



See You Out There

# NEBRASKA POND GUIDE



Private Waters  
Program



Management Assistance for  
Lakes, Ponds, Pits & Streams

## WATERFOWL PRODUCTION

The decision to emphasize waterfowl production has to be made before the pond is built. Although the areas of deep water and limited aquatic vegetation of an ideal fishing pond would provide loafing areas, waterfowl prefer to raise young in ponds containing a large expanse of weedy, shallow water areas away from human contact. Furthermore, nearly all successful waterfowl management efforts require a water control structure that can be used to manipulate the water level to flood a food source. Keep in mind a minimum water depth of 10 feet is typically needed to prevent fish kills, especially during the winter.

An annually flooded food source for waterfowl and other migratory birds can be created by:

- 1) lowering the water level to expose mud flats, starting in late June or early July
- 2) allowing wetland, seed-producing broadleaf plants and grasses (smartweed, barnyard

grass, etc.) to grow naturally; or broadcast seed a grain crop, such as millet

- 3) doing a slow, refilling process, starting around September 1.

The lowering can be accomplished by periodically removing boards from the control structure, or by opening a lower release valve. Refilling should be done slowly by either returning one board each week or gradually closing the release valve. The key is to allow the plants to germinate and grow and then gradually inundate half their height each week. Plants will drown out if totally submerged for an extended period of time. They will also die or have limited growth if moisture is inadequate during the summer.

Emergent vegetation (cattails, bulrushes, arrowhead, etc.) can be enhanced every 5 or 6 years by water level manipulation. Dewatering should start about mid-May with a refilling procedure similar to the one outlined for the annual flooding of a food source.

Fluctuation in water levels often occurs naturally with evaporation reducing the water levels during summer and fall rains refilling the pond. Pumping can also be considered, but it may be cost-prohibitive.

Waterfowl habitat can also be provided by constructing a shallow-water area below the dam, perhaps as large as 3 acres. Water from the pond can then be used to flood this man-made marsh, provided inflows are sufficient and adequate depth remains. This offers many more wildlife options than trying to rely on water level manipulations within the pond itself. The pond-marsh combination provides a more efficient use of water, as only a 12- to 15-inch average depth is needed. A good rule of thumb is to provide a marsh with a 50:50 ratio of open water to vegetation. Openings should



Shallow Waterfowl  
Area Below Pond



See You Out There

# NEBRASKA POND GUIDE



Private Waters  
Program



be mowed, as needed, in dense tall vegetation before flooding.

Truly wild, migrating ducks and geese cause few pond problems, nor do a few year-round resident birds. However, a large number of resident geese or domestic ducks and geese can rise to nuisance levels and cause the following problems:

- large amounts of bird droppings that can create health hazards or poor water quality
- unattractive birds (feathers missing, deformed, or sickly)
- lack of shoreline vegetation in areas of high waterfowl use
- quite mean and aggressive geese.

A waterfowl management plan has been developed for Nebraska. In it pond owners are asked to discourage hand-feeding and nesting for these ducks and especially Canada geese, particularly in or near metropolitan areas (statewide) and the eastern part of the state (particularly east of Highway 14).

Resident flocks sometimes attract thousands of migrating waterfowl during the winter. If they were to stay on a pond for a long period of time, their subsequent waste can increase nutrient levels. This could lead to an algal bloom that is detrimental to fish, especially on smaller ponds. Where aerators are needed during the winter to prevent fishkills, the open water that is created is very attractive to geese. If geese numbers become too high, they should be hunted, when/where possible, or hazed as long as there is no physical contact or harm to them. Hazing can be accomplished by utilizing a model airplane or boat, dogs, loud sound making devices, or even discharging a firearm (where legal and safe to do so).

If you are in an area where waterfowl production is still desired, mallards and Canada geese will likely nest at your pond if you:

- construct small islands in the pond, at least 30 feet offshore
- install artificial nesting structures.

Since waterfowl do not carry nest materials to nesting sites, manmade waterfowl nest structures require annual maintenance and replacement of nest material. A successful structure may contain: less than the desirable amount of nesting material; old down feathers and possibly un-hatched eggs or egg shell fragments; or, it may have gotten wet and contains moldy nesting material. Structures should be cleaned in late winter. Lack of proper maintenance is the number one cause of failure for most structures. It may take several years before new structures are used. But, once waterfowl successfully nest in structures, they and their offspring will very likely return to nest year after year, if structures are well maintained. As nest structures usage approaches 50 percent, more structures can be added, since few projects ever exceed 75 percent occupancy. Wood ducks can also be enticed to nest by placing nest boxes on poles or trees near the pond.

Plans for a wood duck nesting box follow on pages 3 and 4, and plans for mallard and/or Canada goose nesting structures, are available from a variety of sources including the Commission's district offices, and in the publication: *Nest Structures for Ducks and Geese, A Guide to the Construction, Placement and Maintenance of Nest Structures for Canada Geese, Mallards and Wood Ducks*, by Guy G. Zenner, Theodore G. LaGrange and Alan W. Hancock.

---

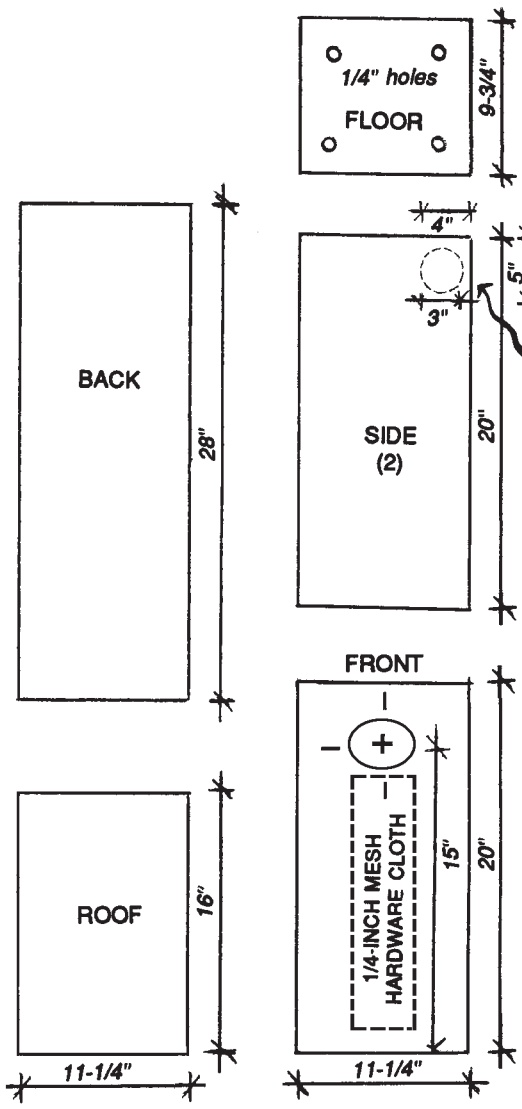
**Contacts:** Jeff Blaser, Private Waters Specialist  
Nebraska Game and Parks Commission  
2200 North 33<sup>rd</sup> Street  
Lincoln, NE 68503  
402-471-5435  
or area Commission fisheries biologist.

# NEBRASKA POND GUIDE

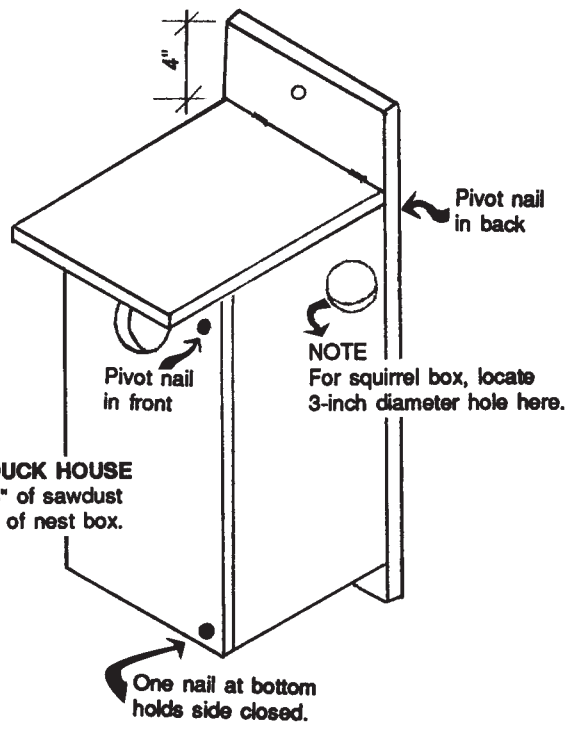


## WOOD DUCK NESTING BOX PATTERN

page 1 of 2



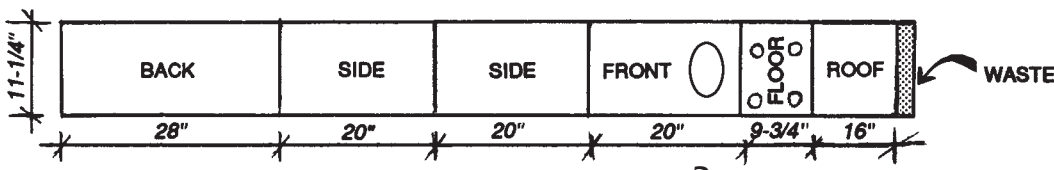
**HOLE SIZE**  
Wood Ducks require an oval 3 inches high by 4 inches wide. Gray and Fox Squirrels require a 3-inch diameter circle.



**WOOD DUCK HOUSE**  
Place 3-4" of sawdust in bottom of nest box.

**FOR CLEANING**  
Two pivot nails at the top, front and back, allow side to swing open. One nail at bottom secures side.

**LUMBER**  
One 1-inch x 12-inch x 10-foot





See You Out There

# NEBRASKA POND GUIDE



Private Waters  
Program



Management Assistance for  
Lakes, Ponds, Pits & Streams

## page 2 of 2 • WOOD DUCK NEST BOX

The traditional wood duck box has helped the beautiful wood duck make a remarkable recovery during the past 20 years. In this century, some people believed the wood duck was becoming extinct.

The entrance hole should be an oval 3 inches high and 4 inches wide. This hole excludes most raccoons. The hole should be centered 19 inches above the floor. An 18" x 3" strip of 1/4 mesh hardware cloth should be cut out and the cut edges folded back. This should be attached inside the box under the entrance to function as a ladder for the newly hatched ducklings. Sometimes squirrels will tear this ladder loose so it will need to be checked annually. Or the wood under the entrance hole should be roughened with a chisel to give the ducklings the toeholds they need. The roughened area should extend below the entrance hole for 1 foot. At least 3 inches of mixed sawdust and chain saw wood chips should be placed in the nest to serve as nesting material. The roof should be wired so the box can be opened for maintenance. Paired roofing nails with large heads should be used around the top of the box to wire it shut so raccoons can't open the box.

The house should be constructed of wood that is strong and can be made weather resistant. It can be painted, stained, or treated - on the outside only. The floor should be recessed 1/4-inch up from the lower edge of the sides to prevent rotting.

Houses can be erected on an isolated tree or on a 16-foot long, 4" x 4" post that is cypress, cedar or preservative-treated wood. An aluminum or tin sheet should be nailed around the post under the house to prevent squirrels and raccoons from entering. Used aluminum printing plates from newspaper offices can be purchased very cheaply and stapled lengthwise to the 4" x 4" post under the nest box. Since wood ducks are not territorial, two or more houses can be placed on the same post or tree.

Vigilant starling control will be necessary in wood duck boxes. Remove their nests and eggs whenever they occur. The top of a wood duck box should be fastened to its support so that it leans forward a couple of inches. This facilitates the drainage of the rainwater. To strengthen the box, nail a 9-3/4" long 1 x 2 along the inside top edge of the front. Nail a similar size piece onto the back just under where the roof rests.

Boxes placed on posts in water should be about 6 to 8 feet above the water's surface. Wood duck boxes should be placed over water or in woodland habitat up to half-a-mile from lakes, ponds, marshes, and rivers. Since the hen must

lead her ducklings to water after they hatch, the habitat between the house location and the water's edge should be free of major obstacles like highways, fences with small mesh wire, and street curbing.

Box entrances near water should face the water. Otherwise, there seems to be a slight preference for south and west facing entrance holes. Ideally, boxes on land should be 30 to 100 feet from the water's edge. The chance of predation by raccoons is higher along the water's edge.

Annual maintenance on wood duck boxes should be completed by March 1. Boxes should be opened, inspected and more sawdust added if necessary. You may wish to cut a small door into the side of wood duck boxes so you can easily check the boxes from the side. Make sure the door fits tightly, admits no sunlight or rain, and can be wired shut to prevent raccoons from entering.

## Gray and Fox Squirrels

Gray and fox squirrels readily adapt to nest boxes in backyards, woodlots, and farm groves. Gray squirrels tend to be found more in urban areas and in larger stands of hardwood forest in eastern Nebraska along the Missouri River. Fox squirrels are found more commonly on farmsteads, river bottoms, and woodlots across the remainder of the state.

The squirrel nest box is identical to the wood duck box except for the location of the entrance and ventilation holes. A 3-inch diameter entrance hole is placed to the rear portion of one side, centered 3-1/2 inches from the top and 2-1/2 inches from the back edge. Ventilation holes are drilled into the side opposite the entrance.

Houses should be placed in trees that are at least 10 inches in diameter . . . at least 30 feet above the ground. The entrance hole should face either east or south to be downwind from prevailing winter winds. A squirrel nest box can be made more enticing to squirrels by filling it half full of dry leaves. To attach the box to the tree, use a lag screw and washer at both the top and bottom of the back piece. Lag screws must be loosened annually to allow for tree growth. Wire should not be used because it can girdle the tree. Boxes are most heavily used in the winter, so new boxes should be set out in the fall. It's not necessary to clean out squirrel nest boxes.

One or two squirrel boxes per acre in a woodland are usually sufficient to maintain a maximum squirrel population.



Nebraska Game and Parks Commission  
Nest Box Series -- No. 5





See You Out There

# NEBRASKA POND GUIDE



Private Waters  
Program



Management Assistance for  
Lakes, Ponds, Pits & Streams

## TECHNICAL ASSISTANCE CONTACTS

### Nebraska Game and Parks Commission (Commission)

2200 N 33rd Street PO Box 30370  
Lincoln, NE 68503  
Private Waters Specialist 402-471-5435  
Natural Heritage Program 402-471-5419

#### Northwest (NW) District - Alliance

Game and Parks Commission  
299 Husker Road PO Box 725  
Alliance, NE 69301  
308-763-2940  
Fisheries Division or  
Wildlife Habitat Partners Section

#### Northwest (NW) Field Office - Valentine

Valentine State Fish Hatchery  
90164 Hatchery Road  
Valentine, NE 69201  
402-376-8080 or 402-376-2244

#### Southeast (SE) District - Lincoln

Game and Parks Commission  
2200 N 33rd Street PO Box 30370  
Lincoln, NE 68503  
402-471-7651 or 402-471-5561  
Fisheries Division or  
Wildlife Habitat Partners Section

#### Northeast (NE) District - Norfolk

Game and Parks Commission  
2201 N 13th Street  
Norfolk, NE 68701  
402-370-3374  
Fisheries Division or  
Wildlife Habitat Partners Section

#### Northeast (NE) Field Office - Bassett

Game and Parks Commission  
524 Panzer Street PO Box 508  
Bassett, NE 68714  
402-684-2921  
Fisheries Division or  
Wildlife Habitat Partners Section

#### Southwest (SW) District - Kearney

Game and Parks Commission  
1617 First Avenue  
Kearney, NE 68847  
308-865-5310  
Fisheries Division or  
Wildlife Habitat Partners Section

#### Southwest (SW) Field Office - North Platte

Game and Parks Commission  
301 East State Farm Road  
North Platte, NE 69101  
308-535-8025  
Fisheries Division or  
Wildlife Habitat Partners Section



See You Out There

# NEBRASKA POND GUIDE



Private Waters  
Program



Management Assistance for  
Lakes, Ponds, Pits & Streams

## United States Department of Agriculture - Natural Resources Conservation Service (NRCS)

Federal Building, Room 152  
100 Centennial Mall North  
Lincoln, NE 68508  
Statewide Wildlife Biologist  
402-437-4100  
or contact Local County Office

## University of Nebraska - Lincoln, Cooperative Extension

211 Agricultural Hall - UNL East Campus  
Lincoln, NE 68583  
Main Office 402-472-2966  
or contact Local County Office;  
Water Quality Questions 402-643-2981, ext. 115

## Nebraska Department of Natural Resources (DNR)

301 Centennial Mall South, PO Box 94676  
Lincoln, NE 68509  
Water Storage Permits 402-471-2363 or  
Dam Safety Guidelines 402-471-1222

## U.S. Army Corps of Engineers (ACOE)

8901 S. 154th Street, Suite 1  
Omaha, NE 68138 402-896-0723  
or contact the Kearney office at:  
1430 Central Avenue  
Kearney, NE 68847  
308-234-1403

## Nebraska Department of Environmental Quality (NDEQ)

1200 N Street, PO Box 98922  
The Atrium, Suite 400  
Lincoln, NE 68509  
402-471-0096

## Nebraska Association of Resources Districts (NARD)

601 S. 12th Street, Suite 201  
Lincoln, NE 68508  
402-471-7670  
or contact your local Natural Resources District (NRD)  
listed in White Pages of the phone book