Bird Treaty combined with a widespread artificial nest box program greatly assisted the recovery of the continental wood duck population. Wood ducks have a high fidelity to returning to the same areas to nest each year, often nesting in the same nest box if not already in use by another female. Interestingly, there has been little change in the amount of forested habitat in the last 100 years, but today's wood duck populations are at far higher levels than in the early 1900s.

What is the ideal wood duck nest box design? Nest boxes constructed out of wood are safer because wood keeps the inside temperatures cooler for the hen, eggs and duckling before they exit. Redwood and Western Cedar are ideal but more expensive than pine. Several features of the nest box design are crucial to the survival of the hen and eggs. This nest box design was developed to keep raccoons and most other predators out of the box. The entrance hole must be cut to a dimension of 3" in height and 4" in width. Other dimension of box height, amount of wood shavings to add and removable lid to assist easy cleanout and monitoring are essential. Other requirements and planning considerations are below.

SPECIFICATIONS

Nest Box Design Requirements:

Whether you build or buy a nest box, make sure the dimensions meet the criteria below:

1. ENTRANCE HOLE is 4" wide and 3" in height
2. FRONT is 12" wide and 23" in height
3. BACK is 12" wide and 26" in height
4. BOTTOM
5. RIGHT AND LEFT SIDES are 11 7/8" wide and 23" in height
6. TOP is 12" wide and 14" in length



Functioning
10 year old Wood
Duck nest box

Planning Requirements:

Nest Box Placement

- Ideally, nest boxes should be placed within 200 feet of water so that wood duck broods do not have to walk through uplands to reach safe brood rearing habitats. The farther ducklings walk the lower their survival. Wood duck duckling survival is the lowest during those first few days after those one day old ducklings jump from their nest box to the ground or water below.
- Boxes placed over water or in the floodplain should be at placed higher than the topographic floodplain.
- Nest boxes placed over land should be attached to trees, or poles about 8' above ground. This will help to reduce disturbance from humans and easy access from some predators.
- Attaching boxes to 2" steel pipe is best in areas with high predation pressure from raccoons and snakes.
- Nest boxes placed higher make monitoring and maintenance activities more difficult without specialized equipment.
- For areas without any existing nest boxes place nest boxes so that they are visible from the creek, stream or wetlands. Woodie females scout areas for nesting and brood rearing in late winter or early spring. Clearing tree limbs around nest box will make boxes more visible to scouting hens and also reduce access to the entrance hole by predators from these branches.
- Face entrance side of nest box away from prevailing winds and away from the west. Winds and direct exposure to the sun adversely elevates temperatures for roosting and nesting owls. Facing entrance side to the East is often the best orientation.
- Place the nest box so that it is either level or leaning slightly forward. Nest boxes leaning backwards makes it very difficult if not impossible for day old ducklings to climb up inside the nest box to jump out of the entrance. Improperly placed nest boxes are a death trap. A nest box may become tilted backwards over time when placed on fast growing trees, e.g., willows.

Spacing of Nest boxes

- As part of their life-history strategy, female wood ducks often lay eggs in each others' nest boxes. To reduce this "dump nesting" consider the existing use of nest boxes in the area designated for boxes.
- In areas with dense vegetation in the mid-canopy layer, nest boxes can be place as close as 30 feet apart.
- Highly visible nest boxes placed over water should be placed at least 150' apart. **Do not place more than one nest box on a pole.** This encourages rampant dump nesting, abandonment of clutches and occasionally aggressive behavior by some hens apparently confused about the location of "their" nest site.

Predator Guards

- Predatory guards can be used to protect boxes on trees and poles. Native predators can discover active nest boxes and eat eggs or ducklings, or attack the incubating hen. Following requirements for design, placement, and management of next boxes will greatly reduce predation pressure.
- Areas with heavy predation should have nest boxes placed on steel poles with sheet metal cone shaped predator guards. These will discourage raccoons, squirrels and snakes from the nest box.

Nesting Material

- Wood ducks do not carry nesting material into the box. Natural cavities occasionally contain leaves, twigs, grasses or small woody materials. Females need a soft bed where they lay their eggs in to before they begin to incubate. Females lay one egg a day, burying that egg below the nesting material located in the nest box or natural cavity. She will continue to do this until she has a complete clutch, which is typically between 12-15 eggs for older hens and fewer for one year old hens. Near the end of her egg laying she will begin to pluck some of her down feathers to provide insulation from temperature extremes and conceal the eggs from predators.
- Place at least 4-6 inches of wood shavings, regularly available at hardware stores, into the nest box. Do not place more than that, otherwise the hen might be sitting too high in the nest box and be within reach of a hungry raccoon.

Additional requirements:

- *Monitoring and Maintenance*
 - **Monitoring nest boxes should occur at least once a year.** If there is only one opportunity to conduct checks, that check should be the Pre-season check.
 - In the “Pre-season Check” or initial installation of the nest boxes ensure that
 - The box is placed correctly and secured with the lid on and functioning properly.
 - Any excessive material brought in by any winter guests is removed.
 - Nest boxes are check by early February. Females typically begin nesting in early March. For those far north and at higher elevation locations add another month to this timeline.
 - During the “Mid-season Check”, (around early April) make sure that the box is still attractive as a nesting site or functioning as a nest site that will have a successful hatch.
 - Consider checks in the late afternoon when the hen may be out on a food and latrine break.
 - Look for presence of wood ducks or other wildlife
 - If there are non-native starlings or their eggs inside, **remove the eggs and discard them away from the nest site.** Starlings’ aggressive behavior can cause wood duck females to abandon eggs.
 - Signs of hatched or predated eggs can also be visible during these nest checks.
 - If eggs and nest are destroyed, **remove the contents and discard in a location NOT under or near the nest box.**
 - If birds other than starlings or wood ducks are found using the nest box leave the female, eggs or young alone and wait until the young have fledged (flown away). Most birds are protected under the Migratory Bird Treaty Act and cannot be disturbed or harmed.
 - At the “Post-season Check” (around July), assess the outcome of any use by wood ducks or other birds using the nest box.

WOOD DUCK NEST BOX DIMENSIONS
(Sketch Printed with Permission of California Waterfowl Association)

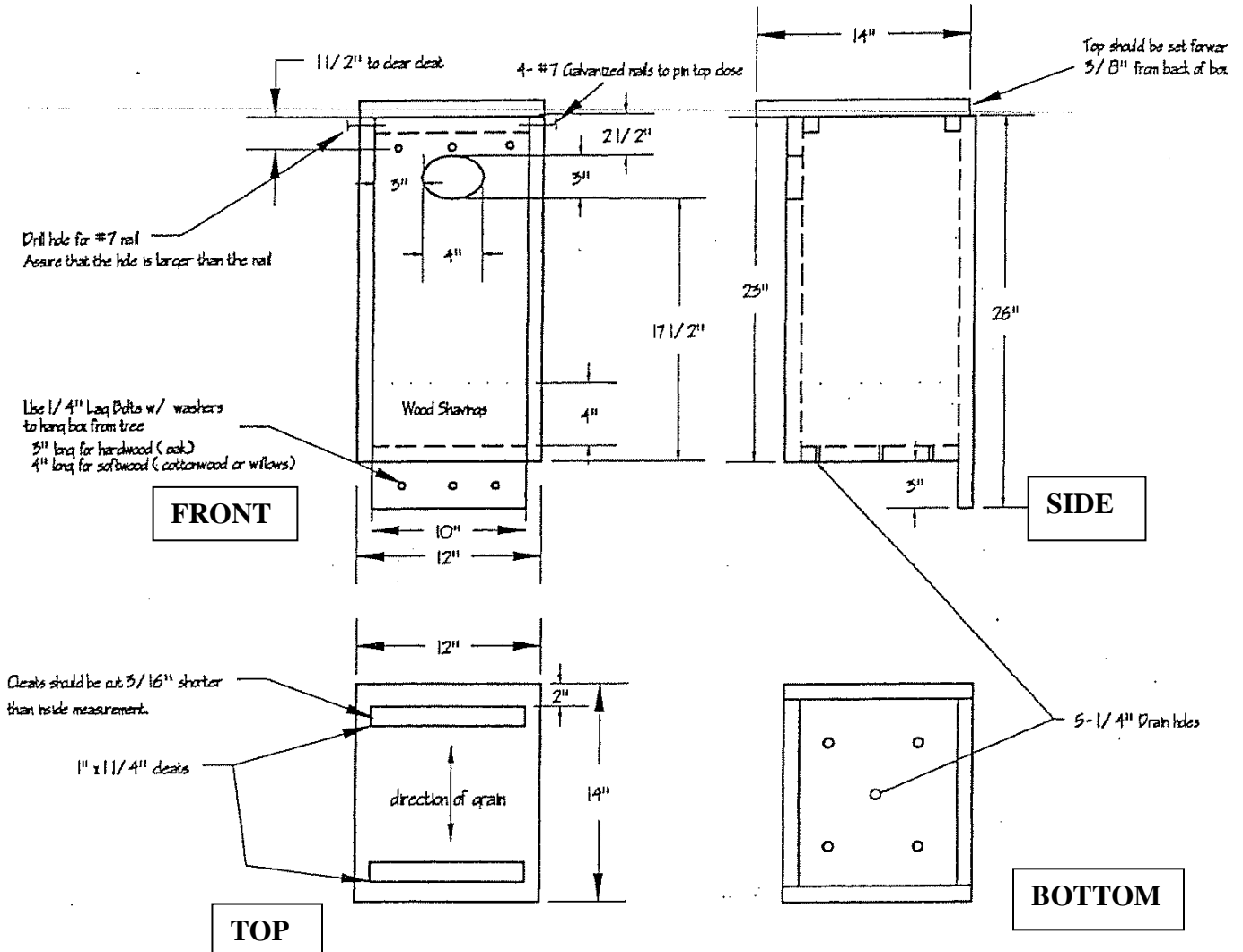


Figure 5. Wood duck nest box design

Make sure to scratch a cross-hatch pattern down the front panel interior creating a ladder that will assist the ducklings to exit the nest box. Using the rough side of the wood on the inside panel will assist the ducklings as they climb up toward the exit hole.

CUT FOR A 4' X 8' EXTERIOR PLYWOOD

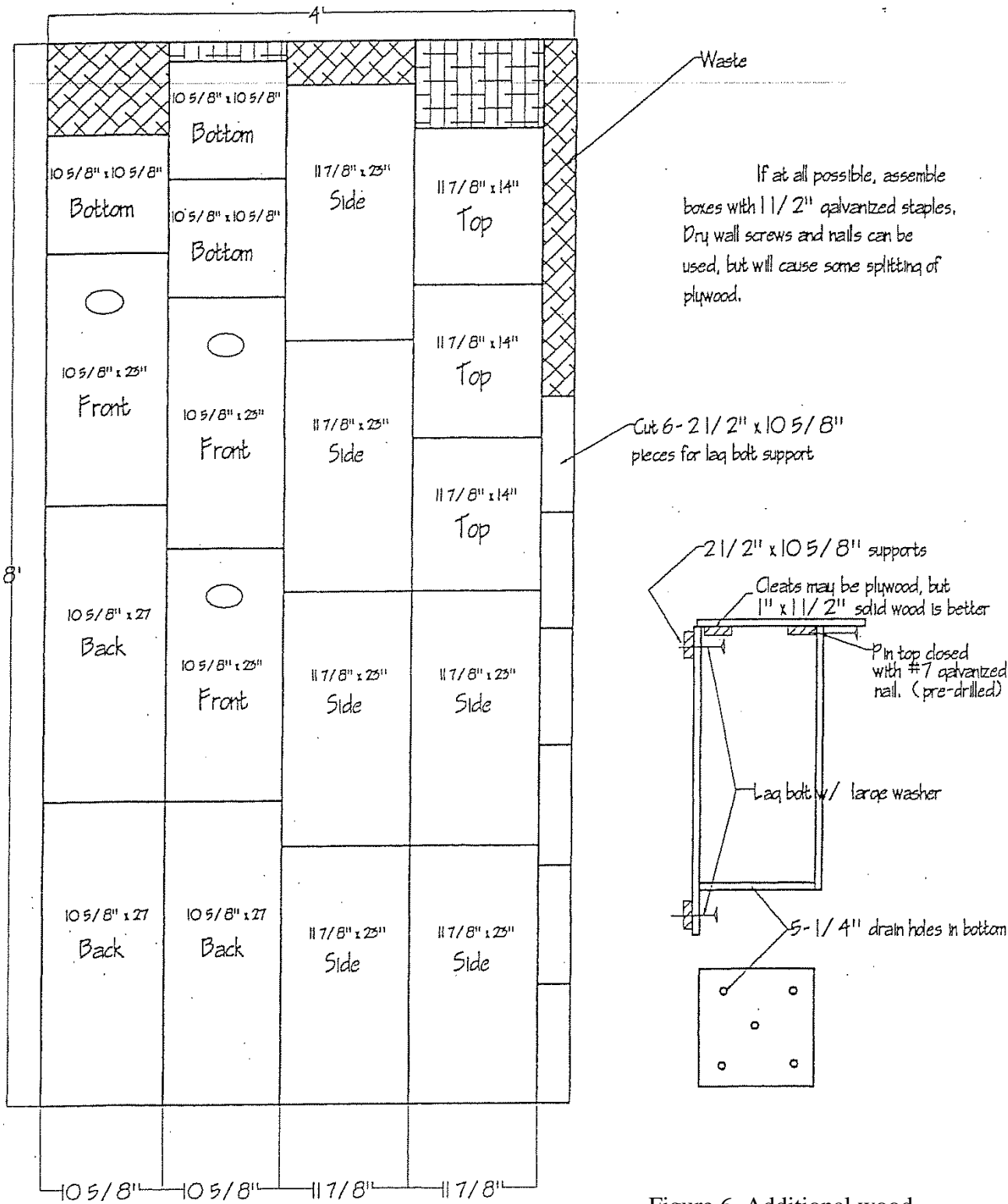


Figure 6. Additional wood duck nest box dimensions