



# Backyard Wildlife Habitats

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## Wildlife Habitat

The area where an organism lives and meets its basic needs for food, water, cover, and space to survive is called its habitat. Each species of wildlife has different habitat requirements.

## Why consider creating a wildlife habitat in your yard?

As residential and commercial development by humans continues to expand, wildlife habitats in the affected areas are altered and may become unable to support the needs of species that previously occupied those areas. Alternatively, species that are better adapted to metropolitan conditions may increase their presence and abundance as a direct result of this development.

The actions we take on our own properties can have a significant effect on the various species that share this habitat with us. One way we can enhance the natural features we have in our yards, neighborhoods, towns, and cities would be to create enjoyable and environmentally friendly backyard habitats.

## Potential Benefits of Creating or Enhancing a Backyard Habitat

**Beauty and Increased Property Values:** Many plants, shrubs, and trees that benefit wildlife also are attractive to people. Having a variety of plants adds interest to your yard and helps protect against drastic changes caused by insect pests and plant diseases. The beauty and health of your yard add to the value of your real estate.

**Value for Wildlife:** Each species has different requirements so you need to provide diversity in your habitat if you hope to attract a variety of species. Further, wildlife will fare better where habitats provide most of the food, water, and cover they require in one area, minimizing the amount of travel they need to do.

**Environmental Benefits:** Well-managed backyard habitats can save energy, protect the soil, and improve

water and air quality. Vegetation reduces the temperature extremes of heat often associated with urban areas, and when plants are located appropriately they can help cool our homes during the summer and reduce heat loss in the winter. Trees and other plants hold soils in place during rain and wind, reducing the amount of sediment and contaminants that enter water bodies. Plants improve air quality by filtering particulates and removing carbon dioxide from the air, replacing it with oxygen. Plants enhance our privacy and reduce dust and noise from road traffic. These effects are especially noticeable in developed areas. Plants make towns and cities more comfortable and pleasant places to live, for humans and wildlife.

**Insect Control:** Many species of wildlife, especially birds, eat insects. This is a great way to deal with annoying pests! Depending upon the species of wildlife you attract to your habitat, you may reduce the need to use certain harmful chemicals.

**Habitat for Humans:** Creating your own backyard habitat brings nature into your home range, offering opportunities to learn, enjoy, and pursue hobbies like bird watching, drawing, and photography right in your backyard.

**Low Maintenance:** For easier maintenance of your wildlife habitat landscapes consider using native plants. Native plants are adapted to local weather and soil conditions, they better resist local insects and diseases, and they provide foods that are familiar and timed to the life cycles of the animals in the region. Using native plants also reduces the potential for introducing invasive exotics that can cause serious problems to existing native populations. As invasive non-native plants spread, they may crowd out and compete with natives, causing some wildlife to lose their preferred food sources.

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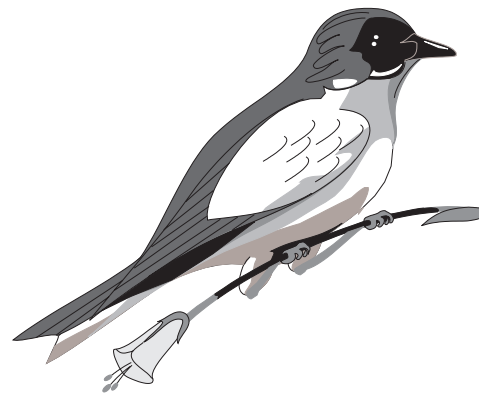
## Expect the Unexpected in Backyard Habitats

There are many reasons for creating backyard habitats. Whether you want to create an appealing space for humans or enhance conditions for a particular species or the wildlife community as a whole, you should be prepared to deal with potentially unexpected results. The adage “*if you build it, they will come*” certainly applies to habitats we create in our yards. Functional and diverse habitats on your property are very likely to attract the animals you desire. However, it also is likely that you will attract species that you did not anticipate. Without careful planning or management some of these species may become pests.

Very often, property owners will encounter snakes that have been attracted to the new abundance of insects or small mammals that have prospered in your new habitat. Other predators (e.g., hawks, owls, foxes, coyotes) may respond to and take advantage of prey populations that have increased in abundance and density. Free-roaming species, like raccoons, opossums, or skunks, may find your yard very attractive due to the food resources it now provides or the cover it affords. They also may find the garbage can, the open garage or storage shed, or the space below your deck to be an attractive resource, too. Herbivores like deer and rabbits may cause significant feeding damage to plantings if you do not take precautions. All wildlife species are protected or regulated by statute; they cannot simply be eliminated on a whim if you find a particular species to be objectionable.

Careful planning can reduce potential problem species, but increasing habitat diversity increases the probability of unexpected consequences. While this may be a part of the allure of backyard habitats, you should be prepared to deal with unexpected problems in a responsible way.

To help prevent unwanted animal attention to your house, yard, and garden keep those areas tidy. Keep brush or woodpiles away from the house or garden. Don't leave pet food or garbage outside and keep areas under houses and porches cleared and sealed when possible. For more information about animal damage control see the list of publications at the end of this publication.



## The Four Basic Wildlife Needs: Food, Water, Cover, and Space

**Food:** Each species has its own nutritional needs, which may change from one season to another and with the age or reproductive status of the animal. Well-planned plantings in a backyard habitat can provide a variety of foods, such as fruits and berries, grains and seeds, nuts and acorns, browse (the twigs and buds of shrubs and trees), and forage (grasses and legumes). Flowering plants provide nectar as well as seeds and fruits. Some plants have greater value because they hold their seed or fruit well into the fall or winter when other food sources already are depleted. Insects and other invertebrates, attracted to flowers, shrubs, and trees, also provide food for wildlife.

**Water:** Water is essential to all forms of life. Water sources on your property should be protected and can be enhanced. If you lack readily available water sources, you might create an artificial pond or use birdbaths. Many species of wildlife obtain the water they need directly from the food they eat, but a good drink of clean water is always welcome. Birdbaths should be no more than three inches deep and have a rough, sloping bottom to provide good footing. Heated birdbaths provide water when most other sources are frozen. Ponds should have shallow edges so that small animals can drink without danger of falling in and drowning.

**Cover:** Trees, shrubs, grasses, and flowering plants provide shelter or cover for wildlife, as do rock piles, brush piles, cavities in trees, and birdhouses. Wildlife use cover to protect themselves from the elements, to hide from predators, and to rest or sleep. They also use cover for nests, dens, and rearing their young. Cover also helps animals maintain temperature and conserve energy reserves by offering protection against cold winter winds and inclement weather, as well as providing cool shade during hot summer months.

**Space:** Many species of wildlife are territorial, which means they will defend an area that contains the food, water, and cover resources they need. Species that are not territorial simply live in a resource-rich area that allows them to perform their daily functions and successfully find food, water, and cover without overt competition. The amount of space needed for a territory or home range varies with the species, the quality of the habitat, the number of other competitors, and the time of year. Have you noticed that many birds are solitary or paired in summer and flock together in winter? Keep in mind that territories and home ranges may include, but often extend beyond, your yard.



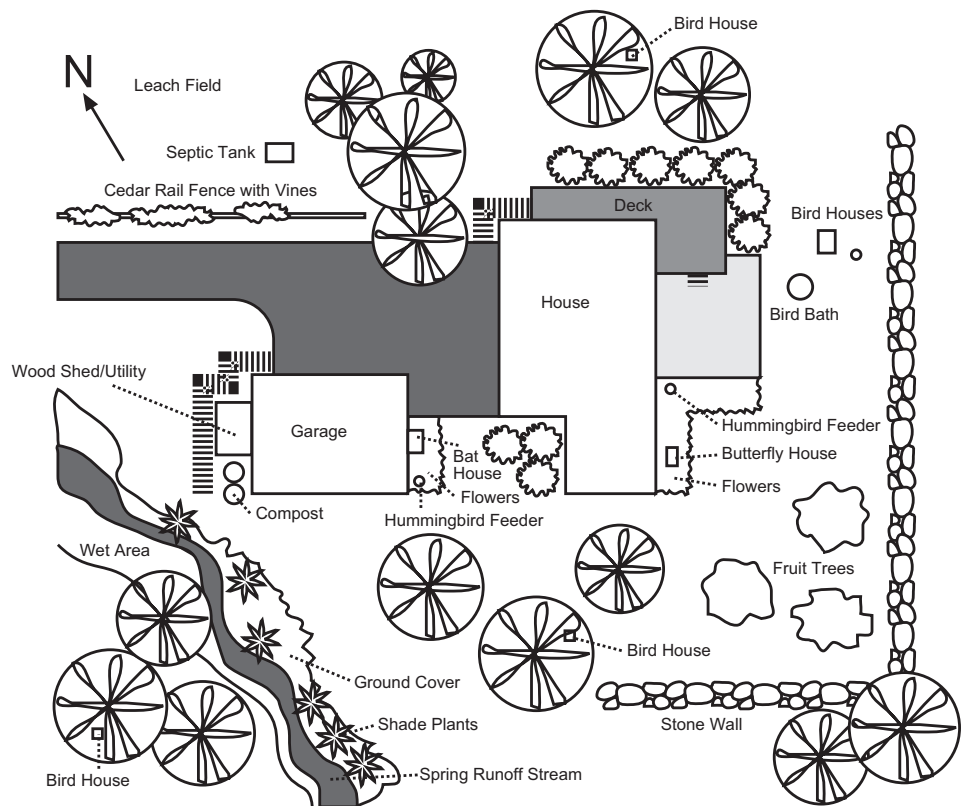
## Planning for a Backyard Habitat

**Why are you doing this and what do you really want to achieve?** It is very important to think carefully about what you want in your yard, in terms of wildlife and other uses or values, before you undertake any on-the-ground actions. What are your goals? Do you want to focus on just a few species or attract as many species as possible? What species have you already seen in your yard? What species are present in other parts of your community that might be enticed to your property? Keep in mind that you will be managing the habitat, not the wildlife species themselves. Do you want increased privacy, exciting views of gardens or flowering trees from your windows, a protective windbreak against cold north winds or shade for south-facing windows during summer? Make a list of your specific goals for your habitat and then prioritize them. Recognize that you can create

suitable habitat for wildlife while achieving a landscape that also meets your needs. Make a master plan and then implement it in phases as finances and time allow (see Figure below).

**Take Inventory.** Make a sketch map of your yard and draw in all the physical features (e.g., buildings, septic tanks and fields, power lines, driveways). Then, locate the existing plants, trees, hedges, and other vegetation you wish to keep. It is not necessary to remove existing plantings—start with what you have and add other materials. Include on your map important features of neighboring lands, such as a pond, a stand of big white pine trees, or a rock wall. Remember, habitat is not confined by your property lines, so you should think as wildlife do and see the opportunities that exist nearby. Other helpful information, such as soil and light conditions (wet, dry, shady, and sunny areas), should be added to your map. Identify soil types and find out if there are nutrient deficiencies (consider having a soil test performed through your county Extension office).

*Below is an example of a drawing of a typical residence and yard used to plan a backyard habitat. You can use graph paper to help sketch your own yard to appropriate scale.*



## Principles of a Backyard Habitat

**Form and Function:** When choosing plants to use in your yard, consider the function or role they will play as well as the form or appearance they offer. Will this plant provide food or shelter? Will it add diversity to the habitat? Since you may have limits on what you can plant because of the size of your yard or the cost of plant materials, try to select plants that fulfill more than one habitat function.

**Plant Diversity:** Diversity or variety in your habitat promotes a healthy landscape and attracts a more diverse wildlife community. Keep in mind that habitat diversity includes both species and structural diversity of the plants that form habitat, as well as a variety of nonliving materials.

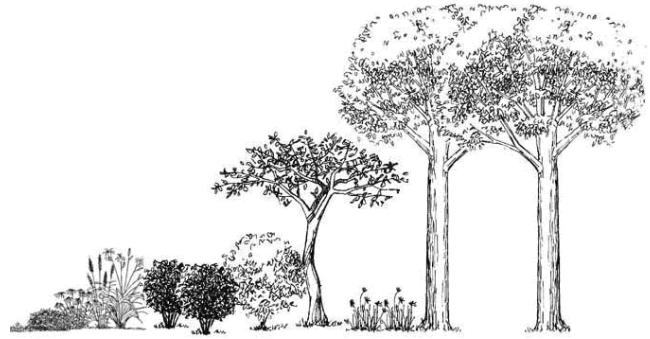
The presence of many plant species makes it less likely that insects or disease will cause severe problems. Having a variety of trees, shrubs, perennial and annual flowers, and grasses in your yard also may attract a more varied wildlife community. With careful planning, a diverse plant community can provide a wide selection of food and cover options for wildlife, as well as reward you with a year-round variety of aesthetically pleasing views as the plants flower or fruit at different times.

### Ecotone

The zone of transition from one habitat to another. The wider the zone and the greater the diversity of plant species and vertical structure, the more diversity there will be in the species of wildlife attracted to the site.

The shape and size of different plants combine to create horizontal and vertical structure in your landscape. You can think of horizontal, or lateral, structure in terms of **edges**, those places where one habitat type meets another (e.g., where a lawn abuts a stand of trees). You can increase lateral diversity by widening the **ecotone**, the zone of transition between habitat types. For example, you could plant small shrubs such as sweet pepperbush, tall shrubs such as serviceberry, and small trees such as crabapple on the edge between a lawn and a line of trees, as shown in the illustration above right. You can widen the ecotone in a flower garden by planting species of increasing heights. This can be accomplished by having low-growing plants, such as sedum and marigolds, in front of medium-height plants, such as columbine and liatris, with tall plants, such as phlox and yarrow, located behind.

You can increase vertical diversity in your landscape by adding more layers of vegetation between the ground and the treetops. Wildlife species that feed, nest, or find shelter at different levels will be better able to meet their needs. You can enhance vertical diversity as already described above, or by planting specific species of varying heights and growth habits in arrangements that are appealing to you. Of course, use plants appropriate to the size of your yard.



*Pictured above is an example of different structural levels of plants: Ground covers, low flowers, medium flowers, tall flowers, small bushes, medium to tall bushes small trees and large trees.*

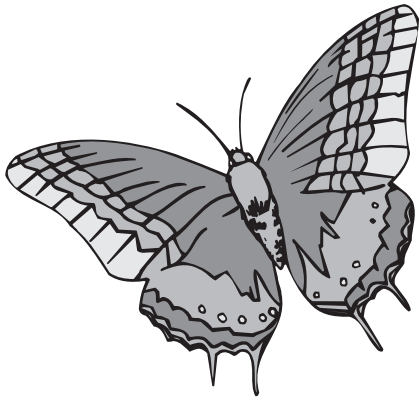
**Diversity of nonliving materials:** There is more to wildlife habitat diversity than living plants. Standing or fallen dead trees provide potential cavities, food, and perches. Brush piles, rock piles, and stone walls provide hiding, nesting, and feeding sites. Sources of grit and loose soil (for dust baths) are important to birds as aids to digestion and hygiene. Buildings provide nest sites and perches, as well as places for butterflies and moths to hibernate. Nest and winter roosting boxes can be erected to supplement natural cavities, and feeders add to the food supply. Water, in any form, is essential.

### Seasonality

**Providing food and cover year-round** requires a variety of trees, shrubs, and other plants. It is important to think about the needs of the wildlife species you hope to attract during each season. A sufficient quantity of high-quality food during fall, winter, and early spring is critical to the survival of resident, as well as migrating, species. Energy needs of wildlife also are high during late spring and summer due to the demands of reproduction. Adequate and well-placed cover is necessary year-round for nest sites, shelter from weather, escape from predators, and roosting. Conifers, trees with cavities, and brush and rock piles provide winter shelter.

## Arrangement

**Natural Wild Design**, allowing ready access to food, water, and cover, is an advantage in creating the backyard habitat. Curves and clusters are visually appealing to us, and often will be more useful to wildlife than linear or solitary plantings. Sources of food, cover, and water need to be located near each other. Feeders located too far away from protective cover either will not be used or will increase the risk of mortality to users from exposure to adverse weather or predation. By planting several offset rows of conifers, you can create an energy-efficient break against prevailing winds. On the inside of the windbreak, a protected area will be created for feeders or plants that bear berries or other fruits. When placing nest boxes, locate them to meet the needs of the species for which the nest box is intended rather than what looks attractive to you.



## Protection

**Predation:** To offer protection for birds, all feeders and birdbaths should be located at least 15 feet away from shrubby cover because cats often use this cover to ambush birds using these facilities. However, feeders should be placed no more than 30 to 40 feet from some form of cover to provide sanctuary from aerial predators.

**Windows:** Because large windows can reflect an image of the sky and adjacent vegetation, songbirds sometimes fly into them, resulting in serious or fatal injury. To prevent such crashes, do not place bird feeders adjacent to windows. Or, try placing a cutout silhouette of a flying falcon or a mobile of pinecones in front of the window or attach parallel strings across the window.

**Nest boxes:** House sparrows and starlings are exotic birds that compete with native songbirds and will sometimes kill native birds in skirmishes to control a

nest box. It is essential when you buy or make nest boxes to choose ones designed specifically for the species you want to attract. Removing all perches from any nest box will reduce the risk of predation or invasion by these exotic species. Learn how and where to place nest boxes to reduce predation by cats and raccoons. Recommendations for placement are often species-specific. Seek guidance from birdhouse vendors or <http://www.birds.cornell.edu/birdhouse/bhbasics/placement.html#Where>.

**Sanitation:** It is extremely important to keep bird feeders, nest boxes, and birdbaths clean. The transmission of disease associated with contaminated bird feeders is a serious problem and can contribute to death among songbirds. Food can become contaminated with mold or fungus when it is not stored properly or when it remains too long in a feeder. The surfaces of feeders and birdbaths can support viruses and other diseases left behind by an infected bird; diseases can then be spread to uninfected individuals every time they use that feeder. Sick birds often look unkempt, are less alert or less active, feed less often, and are often reluctant to fly away.

### Take these steps to prevent disease before birds become sick:

- At least once a week, rake up waste food, husks, and other accumulated material below feeders on the ground.
- Avoid crowding birds by providing multiple feeders, spaced apart rather than clustered together.
- Use feeders that don't have sharp points or edges. Bacteria and viruses on contaminated surfaces can infect healthy birds through even small scratches.
- Clean and disinfect feeders at least once every two weeks, and more often if you observe sick birds. Remove all food remaining in the feeder, wash it thoroughly with warm soapy water, rinse with clean water, and then immerse the feeder for two or three minutes in a solution of one part liquid chlorine household bleach to nine parts warm water. Remove and allow the feeder to air dry before refilling.
- Do not dispense food that smells musty, is wet, looks moldy, or has fungus growing on it. Discard any food that has had any contact with rodents.
- Disinfect the storage container and food scoop that may have come in contact with spoiled food.

- Every day, rinse birdbaths and replace the water. Twice a week scrub them with a plastic bristle brush and mild dish detergent, and rinse thoroughly before refilling. Once every two weeks, after scrubbing the bath, fill it with a 10-percent bleach solution and let it stand for three minutes. Rinse well with clean water and air dry before refilling with water.
- Tell your neighbors who feed birds about these precautions. Birds move among feeders and spread diseases as they go.

**Nectar Feeders:** The nectar dispensed in artificial feeders can ferment in as little as two to three days. Drinking fermented nectar can cause enlarged livers in hummingbirds and orioles. Purchase only feeders that come apart easily so that you can scrub and disinfect all surfaces every two days as described above. Be sure to thoroughly rinse the feeder after it has been immersed in the bleach-water solution. Plant a diversity of nectar-rich plants to supply natural nectar to wildlife.

**Suet:** Do not offer suet year-round. Sun-warmed suet can become rancid and lead to infection and potential loss of facial feathers. It also mats the feathers, reducing their insulating and waterproofing ability. Provide suet only from late October through April or May, or when outdoor temperature warms noticeably.

**Chemical fertilizers and pesticides:** Many common house and yard chemicals present dangers to wildlife and humans. Birds can mistake common granular formulations as grit and unknowingly consume a lethal dose. Predators may then consume prey that has been exposed to chemicals. If you use any chemicals, use them only as directed. Even then, many formulations can still be lethal to wildlife. Re-evaluate the need to use these substances. Choose plant species that are resistant to diseases and pests or let wildlife perform your insect control. Wherever possible, be tolerant of some insect damage. Use mulch, composted leaves, or other organic matter to add nutrients to the soil and help strengthen a plant's ability to ward off diseases.

## Resources

### Programs

Habitat at Home<sup>®</sup> is an education outreach effort of the Virginia Department of Game and Inland Fisheries that offers guidelines on how to provide food, water, and cover for a variety of wildlife species. Homeowners

and other Virginia residents may apply for a Habitat at Home<sup>®</sup> certificate. For more details, visit <http://www.dgif.virginia.gov/> or contact Carol Heiser at [HabitatAtHome@dgif.virginia.gov](mailto:HabitatAtHome@dgif.virginia.gov).

## Publications

Adams, George Martin. 1998. *Birdscaping Your Garden: A Practical Guide to Backyard Birds and the Plants That Attract Them*. Lansdowne Publishing Pty. Limited, Rodale Press.

Kress, Stephen W., and Robert Burton. 2005. *National Audubon Society's The Bird Garden*. DK Publishing.

Brock, Jim P., and Kenn Kaufman. 2003. *Butterflies of North America*. Houghton Mifflin Company.

Stokes, Donald W., Lillian Stokes, and Ernest Williams. 1991. *The Butterfly Book: An Easy Guide to Butterfly Gardening, Identification and Behavior*. Little, Brown and Company.

## Web Links

"Habitats, A Fact Sheet Series on Managing Lands for Wildlife, Components of a Backyard Wildlife Habitat." University of Maine Cooperative Extension Bulletin #7137. <http://www.umext.maine.edu/onlinepubs/htmlpubs/habitats/7137.htm>

"Habitats, A Fact Sheet Series on Managing Lands for Wildlife, Principles for Creating a Backyard Wildlife Habitat." University of Maine Cooperative Extension Bulletin #7132. <http://www.umext.maine.edu/onlinepubs/htmlpubs/7132.htm>

"The Birdhouse Network, Tips on Birdhouse Placement," Where to place nest boxes and birdhouses. Cornell Lab of Ornithology, Cornell University. <http://www.birds.cornell.edu/birdhouse/bhbasics/placement.html#Where>

"Native Plants for Wildlife Habitat and Conservation Landscaping, Chesapeake Bay Watershed." U.S. Fish & Wildlife Service. <http://www.nps.gov/plants/pubs/chesapeake/toc.htm>

"Native Plants for Wildlife Habitat and Conservation Landscaping in Maryland." U.S. Fish & Wildlife Service Bayscapes Landscaping Program. <http://www.nps.gov/plants/pubs/nativesMD/index.htm>

“Landscaping for a Healthy Planet.” Pennsylvania Audubon Society and the Alliance for the Chesapeake Bay. <http://www.envirolandscaping.org/webcasts.htm>

North America Butterfly Association. <http://www.naba.org/>

The Virginia Native Plant Society. <http://www.vnps.org/>

Backyard Wildlife Habitat. National Wildlife Federation. <http://www.nwf.org/backyardwildlifehabitat/>

“Butterfly Garden.” University of Tennessee Extension Specialized Gardening Publication PB1636. <http://www.utextension.utk.edu/publications/pbfiles/PB1636.pdf>

“Audubon At Home.” Audubon Society. [http://www.audubon.org/bird/at\\_home/](http://www.audubon.org/bird/at_home/)

FS-654. <http://www.agnr.umd.edu/MCE/Publications/Publication.cfm?ID=146&cat=8>

“Wildlife Damage Management: Resistance of Ornamentals to Deer Damage,” Maryland Cooperative Extension publication FS-655. <http://www.agnr.umd.edu/MCE/Publications/Publication.cfm?ID=41&cat=8>

“Managing Raccoon Problems in Missouri.” University of Missouri Extension. <http://muextension.missouri.edu/explore/agguides/wildlife/g09453.htm>

## Potential Wildlife Pests Web Links

“Skunk Management.” Virginia Cooperative Extension fact sheet. <http://www.ext.vt.edu/departments/envirohort/articles/misc/skunkmng.html>

*Managing Wildlife Damage: Black Bears (Ursus americanus)*, Virginia Cooperative Extension publication 420-200. <http://pubs.ext.vt.edu/420-200/>

*Managing Wildlife Damage: Beavers (Castor canadensis)*, Virginia Cooperative Extension publication 420-202. <http://pubs.ext.vt.edu/420-202/>

*Managing Wildlife Damage: Canada Goose (Branta canadensis)*, Virginia Cooperative Extension publication 420-203. <http://pubs.ext.vt.edu/420-203/>

*Managing Wildlife Damage: Moles*, Virginia Cooperative Extension publication 420-201. <http://pubs.ext.vt.edu/420-201/>.

*The following publications are from other states. While they contain very helpful information, their wildlife control recommendations may or may not be consistent with Virginia law. Please consult your local Cooperative Extension office for current Virginia statutes that may apply.*

“Animals in the Garden,” University of Delaware Cooperative Extension publication HYG-63. Link at <http://ag.udel.edu/extension/agnr/pestmanagement.htm>

“Wildlife Damage Management: Reducing Vole Damage to Plants,” Maryland Cooperative Extension publication