A photograph of a lush green backyard. In the foreground, there are dark, dense trees and foliage. In the middle ground, a bright green lawn is visible, with a few birds scattered across it. In the background, more trees and a clear sky are visible. The overall scene is a vibrant, natural setting.

Urban Wildlife

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# Managing Backyards and Other Urban Habitats for Birds

North Carolina Cooperative Extension Service, North Carolina State University



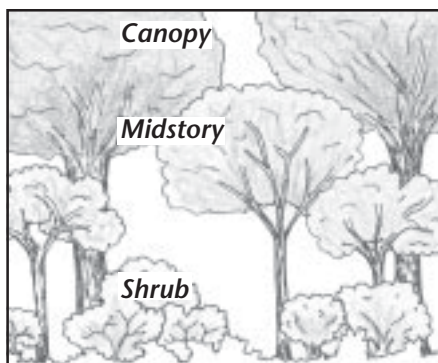
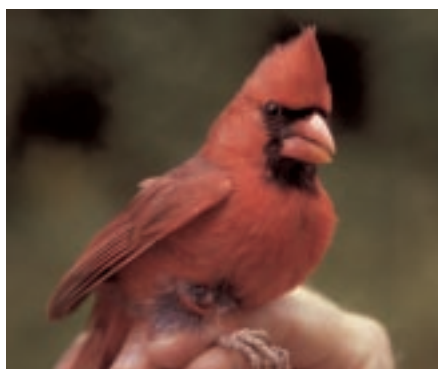
Urban landscapes comprise an increasing percentage of potential wildlife habitat. With proper management and hard work, these areas provide valuable space for many wildlife species, especially birds.

## The Basics

Along with spring's wildflowers and pleasant weather come the joyous sounds of North Carolina's migrating songbirds. From early April to mid May, buntings, cuckoos, flycatchers, orioles, tanagers, thrushes, vireos, and warblers migrate from tropical countries in Central and South America and the Caribbean north to their breeding grounds in the United States. These birds are called *neotropical migrants*. Many of these migrant songbirds stay in



Kentucky warblers (top) and other neotropical migrants fly south in early fall to avoid winter food shortages, but resident birds like the eastern tufted titmouse (bottom) stay in North Carolina all year. Photos by Chris Moorman



North Carolina to build their nests and raise their young, while others continue farther north to other breeding areas. These same migrant birds fly south in September and early October to avoid the food shortages that occur as temperatures get colder. Our more familiar yard birds, such as bluebirds, cardinals, chickadees, robins, and woodpeckers, don't migrate to the tropics and are termed *residents* because they generally remain in North Carolina year-round.

Birds are adapted to the native plants around them and should receive all life requirements from a properly organized suite of native vegetation. Native plants do not present the problems, such as unabated growth, that often arise with establishment of exotic plant species, and they are more likely to provide the food and cover that native birds need. It is



The presence of low-growing plants beneath the tree canopy provides vertical vegetation structure, which allows shrub-dwelling birds like the northern cardinal (left) and treetop birds like the red-eyed vireo (right) to exist in the same horizontal space.

Photos by Chris Moorman and illustration by Liessa Thomas Bowen

important to provide a variety of different types of native plants in any bird habitat. Because different species of plants produce flowers, fruits, or seeds during different seasons of the year, the presence of a variety of plants ensures that food is available to birds year-round. Additionally, the presence of deciduous and evergreen plants and short and tall plants within the same general area provides the vertical vegetation structure



Providing a diversity of plants, including early fruit producers like this serviceberry, ensures that food is available to birds year-round.

Photo courtesy of Alice B. Russell, NCSU retired

that allows ground-dwelling, shrub-dwelling, and treetop birds to exist in the same horizontal space.

## Backyard Management

Birds have three main requirements in life—food, water, and cover—which should be met through proper management of the backyard habitat.

*Native foods:* The bird species in your area and their food requirements change seasonally. In the spring, both migrant and resident birds feed on caterpillars and other insects present on new plant growth. Large oaks (*Quercus* spp.), black cherry (*Prunus serotina*), and yellow poplars (*Liriodendron tulipifera*) harbor many insects and are favored as foraging sites by orioles, tanagers, vireos, and warblers during spring migration. During the late spring and summer, breeding birds continue to feed on insects but also eat fruits as they become available (see Table 1 page 4). Black willow (*Salix nigra*), a moisture-loving tree, harbors many insects during the summer. Insects and spiders are



In the spring, northern parulas and other migrating birds commonly search for caterpillars and other insects in the new foliage of oaks, yellow poplars, willows, and other deciduous trees. Photo by Chris Moorman

especially important to young songbirds born in the spring and summer because these foods fill the birds' protein and calcium requirements for bone and tissue growth. As migrant birds and their offspring fly south in the fall, they seek out fruits, which are high in energy and help offset the energy lost during migration. In the fall, North Carolina's year-round resident birds are joined by *short-distance migrants*, which breed in the northern United States and Canada and winter in the state. Winter residents, including cardinals, chickadees, juncos,



Blackberry (left), pokeweed (right), and other plants left to grow in untidy areas of the yard produce fruits and seeds and harbor insects eaten by birds.

Photos by Chris Moorman

robins, and sparrows, primarily eat fruits and seeds that persist on plants or on the ground. Yellow-rumped warblers, also known as myrtle warblers, eat the fruits of the wax myrtle (*Myrica cerifera*) in the winter.

Because the importance of different foods changes seasonally, it is best to provide a variety of food-producing plants in your yard.

- Include early- and late-fruiting species along with plants that produce winter seeds (see Table 1 page 4).



During the fall and winter, birds eat primarily fruits or seeds like those on this purple coneflower.

Photo by Chris Moorman

- Leave a portion of your yard or garden unmowed or unmanicured to promote fruit



and seed production, especially during late summer, fall, and winter.

- A fallow garden left to grow on its own will provide abundant seed-producing plants, but it should be mowed or tilled at least once every three years. The timing of the disturbance will determine which plants grow (*i.e.*, fall disturbance may promote lower quality wildlife foods and will remove winter cover), so experiment with the frequency and season you disturb.

**Table 1. Important fruit-producing and seed-producing native plants in North Carolina and the timing of fruit or seed availability.**

Species	Common Name	Timing of Availability <sup>a</sup>	Birds Benefited <sup>b</sup>	Species	Common Name	Timing of Availability <sup>a</sup>	Birds Benefited <sup>b</sup>
<b>Soft mast fruits</b>				<b>Hard mast fruits or seeds</b>			
<i>Amelanchier arborea</i>	Serviceberry	May-June	R,G,M,W,P	<i>Ulmus</i> spp. (native)	Elm	March-April	G
<i>Morus rubra</i>	Red mulberry	May-June	M,G,T,W,P,O	<i>Acer rubrum</i>	Red maple	March-April	G,N,C,S
<i>Prunus angustifolia</i>	Chickasaw plum	May-Aug.	M,G	<i>Panicum</i> spp. (native)	Panicgrass	April-Oct.	S,G
<i>Vaccinium</i> spp. (native)	Blueberry	May-Oct.	M,R,T,C,O	<i>Betula nigra</i>	River birch	May-June	G,T,N,C,S
<i>Gaylussacia</i> spp. (native)	Huckleberry	May-Oct.	M,R,T,C,O	<i>Carex</i> spp. (native)	Sedge	May-July	S,G
<i>Rubus</i> spp. (native)	Blackberry	June-July	R,M,G,T,W,O,C,P,S	<i>Acer saccharum</i>	Sugar maple	June-July	G,N,C
<i>Sassafras albidum</i>	Sassafras	June-July	M,R,T	<i>Polygonum</i> spp. (native)	Smartweed	June-Oct.	S,G
<i>Chionanthus virginicus</i>	Fringetree	June-Sept.	R,M,T	<i>Helianthus</i> spp. (native)	Sunflower	July-Oct.	S,G,C
<i>Rhus</i> spp. (native)	Sumac	June-Oct.	R,M,G,T	<i>Ostrya virginiana</i>	Hophornbeam	July-Oct.	G,P
<i>Prunus serotina</i>	Black cherry	July-Aug.	R,G,M,W,P,T,O	<i>Magnolia grandiflora</i>	Southern magnolia	July-Oct.	P,T,G
<i>Parthenocissus quinquefolia</i>	Virginia creeper	July-Aug.	R,M,P,T	<i>Ambrosia artemisiifolia</i>	Ragweed	Aug.-Oct.	S,G
<i>Sambucus canadensis</i>	Elderberry	July-Sept.	R,M,G,S,T,O,P	<i>Fraxinus</i> spp. (native)	Ash	Aug.-Oct.	G
<i>Lindera benzoin</i>	Spicebush	Aug.-Sept.	R,T	<i>Corylus americana</i>	Hazlenut	Aug.-Oct.	P
<i>Celtis occidentalis</i>	Hackberry	Aug.-Oct.	R,M,G,W	<i>Rudbeckia fulgida</i>	Orange coneflower	Aug.-Nov.	G,S
<i>Nyssa sylvatica</i>	Blackgum	Aug.-Oct.	R,M,P,T,W	<i>Pinus</i> spp. (native)	Pine	Aug.-Nov.	G,C,N,W
<i>Phytolacca americana</i>	Pokeweed	Aug.-Oct.	R,M,G,W	<i>Aster</i> spp. (native)	Aster	Aug.-Feb.	G,S,C,N
<i>Vitis</i> spp. (native)	Grape	Aug.-Oct.	R,M,G,W,P,C,O,T,S	<i>Carpinus caroliniana</i>	Ironwood	Sept.-Oct.	G
<i>Opuntia compressa</i>	Cactus	Aug.-Oct.	M	<i>Echinacea purpurea</i>	Purple coneflower	Sept.-Oct.	G,S
<i>Berchemia scandens</i>	Rattanvine	Aug.-Oct.	M	<i>Liriodendron tulipifera</i>	Yellow poplar	Sept.-Oct.	G
<i>Cornus florida</i>	Dogwood	Aug.-Oct.	R,M,G,W,P,T	<i>Fagus grandifolia</i>	American beech	Sept.-Oct.	P,N
<i>Cornus amomum</i>	Silky dogwood	Aug.-Nov.	R,M,G,W,P,T	<i>Castanea pumila</i>	Chinquapin	Sept.-Nov.	P
<i>Toxicodendron radicans</i>	Poison ivy	Aug.-Nov.	R,P,M,C,S,W	<i>Quercus</i> spp. (native)	Oaks	Sept.-Dec.	P,N,C,M
<i>Callicarpa americana</i>	Beautyberry	Aug.-Nov.	R,M	<i>Sorghastrum nutans</i>	Indiangrass	Sept.-Feb.	G,S
<i>Viburnum</i> spp. (native)	Viburnum	Aug.-Dec.	M,W	<i>Coreopsis</i> spp. (native)	Tickseed	Sept.-March	G,S
<i>Myrica cerifera</i>	Wax myrtle	Aug.-Dec.	M,G	<i>Liquidambar styraciflua</i>	Sweetgum	Oct.-Dec.	G
<i>Ilex glabra</i>	Gallberry	Aug.-Dec.	R,M,W,P	<i>Platanus occidentalis</i>	Sycamore	Oct.-Jan.	G
<i>Ilex verticillata</i>	Winterberry	Aug.-Dec.	R,M,W,P	<i>Solidago</i> spp. (native)	Goldenrod	Oct.-March	G,S
<i>Diospyros virginiana</i>	Persimmon	Sept.-Oct.	R,M,W	<i>Andropogon</i> spp. (native)	Bluestem	Oct.-March	G,S
<i>Crataegus</i> spp. (native)	Hawthorn	Sept.-Oct.	W,S,R				
<i>Smilax</i> spp. (native)	Greenbrier	Sept.-Nov.	M,R				
<i>Sorbus arbutifolia</i>	Chokeberry	Sept.-Nov.	W,R,G				
<i>Aralia spinosa</i>	Devil's walkingstick	Sept.-Dec.	R,M				
<i>Ilex decidua</i>	Possumhaw	Sept.-Jan.	R,M,W,P				
<i>Ilex vomitoria</i>	Yaupon	Sept.-Jan.	R,M,W,P				
<i>Ilex opaca</i>	American holly	Sept.-Feb.	R,M,W,P				
<i>Juniperus virginiana</i>	Eastern redcedar	Sept.-Feb.	W,G,R,M				
<i>Phoradendron serotinum</i>	Mistletoe	Nov.-Jan.	W,R				

<sup>a</sup>Modified from Radford, *et al.* (1968). Dates represent timing of fruit or seed presence on the plant; fruits and seeds of many plant species persist through the winter.

<sup>b</sup>According to Martin, Zim, and Nelson (1951). R = robins and thrushes; M = mockingbirds, catbirds, thrashers; S = sparrows, towhees; G = grosbeaks, buntings, cardinals, finches; T = tanagers, vireos; O = orioles; C = chickadees, titmice; W = waxwings; N = nuthatches; P = woodpeckers.

- Plants that are important for some birds because of the fruits and seeds they produce (e.g., oaks and yellow poplars) also offer a home to leaf-eating insects, which are in turn food for other birds. Plant diversity increases insect diversity (i.e., certain insects occur only on specific plant species), and lots of plant foliage creates more insect-holding leaf area.

**Hummingbirds:** Hummingbirds help pollinate more than 160 native North American plants and are easily attracted to a backyard with a diversity of

native plants. Ruby-throated hummingbirds, the only hummingbird species that breeds in North Carolina, feed on small insects and nectar. They prefer the nectar from bright, tubular flowers, such as cross-vine (*Bignonia capreolata*), Carolina jessamine (*Gelsemium sempervirens*), and coral honeysuckle (*Lonicera sempervirens*). To attract hummingbirds, plant a variety of flowering plants that provide nectar throughout the warmer months (see Table 2).

Hummingbird feeders are good artificial sources of nectar

for these birds and should be filled with a boiled solution of four parts water to one part white sugar.

- Honey or red food coloring is not recommended, and feeders can be left up year-round.
- Ruby-throated hummingbirds will migrate even if feeders are left up, and some individual ruby-throats or other unusual hummingbird species may visit a feeder during the winter, especially in the warmer parts of the state. Most individual hummingbirds leave North Carolina by mid



October and don't return until late March.

- If bees, wasps, or other insects are a problem at hummingbird feeders, try a five-to-one water-to-sugar mix, and avoid feeders with yellow in them (insects are attracted to the color yellow). Many feeders also come with bee and wasp guards that may help prevent problems with insects.
- Hang your feeder below an open container filled with water to deter ants; this acts as a moat that keeps ants out.
- Make sure you purchase a hummingbird feeder that can be cleaned thoroughly with a toothbrush and mild detergent each week to prevent the spread of bacteria or disease as hummingbirds visit the feeder.

*Seed, fruit, and suet feeders:*  
Bird feeders supplement the natural foods in your backyard and concentrate bird activity for

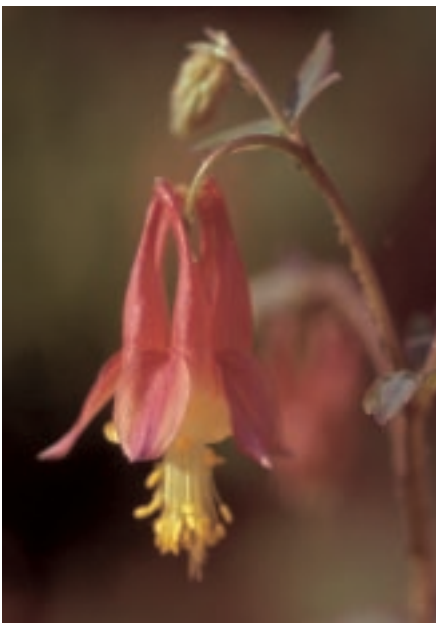
easy viewing. Black oil sunflower, safflower, white millet, and thistle seeds are all preferred types of birdseed. It's best to buy each seed type separately and in bulk. Seed mixes often contain empty seed hulls and undesirable seed types. Buying in bulk also cuts down on cost.

- Sunflower seeds are the best all-around seed type for your feeders. The larger white-striped sunflower seeds are not as desirable as black oil sunflower seeds because the white stripes have

**Table 2. Favorite hummingbird wildflowers, shrubs, and vines**

Plant Species	Flowering Date
Carolina jessamine ( <i>Gelsemium sempervirens</i> )	March-April
Buckeye ( <i>Aesculus</i> spp.)	March-May
Wild columbine ( <i>Aquilegia canadensis</i> )	March-May
Azalea ( <i>Rhododendron</i> spp.)	April-May
Lyreleaf sage ( <i>Salvia lyrata</i> )	April-May
Iris ( <i>Iris</i> spp.)	April-May
Crossvine ( <i>Bignonia capreolata</i> )	April-May
Coral honeysuckle ( <i>Lonicera sempervirens</i> )	April-July
Fire pink ( <i>Silene virginica</i> )	April-July
Indian pink ( <i>Spigelia marilandica</i> )	May-June
New Jersey tea ( <i>Ceanothus americanus</i> )	May-June
Beardtongue ( <i>Penstemon</i> spp.)	May-June
Passionflower ( <i>Passiflora incarnata</i> )	May-July
Phlox ( <i>Phlox</i> spp.)	May-Aug.
Mallow ( <i>Hibiscus</i> spp.)	June-Sept.
Bergamot, or bee balm ( <i>Monarda</i> spp.)	June-Sept.
Trumpet vine ( <i>Campsis radicans</i> )	June-Oct.
Jewelweed ( <i>Impatiens capensis</i> )	June-frost
Blazing star ( <i>Liatris spicata</i> )	July-Sept.
Cardinal flower ( <i>Lobelia cardinalis</i> )	July-Oct.
Red morning glory ( <i>Ipomoea coccinea</i> )	Aug.-frost

less of their weight in the kernel. Sunflower seeds generally should be presented in above-ground platform feeders or covered feeders. Cardinals, chickadees, grosbeaks, and titmice eat



Ruby-throated hummingbirds are attracted to areas with a variety of flowering plants that produce bright, tubular flowers, including columbine (left), yellow jessamine (right), and coral honeysuckle (center).

Photos by Chris Moorman and illustration by Liessa Thomas Bowen



*American goldfinches commonly visit tube feeders to eat thistle seeds.*  
 Photo courtesy of Thomas G. Barnes, University of Kentucky

sunflower seeds.

- Thistle seeds can be used in the popular tube feeders or in mesh bags. Thistle attracts American goldfinches, house finches, and purple finches.
- White millet should be spread on the ground beneath shrubs, in piles of brush or plant clippings, or under above-ground feeders. Juncos, mourning doves, and sparrows eat millet.
- Suet, whether store-bought or homemade, is enjoyed by an incredible variety of birds, including bluebirds, catbirds, nuthatches, orioles, pine warblers, woodpeckers, wrens, and yellow-rumped warblers. To make suet at home, mix raisins, chopped apples, leftover birdseed, oatmeal, peanut hearts, cracked corn, or peanut butter with melted animal fat, vegetable

shortening, or lard. Straight peanut butter is not recommended because birds may have trouble swallowing it.

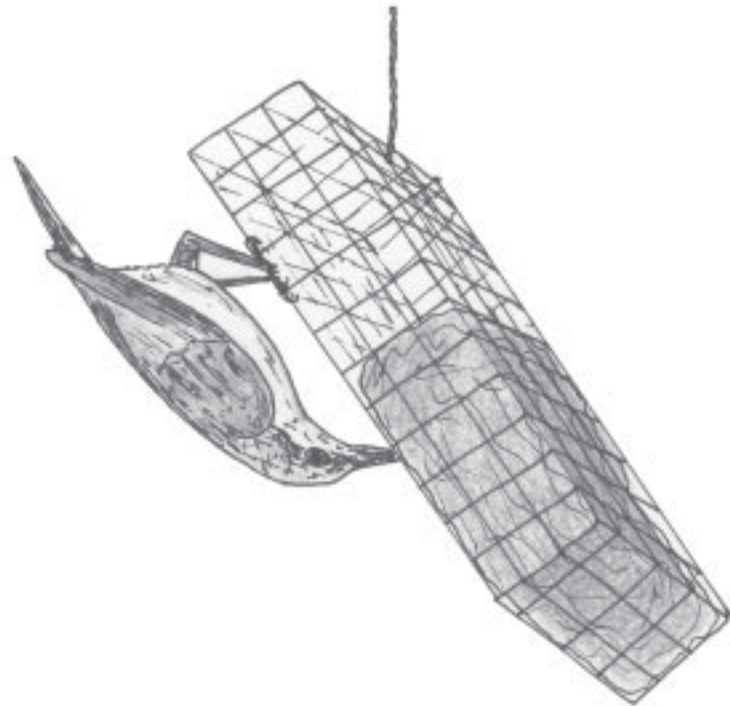
- Sliced oranges or apples, placed flesh side up on tree limbs or wooden boards, may attract orioles or tanagers to your yard.

Feeders are used most frequently during the winter, when natural foods are in shortest supply. Once feeding has begun in the winter, it should be continued through the season. Otherwise, feeding birds may be left without a dependable food source. Squirrels can be excluded from feeders by using squirrel-proof devices (e.g., weight-sensitive motorized or treadle feeders) or by mounting the feeder 4 to 6 feet up a post above a baffle. All feeders should

ALWAYS be placed within 10 feet of shrubby vegetation, especially evergreen plants. This allows smaller birds to quickly escape into nearby cover from predators like Cooper's hawks. However, feeders placed within shrubbery are easily accessible to stalking cats, and feeders placed close to windows can lead to bird-window collisions. Feeders should be cleaned every 2 to 3 weeks to prevent disease transmission among birds.

#### *Water and birdbaths:*

Although water isn't a limiting component of bird habitat in most of North Carolina, it may be scarce in some areas or during periods of drought. Birds normally obtain the water they need from their food, temporary pools, dew on plants or the ground, or permanent sources. If natural sources of water are not



*Suet feeders attract a variety of birds, including many species that rarely visit traditional seed feeders.*

*Illustration by Liessa Thomas Bowen*



American holly (left), eastern redcedar (right), and other evergreen plants provide excellent cover for birds, especially during the winter.

Photos courtesy of Alice B. Russell, NCSU retired

available in your yard or on a nearby property, a birdbath or artificial pond can provide an adequate water source and a focal area for bird-watching.

- Birdbaths should be shallow (2 to 3 inches deep) and made of a rough surface to ensure good footing. The basin should be 24 to 36 inches in diameter with a lip or edge for perching.
- Homemade birdbaths can be made of garbage can lids, rocks, or hollowed-out stumps because some birds don't like to perch high off the ground to drink or bathe.
- Birdbaths are best if positioned on or near the ground and about 15 feet from a perch or shrubby cover, but unused baths can be moved nearer to cover.
- Moving water is a real draw for birds, and inexpensive pumps can be put into backyard ponds to provide the sound of running water that attracts birds and other wildlife.
- It is important to clean your birdbath weekly and keep it full of fresh, cool water. A birdbath can be cleaned with soap or chlorine bleach as long as it is rinsed thoroughly with water.

**Cover:** Dense vegetation provides birds with places to escape from harsh weather and predators, such as hawks or house cats. Different bird species require different types of substrates (e.g., grasses, shrubs, tree limbs, moss, etc.) to support their nests; therefore, a variety of plant species of different ages may aid in increasing the diversity of birds nesting in your yard. Avoid pruning trees and shrubs during the nesting season—from early March through late July. Bird nests can be damaged or exposed to predators and the weather if vegetation surrounding the nest is removed.

Just as with food, cover requirements change seasonally.



During the spring and summer, foliage is abundant and cover is plentiful in a yard with a combination of shrubs, vines, hedges, and trees. However, cover can become scarce during the winter. It is important to provide evergreen trees and shrubs, including native pines (*Pinus* spp.), American holly (*Ilex opaca*), yaupon (*Ilex vomitoria*), wax myrtle, and eastern redcedar (*Juniperus virginiana*), in your backyard habitat, especially adjacent to important feeding and watering spots. Evergreens or dense shrubbery can provide nighttime roosting spots for birds throughout the year, especially during harsh winter weather.

**Nest boxes:** Dead trees are important nesting sites for cavity-nesting birds like woodpeckers and bluebirds and should be protected when possible. Because dead trees often are considered unsightly or liability risks, nest boxes frequently are used as surrogates for natural cavities. They provide nesting sites for a variety of bird species, including bluebirds, chickadees, great-crested



Cavity-nesting birds, including eastern bluebirds (left) and great-crested flycatchers (right), nest in old woodpecker cavities in dead trees but also will nest in properly designed nest boxes. Photos by Chris Moorman



**Table 3. Recommended dimensions for nest boxes\***

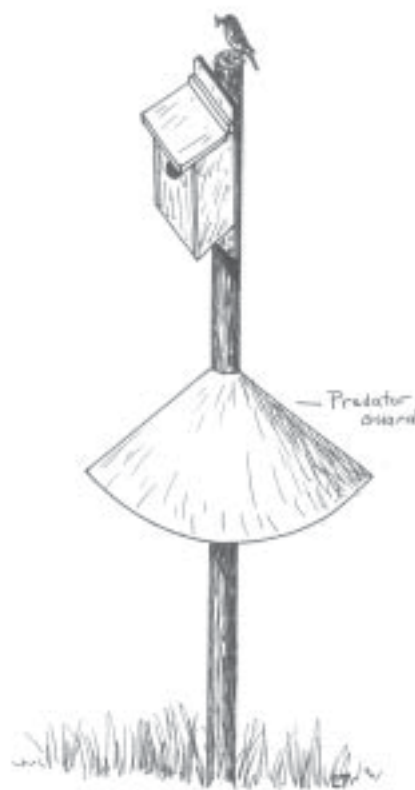
Bird Species	Floor Size (Interior)	Entrance Hole		Box Height	Feet Above Ground**
		Height	Diameter		
American kestrel	8x8	10-12	3	14-16	10-20
Barn owl	10x18	4	6	15-18	12-18
Barred owl	13x13	14-18	6-8	22-28	10-30
Carolina chickadee	4x4	6-8	1 1/8	8-10	4-15
Carolina wren	4x4	4-6	1.5	6-8	5-10
Downy woodpecker	4x4	6-8	1.25	8-10	5-15
Eastern bluebird	5x5	6-10	1.5	8-12	4-6
Eastern screech owl	8x8	9-12	3	12-15	10-30
Great-crowned flycatcher	6x6	6-10	1.5	8-12	5-15
Hairy woodpecker	6x6	9-12	1.5	12-15	8-20
Pileated woodpecker	8x8	12-20	3x4 (oval)	16-24	15-25
Red-bellied woodpecker	6x6	9-12	2.5	12-15	10-20
Red-headed woodpecker	6x6	9-12	2	12-15	10-20
Tufted titmouse	4x4	6-10	1.25	10-12	5-15
White-breasted nuthatch	4x4	6-8	1.5	8-10	5-15
Wood duck	10x10	12-16	3x4 (oval)	20-24	6-20

\* All dimensions are in inches unless otherwise specified.

\*\* Boxes mounted on poles should be placed at the lower end of the recommended mounting heights.

flycatchers, screech owls, titmice, and wrens.

- Nest boxes should be built following recommended dimensions for box height, box width, entrance hole diameter, and placement height (see Table 3).
- A well-designed nest box is made of sturdy lumber (e.g., pine, redcedar, or cypress), has a metal entrance guard to prevent expansion by woodpeckers or squirrels, and does not have a perch. Perches increase the use of nest boxes by aggressive birds like house sparrows and European starlings and may limit use by native birds.
- All boxes need ventilation and drainage.
- To prevent easy access by nest predators, such as snakes and squirrels, place nest boxes on a wooden or metal post away from overhanging tree limbs. A predator guard, or baffle, can be placed below nest boxes to further limit nest predation.



*A properly designed nest box placed on a post above a predator guard provides a relatively safe nest site for a cavity-nesting bird.*

*Illustration by Liessa Thomas Bowen*

- Place boxes in a location appropriate for the target bird species. If a box goes unused for a year, it can be moved to another spot before the new nesting season begins in early March.
- Fill nest boxes meant for woodpeckers with wood shavings or sawdust, so the adults can complete the excavation process (digging down through the sawdust) that is important for pair bonding.
- Nest boxes can be cleaned out in February before the new nesting season begins. Build nest boxes that can be emptied.

#### *Initial inventory and plan:*

Before you begin any habitat improvements, map the existing vegetation in your yard. From this base map, identify areas where food and cover are limited and where they are abundant. Then, plan your new backyard habitat, making sure to incorporate all habitat



requirements and to map the changes. You can use a separate clear overlay for each vertical layer (e.g., canopy, shrub, herbaceous/ground cover) of your habitat. When refining your plan, consider the surrounding landscape or what types of habitats are adjacent to your property. For example, evergreen vegetation may be lacking if you live in an area dominated by deciduous plants. Also, plan for viewing areas by placing important food sources (e.g., bird feeders or fruiting shrubs) in sight of windows and paths. Consider the moisture and light requirements of plants when including them in your plan. Map moisture-loving plants in low-lying areas, and position shade-loving plants under large trees. Concentrate similar types of vegetation in beds or clumps to allow birds easy access to seasonally abundant food sources without excessive movement and increased exposure to predators. Clumping similar species and placing shorter herbs and shrubs in front of taller vegetation also makes the habitat more attractive to people. Remember to include escape cover throughout the yard and provide safe travel corridors (e.g., hedgerows) into interior portions of the yard. Most birds are territorial during the breeding season, so situate nest boxes and feeders at least 100 feet apart to prevent territory overlap.

Birds prefer an untidy habitat. Mowing, pruning, edging, and weeding may lower the quality of your yard as bird habitat. However, local ordinances or the opinion of neighbors may prevent you from

allowing your yard to become a true jungle. Before making any drastic changes that might upset your neighbors, let others know what you plan and explain why you intend to make the changes. Consider locating unsightly brambles, unmowed grasses, or unpopular plants like poison ivy in a hidden portion of your yard.

#### *Implementation and evaluation:*

Work within your own schedule and budget when implementing your backyard bird habitat plan. Consider each step as a building block, and set monthly time and expense budgets. Although it is not necessary to complete your backyard habitat project within a set timeframe, it is important to provide some food, water, and cover as soon as possible. It will take time, maybe several years, for some of your improvements to begin attracting birds. Most small to medium-sized backyards (e.g., 0.1 to 1 acre) are 3- to 5-year projects. Take pictures of your yard and document the birds you see from the initial planning steps to the final finished habitat. Keep a record of

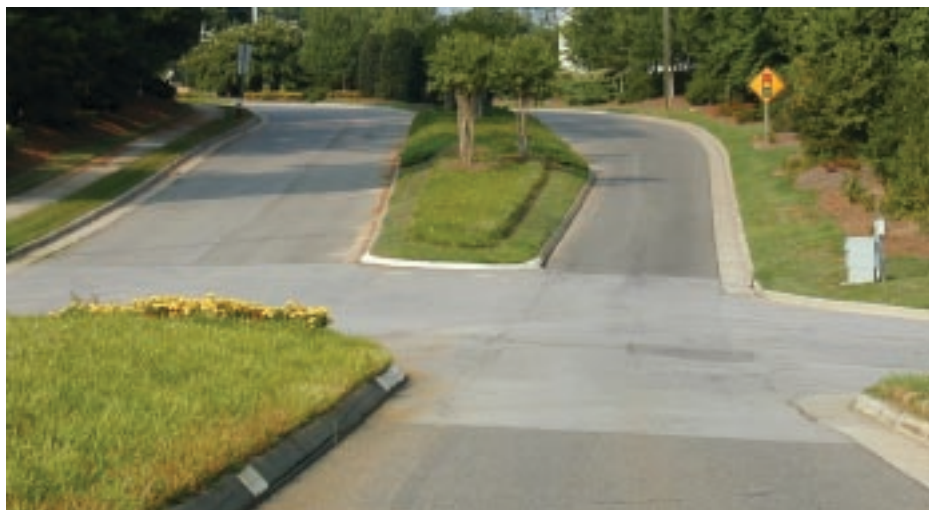
the bird species observed and their locations within your yard. Use the record to evaluate your improvements. If certain species are absent or certain parts of the yard remain unused, make modifications to improve conditions. Remember, promote *variety* and *vertical structure*, be creative, be patient, and have fun.

### **Neighborhood and Greenspace Planning**

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The methods used to plan and construct suburban and urban land developments have a significant influence on the future quality of these areas as bird habitats. Here are some recommendations for maintaining or improving neighborhoods and commercial developments as bird habitats:

- Avoid wide, grassy, or landscaped medians in the center of two-laned neighborhood roads. Avoid planting shrubs or other vegetation attractive to birds



*Wide, landscaped medians contribute to neighborhood sprawl and reduce the amount of land that can be left in its original state for wildlife.*



*Planting a variety of fruiting plants like spicebush (left) and blackgum (right) in your yard will supplement the bird foods present in nearby natural areas.*

*Photos by Chris Moorman*

in medians or along roadsides; birds attracted to these plantings may be killed by collisions with passing cars.

- Protect streamside forests and other riparian vegetation during development activities. Forest buffers more than 100 feet wide adjacent to wetland areas provide habitat for rare and more sensitive bird species.
- Leave naturally occurring vegetation (herbs, shrubs, and trees) in place as much as possible when developing subdivisions.
- Cluster or concentrate homes within a subdivision and leave larger areas of undeveloped forest as greenspace. The greenspace can be used for hiking and nature watching and provides an excellent bird habitat.
- Avoid planting extensive areas

in exotic grasses, such as fescue and bermuda, because they provide poor quality bird habitat and require excessive watering, fertilizing, and pesticide application.

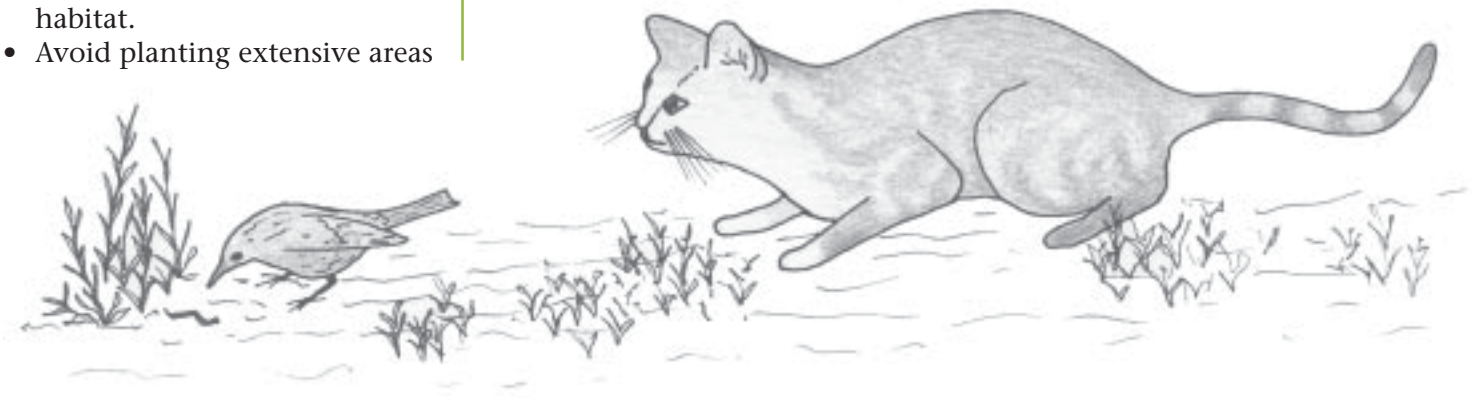
- Replant home lots with native vegetation, making sure to include a variety of plant species.
- Plant large-maturing trees in areas with adequate space above and below ground. Avoid planting these trees where they will overgrow their space and interfere with overhead utility lines or crowd homes and other structures.
- Connect remnant patches of greenspace, including city parks and school grounds,

with forested corridors (also known as greenways); these corridors provide excellent hiking, biking, and bird-watching trails.

## **Domestic and Feral Cats**

Domestic and feral (able to live in the wild) cats kill tens of millions of songbirds and other wildlife each year in the United States. Have you ever said, “Not my cat”? Almost all domestic cats will kill birds, whether the cats are well-fed or not. It’s a natural instinct for cats to kill prey species, including the birds in your backyard.

Researchers also have found that even cats with bells on their collars can kill birds and other small animals. Spay and neuter your pets, support legislation to prevent free-ranging pets, follow local leash laws when walking a pet outdoors, and keep your cat **INDOORS**. Birds face many dangers each day, so your efforts are important to help ensure the long-term conservation of North Carolina’s birds.



*Even well-fed housecats will instinctively kill songbirds and other small animals.*

*Illustration by Liessa Thomas Bowen*



## Additional Sources of Information

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For more information, request the following Working With Wildlife (WWW) and Urban Wildlife (AG) publications from your local Cooperative Extension Service Center or find them on the Internet at <http://www.ces.ncsu.edu/nreos/forest/>.

- *Songbirds*, WWW-4.
- *Snags and Downed Logs*, WWW-14.
- *Building Songbird Boxes*, WWW-16.
- *Hummingbirds and Butterflies*, WWW-20.
- *Butterflies in Your Backyard*, AG-636-02.
- *Landscaping for Wildlife with Native Plants*, AG-636-03.

## Web Links

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- North Carolina Extension Wildlife, Fisheries, and Aquaculture  
<http://www.ces.ncsu.edu/nreos/wild/>
- North Carolina Partners in Flight  
<http://faculty.ncwc.edu/mbrooks/pif/>
- Natural Resources Conservation Service  
<http://www.nrcs.usda.gov/feature/backyard/>
- National Wildlife Federation  
<http://www.nwf.org/backyardwildlifehabitat/>
- Cornell University  
<http://birds.cornell.edu/>
- North American Bluebird Society  
<http://www.nabluebird.society.org/>
- American Bird Conservancy  
<http://www.abcbirds.org/>
- National Audubon Society  
<http://www.audubon.org/>
- North Carolina Museum of Natural Sciences  
<http://www.naturalsciences.org/index.html>
- North Carolina Wildlife Resources Commission Wildlife Rehabilitation  
[http://www.ncwildlife.org/fs\\_index\\_06\\_coexist.htm](http://www.ncwildlife.org/fs_index_06_coexist.htm)



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