

Welcome to the West Virginia Wild Yards Program!

This packet of information contains:

An Introduction
to the West Virginia Wild Yards Program

Habitat Information:

- Habitat Components
- Native Vegetation
- Natural Wetlands
- Water Gardens
- City Gardens

Animals to Landscape for:

- Amphibians and Reptiles
- Bats
- Birds - Providing Habitat
 - Supplemental Feeding
 - Hummingbird Gardening
- Butterfly Gardening
- Small Mammals

Additional Information:

- Wildlife Landscape Planning
- References and Printed Materials
- Application



West Virginia **Wild Yards** Program
West Virginia Division of Natural Resources
Wildlife Resources Section, Wildlife Diversity Program
P.O. Box 67
Elkins, WV 26241



Introduction to the West Virginia Wild Yards Program

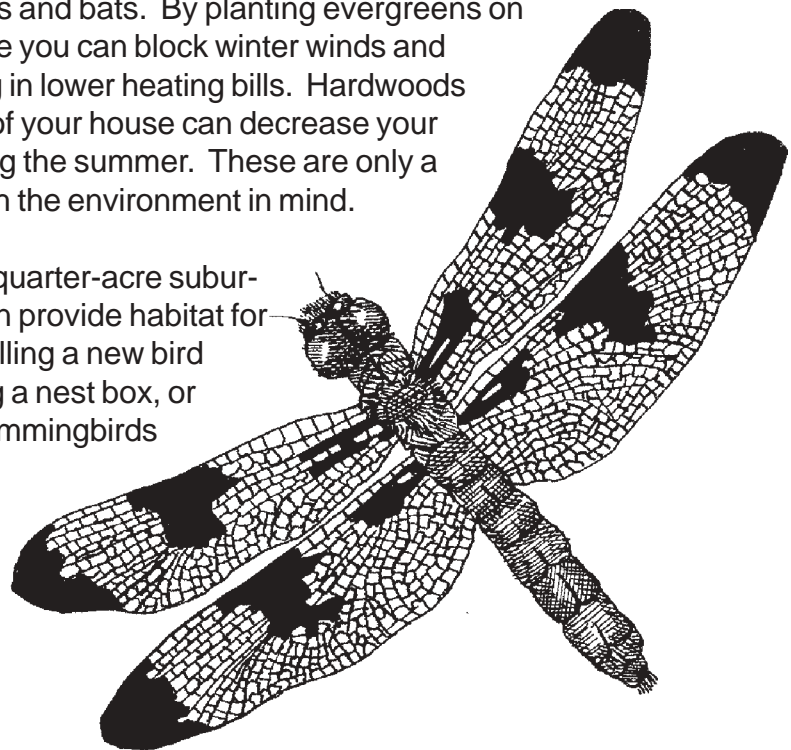
Many people create wildlife habitat around their homes without realizing it. Bird feeders, fruiting plants and water sources attract wildlife into our yards, fulfilling their needs and providing us with hours of enjoyment. Homeowners everywhere have found that songbirds and other wildlife are pleasant to live with. Landscaping with the habitat needs of wildlife in mind can be an enjoyable and inexpensive pastime. In fact, the National Wildlife Federation estimates that an investment of about \$200 can, in time, increase the value of a property from 3 to 10%. On an \$80,000 home, that's \$2,400 - \$8,000.

The West Virginia Division of Natural Resources Wildlife Diversity Program (WDP) has developed the West Virginia Wild Yards Program to recognize the efforts of backyard wildlife landscapers. Approved properties will be entered into the WV Wild Yards Registry maintained by the WDP. The property owner will receive a certificate and a sign that can be placed within the backyard habitat to let everyone know that the area is part of a statewide network of WV Wild Yards.

How do you attract wildlife to your yard? It's easy to improve wildlife habitat if you provide 4 necessary components: food, water, shelter and space. This task can be as easy as providing feeders, birdbaths and nest boxes or as elaborate as restoring a native meadow.

A diverse backyard habitat will decrease the amount of time spent mowing and watering and will be less vulnerable to insect and rodent pests because it will encourage insect-eating predators like songbirds and bats. By planting evergreens on the north and west sides of your home you can block winter winds and prevent snow accumulation, resulting in lower heating bills. Hardwoods planted for wildlife on the south side of your house can decrease your cooling bills by providing shade during the summer. These are only a few of the benefits of landscaping with the environment in mind.

Whether you live on a farm, a quarter-acre suburban lot, or in a city apartment, you can provide habitat for wildlife. You can start right away by filling a new bird feeder with sunflower seeds, hanging a nest box, or planting trumpet-creeper vines for hummingbirds or milkweed for butterflies.



How to apply... It's easy!

The application process for the WV Wild Yards Program is easy. First, read the enclosed information to learn more about landscaping for wildlife and about how to become eligible for certification. Then develop ideas for habitat improvements you'd like to make to your backyard. This packet contains information on plantings, wildlife needs and recommended readings.

An application for certification is also available. You do not have to achieve a mature habitat before seeking certification. After you are underway with your Wild Yard plan, fill out the enclosed application and mail it to the WDP.

Your application will be reviewed by WDP biologists to ensure that native wildlife needs are met in your habitat plan. Certified WV Wild Yards will also be recognized in *West Virginia Wildlife*, the quarterly magazine of the WV DNR.

Any questions should be directed to the WV Wild Yards Coordinator at (304) 637-0245, or email rsullivan@dnr.state.wv.us.

To have your backyard considered as a WV Wild Yard, please do the following:

- 1 Review the materials in the WV Wild Yards packet.
- 2 Evaluate your existing backyard habitat
- 3 Complete the application and mail it to:

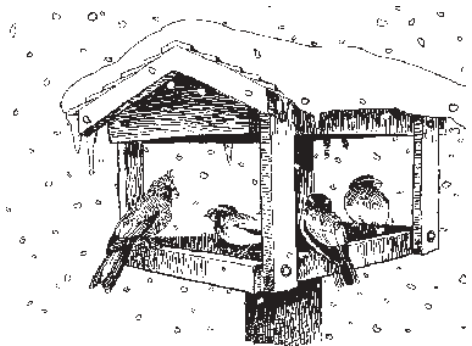
WV Wild Yards
WV DNR
PO Box 67
Elkins WV 26241



Habitat Components

Wildlife will benefit from a well thought out backyard plan. To understand the needs of wildlife you must first learn about their habitat requirements. Habitat is the area in which a species lives. Simply stated, habitat is made up of four basic requirements for survival: sufficient space, food, water and shelter.

The specifics of these requirements varies greatly from one species to another, even from one season to the next. Generally, the larger and more diverse an area is, the more species of wildlife it can support. If your backyard is limited in size or in the variety of habitat components it provides, most wildlife will be transients, using your yard for specific needs and then moving on.



Space is a basic requirement for all wildlife to forage, seek cover, protect their young, and have access to diverse habitat conditions. Your backyard habitat can provide food, water and shelter even though you may have limited space.

Food supplies and individual preferences change seasonally, causing many kinds of wildlife to move from one area to another. You can provide food supplies by planting known native and preferred food plants that produce seeds and fruits, developing feeding stations, or attracting other food sources, such as insects, into your yard.

Water is the need most overlooked and underestimated when landscaping for wildlife. It is important for bathing and drinking by all animals, all year round.

Shelter such as protection from severe weather, safe resting, roosting and hiding areas, and ample space to successfully rear young are all needed by wildlife. Although we may not be able to provide all of these in the typical backyard with limited space, we can improve shelter availability for wildlife considerably.

Given enough space, a well conceived backyard habitat should include most of the following vegetative and physical components:

Vegetative Components

- Conifers provide good year-round cover as well as food. They also act as windbreaks to shelter homes and wildlife from the frigid winter winds and parching summers.
- Grasses and wildflowers provide food, cover and nesting sites for songbirds, ducks, voles, chipmunks and woodchucks. Insects that provide food for a host of vertebrates also thrive in unmowed herbaceous vegetation.



Flora of WV

- Vines should be an integral part of any wildlife landscape, providing excellent cover for nesting birds as well as nectar for hummingbirds and butterflies. (Examples: grapes, trumpet-creeper, Virginia creeper, morning glory)
- Nectar sources provide food for butterflies, moths, bees, hummingbirds and orioles. The fragrant native flowers also attract insects that would provide food for other songbirds.
- Fruiting plants make up an important component of the diet of many songbirds, turtles and small mammals. Various plants fruit at different times throughout the growing season, providing food all season long.

• Mast plants, mostly tree species, provide hard fruits (hickory nuts, beechnuts, acorns) that furnish fat and energy to animals. Many mast-producing species produce nuts in cycles so it is important to have an array of species on your property.

• Refer to the *Native Vegetation* section to learn why it is important to utilize plants native to your area.

Physical Components

• Water is necessary for drinking, bathing and reproduction as well as keeping cool. Ponds are a great way to attract a variety of wildlife.

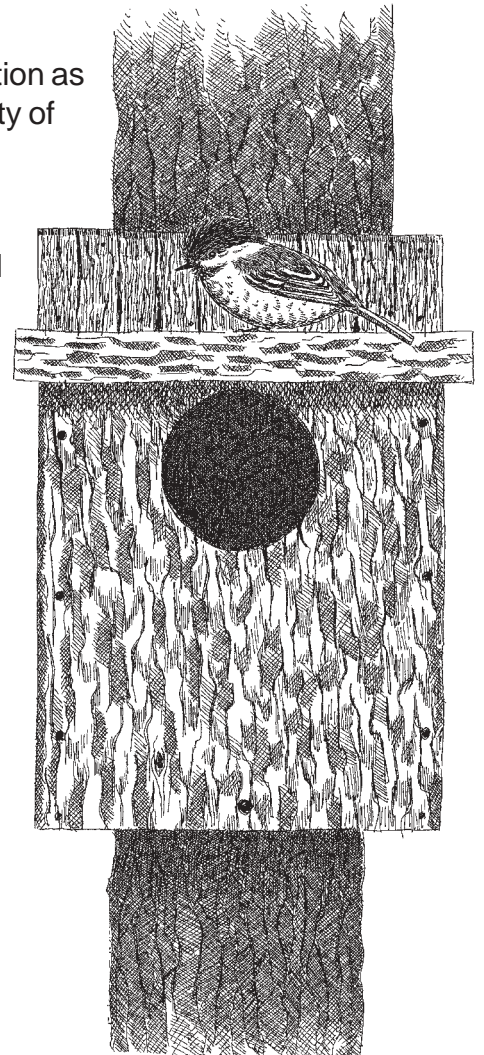
• Snags (dead standing trees) with cavities provide nesting and shelter for flying squirrels, other mammals and cavity-nesting birds. Their cool, sheltered microenvironments foster unique communities of interrelated animals. Some amphibians and reptiles will even use cavities for cover.

• Stumps and snags without cavities allow woodpeckers to excavate nesting cavities, provide food for insect eaters and provide hunting perches for raptors and singing perches for songbirds.

• Nest boxes are artificial cavities which can benefit cavity-nesting species and attract them to your backyard. Proper box types and proper placement of the boxes are extremely important. Nest boxes and feeders should be used to supplement natural sources.

A yard with ample mature cavity trees, fruiting plants and seed-producing plants should be hospitable to many species without the use of nest boxes and feeders.

- Brush piles give small mammals and birds safety



from predators and protection from the weather. Use tree trimmings, old Christmas trees and leaves. Hide your brush pile behind a garage or shed and use vines to cover the pile. They provide shelter and protection for a variety of animals including chipmunks, cottontails, garter snakes and turtles.

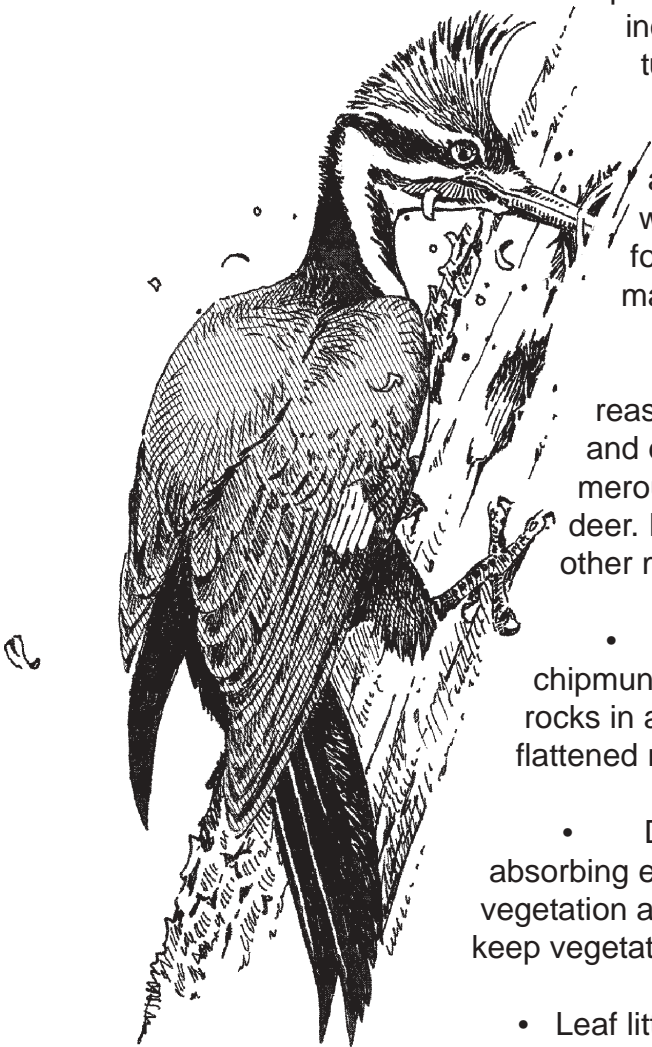
- Fallen logs give storage space to squirrels and deer mice, as well as absorb and retain water while decaying which creates a microenvironment for salamanders, snails, insects, millipedes, and many other critters.

- Grit, dust and salt are important for different reasons. Grit is used by many birds for grinding food, and dust is used for sanitizing. Salt is craved by numerous species of mammals including white-tailed deer. Its use in your backyard may help keep deer and other mammals off salt-covered highways.

- Rock piles and rock walls provide shelter for chipmunks, rabbits, lizards, snakes and frogs. Lay large rocks in a spoke wheel pattern to form a base, adding flattened rocks to the top.

- Dust baths help birds maintain their feathers by absorbing excess oil and discouraging parasites. Scrape vegetation away from a sunny area about 3'x3' square and keep vegetation away to create your dust bath.

- Leaf litter under your trees and shrubs creates habitat for insects eaten by towhees, wrens, lizards, toads and frogs.



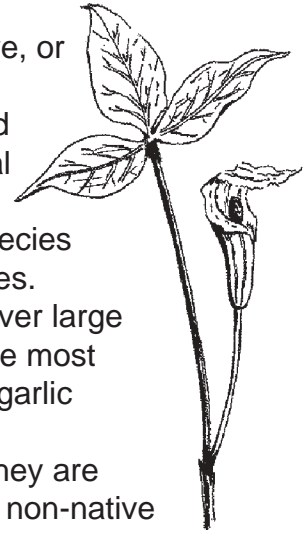
Danger! Windows Ahead

Windows can be deadly for birds. Either move your feeders and bird baths within a foot or two from windows so that birds cannot build up lethal momentum if they do hit the window, or put feeders and baths more than 25 feet away. You can also cover the surface of windows with objects less than 4" apart (strips of cardboard or sticks) or hang paper plates, mobiles, pine cones or hawk silhouettes.



Native Vegetation

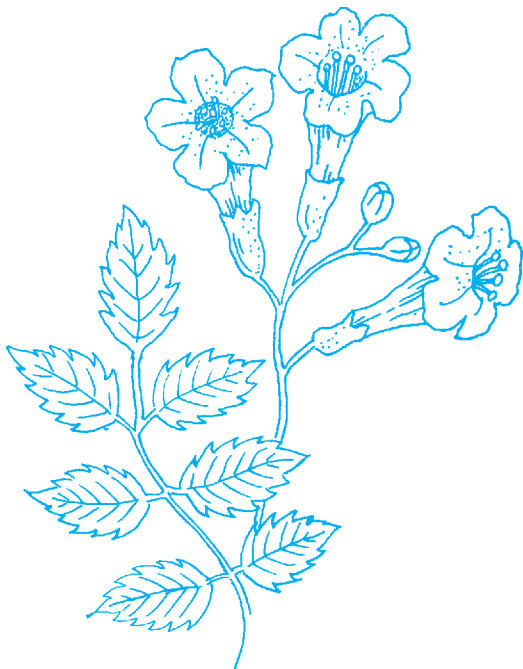
Native species refer to wild animals and plants that have evolved in a particular region and environment. Non-native, or exotic, species are often introduced from other regions or countries accidentally, intentionally, or through habitat change induced by humans or nature. Often these non-native species have no natural controls in the area where they are released, allowing their populations to increase rapidly. Exotic species often out-compete native species and replace native species in our natural plant and animal communities. Oftentimes, invasive non-native plants become pest species, taking over large areas of land and becoming difficult to control or eradicate. Two of the most invasive species that occur in West Virginia are purple looserife and garlic mustard.



It is important to plant native species when possible because they are adapted to the area and are more disease and drought resistant than non-native species. Native plants also provide the greatest benefits to wildlife because our native wildlife evolved with native plants. Often the food provided by native plants is the most nutritious to our native wildlife.

Fortunately, more nurseries are specializing in native plants every year. Below are some nurseries that propagate and sell native plants, and some even offer installation services. The nurseries located in West Virginia are listed first. Out-of-state suppliers were selected for this list based on a these criteria: located within about 100 miles of WV, offer mail order or installation service, and have a high percentage of native plants in their stock. A percentage of native plant stock for each nursery is given at the end of each listing when known.

This list is not meant to be inclusive nor is it an endorsement by the WV Division of Natural Resources of any individuals or businesses.



Use the following keys to choose the type of nursery plant materials, and services that you are looking for.

- H** =Herbaceous (may include annuals, perennials, ferns, grasses)
- I** = Offers installation services
- MO** =Mail Order
- S** =Seeds
- SH** =Shrubs
- T** =Trees
- W**= Wetland plants or aquatics

West Virginia Suppliers

Enchanter's Garden
HC 77 Box 108
Hinton WV 25951
(304) 466-3154
MO, H, S, SH, T, W 99%

Native Garden Design
Josh Meadows or Trey Flemming
Rt. 2 Box 484
Salt Rock WV 25559
Day (304) 541-0184 Eves (304) 736-6219
I, SH 100%

Spaulding Landscaping and Homeview Farm
Rt. 1 Box 39
Sheperdstown, WV 25443
(304) 876-2096
Email: homeviewfarm@aol.com
H, I, SH, T 15%

Sunshine Farm & Gardens
HC 67 Box 539B
Renick, WV 24966
(304) 497-2208
www.gardenweb.com/sunshine
H, SH, T, W 50%

Virginia Provenzano
Landscape Design & Garden
420 Dam # 4 Rd.
Sheperdstown, WV 25443
(304) 267-6924
Email: provenzano4@earthlink.net
MO, SH, T 100%

West Virginia Division of Forestry
Clements State Tree Nursery
PO Box 8
West Columbia, WV 25287
(304) 675-1820
MO, SH, T

Out-of-State Suppliers

Atlantic Star
620 Pyle Rd.
Forest Hill, MD 27050
(470) 838-7950
atlantic@iximd.com

Appalachian Nurseries, Inc
PO Box 87
Waynesboro, PA 17268
(717) 762-4733, FAX (717) 762-7532
SH, T

Bowman's Hill Wildflower Preserve
PO Box 685
New Hope, PA 18938
(215) 862-2924 FAX (215) 862-1846
www.bhwp.org/native
MO, S 100%

Doyle Farm Nursery
158 Norris Road
Delta, PA 17314
(717) 862-3134
MO, H, 75%

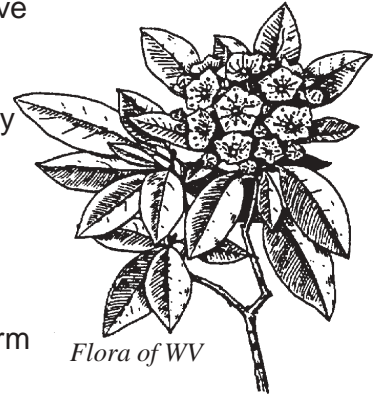
England's Herb Farm
33 Todd Rd.

Honey Brook, PA
(610) 273-2863, FAX (610) 273-2556
I, MO, H, W 80%

Ernst Conservation Seeds
9006 Mercer Pike
Meadville, PA 16335
(800) 873-3321, FAX (814) 336-5191
www.ernstseed.com
I, MO, H, S, SH, T 75%

Environmental Concern
PO Box P,
St. Michaels, MD 21663
(410) 745-9620, FAX (410) 745-3517
www.wetland.org
SH, T, W 100%

Flickinger's Nursery
PO Box 245
Sagamore, PA 16250
(800) 368-7381, FAX (724) 783-6528
MO, T, SH, H
Gary's Perennials
1122 E. Welsh Road
Maple Glen, PA 19002
(800) 898-6653, FAX (215) 628-0216
MO, H, W 20%



Heirloom Seeds
PO Box 245
W. Elizabeth, PA 15088
(412) 384-0852, FAX (412) 384-0852
www.heirloomseeds.com
MO, S, 80%

Lower Marlboro Nursery
PO Box 1013
Dunkirk, MD 20754
(301) 812-0808 FAX (301) 812-0808
Email: mssd@erols.com
MO, T, SH, H, W 80%

Land Reforms Nursery & Landscape
35703 Loop Rd.
Rutland, OH 45775
(740) 742-3478
I, MO, H, T, S, SH, W 90%

Maryland Natives Nursery
9120 Hines Rd.
Baltimore, MD 21234
(410) 529-0552 FAX (410) 529-3883
I, H, SH, W 95%

Mary's Plant Farm and Landscape
2410 Lanes Mill Road
Hamilton, OH 45013
(513) 894-0022 FAX (513) 892-2053
MO, T, SH, H 25%

Musser Forests Inc.
PO Box 340
Indiana, PA 15701
(724) 465-5685, FAX (724) 465-9893
www.musserforest.com
MO, T, SH, H, W 50%

Native Seed, Inc.
14590 Triadelphia Mill Rd.
Dayton, MD 21036
(301) 596-9818 FAX (301) 854-3195
Email: saund10449@aol.com
MO, S

Native Seeds
7327 Haefork Ln.
Gloucester Point, VA 23062

(804) 642-0736
MO, H, S, SH, T, W 90%

Octoraro Nursery
6126 Street Road
Kirkwood, PA 17536
(717) 529-3160, FAX (717) 529-4099
H, SH, T, W 99%

Pinelands Nursery
8877 Richmond Rd.
Toano, VA 23168
(800) 667-2729, FAX (609) 298-8939
Email: wetland@widomaker.com
MO, H, SH, T, W 99%

The Primrose Path
921 Scottdale-Dawson Rd.
Scottdale, PA 15683
(724) 887-6756, FAX (724) 887-3077
MO, H, 75%

Riverview Herb Farm
49607 State Rt. 338
Racine, OH 45771
(740) 247-4565
Email: riverviewherbs@juno.com
MO, I, H, S, SH, S, T, W

Shooting Star Nursery
444 Bates Rd.
Frankfort, KY 40601
(502) 223-1679, FAX (502) 875-2231
MO, H, S, SH, T, W 100%

Virginia Natives
PO Box D
Hume, VA 22639
(540) 364-1665 Phone & FAX
Email: vanatvs@erols.com
MO, H, SH, T, W 50%

Wetland Supply Co./Native Plant Nursery
1633 Gilmar Rd.
Apollo, PA 15613
(724) 327-1830, FAX: (724) 733-3527
I, MO, H, SH, S, T, W 99%

Other Information:

West Virginia Native Plant Society –Information
Bill Grafton
345 West Virginia Avenue
Morgantown, WV 26501
(304) 293-4797 X2493

Two great sources of native plant information, including photographs of plants native to your area and suppliers nationwide, are the Lady Bird Johnson Wildflower Center website at www.wildflower.org and the U.S. Dept. of Agriculture at <http://plants.usda.gov/>.

Obtaining Native Plants

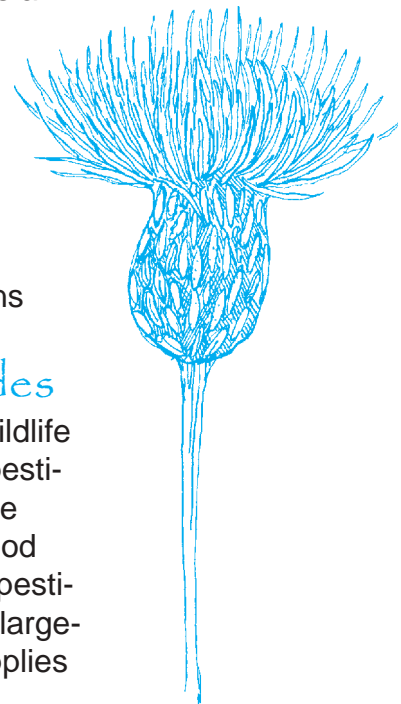
When planting native vegetation in your backyard habitat, refrain from digging entire plants from the wild. This can have detrimental effects on native plant populations. Instead, collect a few seeds and plant them in your garden. If you purchase your native plants from a nursery, be sure to inquire about where the plants originated to ensure that they were propagated from seeds or cuttings and not collected from the wild.

If you find areas planned for development, such as new road construction, housing developments or a proposed parking lot, you may be able to obtain permission from the landowner to move some of the native plants to your property before construction begins.

The Value of “Weeds”

When planning your wildlife garden, the value of plants that are often considered to be “weeds” should not be underestimated. In reality, a “weed” is really “any plant growing where we don’t want it to grow.” Many of these so-called weeds provide important food and cover for wildlife, not to mention their beautiful flowers! Below is a list of a few common “weeds” and some of the animals that benefit from them.

Thistles	goldfinches, butterflies
Milkweed	butterflies
Lamb’s quarters	songbirds
Smartweeds	songbirds
Dandelions	goldfinches, pine siskins



A Caution about Insecticides and Herbicides

The use of pesticides can be particularly dangerous to wildlife that feed on treated plants and insects. Reducing or stopping pesticide use promotes a healthier environment, especially during the nesting season, when parent birds rely on high-protein insect food sources to give nestlings a healthy start in life. Herbicides and pesticides can reduce cover and food supplies for wildlife, if used in large-scale applications. Also herbicides may create tainted food supplies for species like rabbits and voles that eat mainly vegetation.

Water Gardens

Providing water for wildlife will round out the habitat requirements of your Wild Yard. One way to do this is to create a pond. Your garden pond may range in size from a bathtub sunk in the corner of your yard to a mammoth concrete structure. All backyard wildlife will benefit from this permanent water source.

Small insects and mammals can exist on rainwater, puddles or morning dew, but they and larger creatures will be attracted to any new source of clean water. Even if you only have room for a simple pool built from a washtub, you can still have a lovely water garden which will be visited by an amazing variety of wildlife.



Water Gardens Made Simple

You can make a small pool from half of a whiskey barrel or wine keg (either buried or set up on rocks or a low stump), a buried aluminum horse trough, a buried bathtub (it's edges hidden by flat rocks), or even a large plastic bucket.

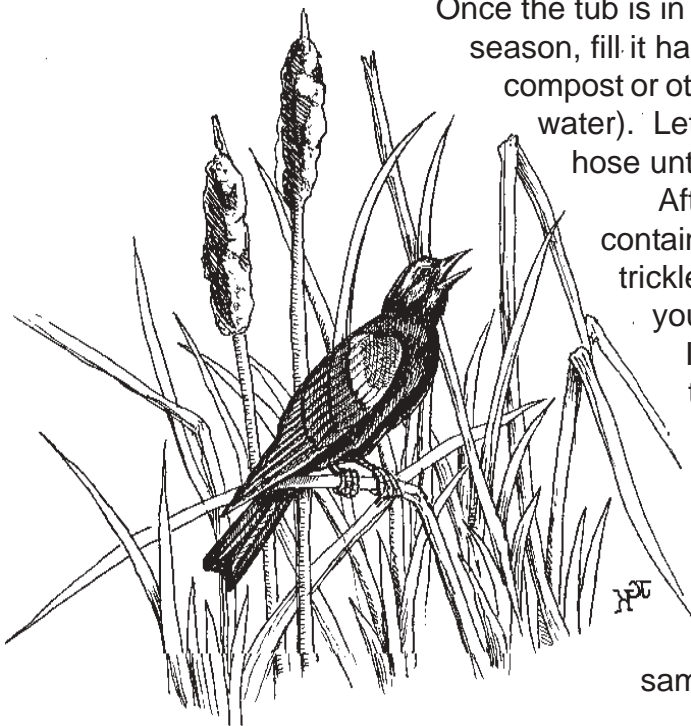
When building a pond, you will need to be more concerned about its depth than its size. A small pool for amphibians, songbirds and other backyard wildlife should be no deeper than 18" at the deepest section. Backyard pools should have gently sloping sides so that amphibians can get in and out easily. Steep-sided pools with no exposed rocks or logs may trap frogs and salamander in the pool.

If you can't create gently sloping sides with your artificial liner, place partially submerged rocks or logs in the water for animals to climb on to get in and out of the water.

Once the tub is in a place where you want it to remain all season, fill it halfway with sandy loam soil. (Do not add compost or other organic matter to the soil; it will cloud the water). Let water trickle slowly into the container from a hose until the container is a bit more than half full.

After planting a few aquatic plants, fill the container to the top with water, adding it at a slow trickle as before. If there are animals that find your aquatic garden habitable, they will find it.

If you want to introduce a few native fish into the water garden, do it a few days later.



Creating a Pond

For a larger water garden or a more natural look, a pond can be made from a waterproof plastic or rubber liner or from a pre-formed fiberglass pool. Many of the same rules would apply as if you were creating a



smaller water garden. You should still provide varying water depths to accommodate a diverse system of plants and animals.

There are many different approaches to creating ponds, and you may need to experiment a little to see what works best for you. Some people like to keep a somewhat simple pond with aquatic plants in it and water-loving plants around its edges, and then just see what happens.

If nothing else, birds will appreciate the water source and many kinds of other wildlife will be attracted to the water as well. People may choose a more elaborate project with pumps that both filter the water and allow for the creation of waterfalls and other features.

Choosing Your Pond Site

Wildlife ponds need a combination of sun and shade. Shade may be required during the hottest part of the day to prevent the water from becoming overly warm for plants and fish. A pond also needs sunlight for photosynthesis and oxygen production. Keep it away from areas subject to runoff, especially after hard rains.

You may be very careful about the use of pesticides and other chemicals around your home, but you can't always know what your neighbors are using. And most importantly, make sure your site is where you can see it!

Deciding on a Pond Liner

Three basic options for how to line your pond are: rubber pond liners, pre-formed pools that can be sunk in the ground, or natural lining. Pond liners can be costly, but are very durable and easy to hide by placing rocks around the edge of your pond upon completion. Pre-formed pools can be easier to maintain, but don't allow for your own personal touch for its shape, size, and depth.

You may also choose to line your pond with clay. This is not necessarily a leak-proof method, but some prefer this natural option. This works better if you are placing your pond in an area that is already somewhat moist, so if water is lost from your pond, it will be easily replaced.

Depth of a Pond

Pond depths vary depending on the vision of the builder. Take into consideration what the pond will be used for, and how deep the water needs to be for particular plants. For instance, for water lilies plan for depths of 18 to 36 inches, and for most other aquatics plan for one to four inches of water above the tops of their pots. Ponds of 24 to 30 inches deep will allow the water to warm up enough for healthy plant growth.

For some, safety concerns dictate the depth of a pond. If small children have access to your pond, making it shallower and teaching them about safety issues are both good ideas. You may also want to fence your pond in, or have children wear life jackets when they are exploring around your aquatic gardens.

Planting Your Aquatic Oasis

If you put all your water garden plants in containers, it will be easy to take them out when it's time to clean the bottom of the pool or to bring tender plants indoors for winter. It also simplifies the task of dividing crowded perennials when that becomes necessary and prevents invasive spreaders from taking over the water garden and squeezing out less aggressive plants.

To prevent muddying up the water when plants are set into the pond, cover the soil in the pots with ½ inch of pea gravel or small stones, then saturate with water before gently lowering the pots into the water. Regardless of whether your plants are potted or not, always use heavy garden soil or topsoil without any additions of vermiculite, perlite or other fillers because they will float to the top and ruin your water garden's appearance. Avoid commercial potting mixes too, because they may contain fertilizers or chemicals that could harm fish and other wildlife. Organic matter is also undesirable; it will decompose and dirty the water. A dense clay soil is best for planting in water gardens.

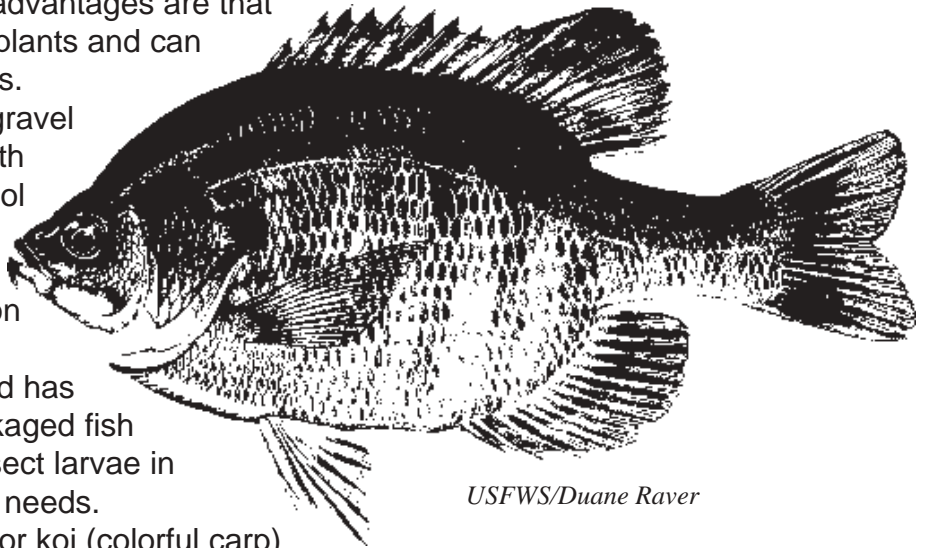
About Fish

If you are using city water to fill a small pond, don't plant your water garden for at least three days to allow the chlorine in the water to evaporate. Some of the many advantages of having fish are that they help keep your water garden free of mosquitoes and algae and they are fun to watch. The disadvantages are that they can uproot and even eat plants and can muddy the water in the process.

By putting a layer of pea gravel over the soil of sunken pots with plants in them and over the pool bottom, you can avoid fish muddying up the pond water. If you do opt for the introduction of fish, add them to your pond about two weeks after the pond has been planted. Give them packaged fish food until there are enough insect larvae in the water to support their food needs.

Many people put goldfish or koi (colorful carp) in their ponds. This is because these fish are easy to maintain and can tolerate the low dissolved oxygen levels of small ponds. These fish are not native to our area, but since pond populations are contained and provide no chance for releasing these fish into wild areas, it is acceptable to put them in your pond. While it is critical to use native plants in landscaping for wildlife, it is not necessarily critical to have native fish in your pond.

Many of our native fish need highly oxygenated water to survive, and if they are used in small ornamental ponds it can be difficult to keep them alive. Of course, their survival potential depends on the size of the pond. There is a higher chance of survival for most native fish in larger ponds, so depending on the size and depth of your pond, you may be able to keep native fish successfully. This is due to the increased capacity for other living organisms and plants to survive in larger ponds, including things that the native fish depend on to survive. However, never release non-native fish from your pond into anyplace wild!



USFWS/Duane Raver

This can have extremely detrimental effects to both fish and plants already existing in those areas.

Caring For Your Water Garden

Small ponds need more attention than large ponds. Where there is more water, there is a better chance for problems to dissipate before they become overwhelming. Outside of the responsibility of removing large leaves and dead plants before they rot or making sure the occasional dead fish is removed, caring for the wildlife pond is not difficult.

Winter:

Deeper ponds can be left alone over the winter as long as the pond bottom is below the frost line. Fish can live in the pond throughout the winter as long as part of the water is unfrozen and there are good hiding places between and under rocks and logs that you've placed in the pond.

If your pond is shallow and you cannot take the fish indoors for the winter, be sure to break the ice every day as it forms or use a stock tank de-icer or a water heater. After you have experienced a few hard freezes in the fall, pull the potted plants out of the pool. Cut off the top growth, then wrap the pots in wet newspaper and enclose them in plastic bags.

Put the pots in a location (such as an unheated basement or garage) where the temperatures stay above freezing but below 40 degrees F. Once the pool thaws in spring, the pots can go back into the garden.

Algae:

Algae is completely natural to a pond. As fish and other aquatic creatures reach a balance, the water will start to clear. Don't be upset about the lack of crystal-clear water because water that is clear is sterile and does not support life. A healthy pond will always have tiny freshwater plankton consisting of protozoa and algae suspended in the water. The goal in a pond for wildlife is to maintain a balance.

A well-balanced pond contains plants that absorb carbon dioxide and release oxygen. It might also contain fish, which take in oxygen and release carbon dioxide. The fish also eat algae, while small insect and animals such as tadpoles, water snails and the larger protozoa vacuum the bottom of the pond while scavenging for food.

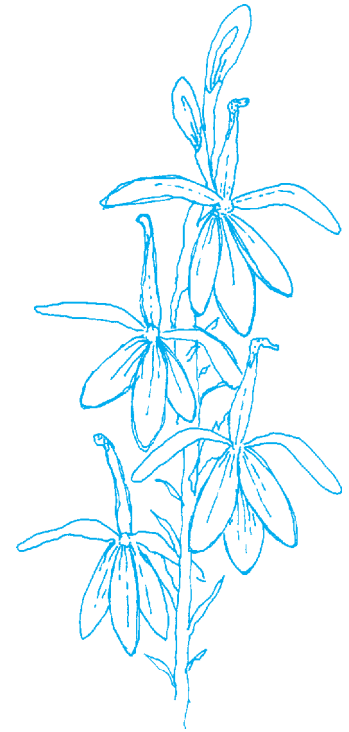
You may want to drain the pool once every 2-3 years, or as needed, and clean up the muck on the bottom to prevent any unpleasant odors from building up.

Make Your Own Birdbath

Birdbaths are a simple way to provide water for your backyard visitors. Place one on a support that keeps it off the ground so birds will feel safe from predators while drinking and bathing. Place a second birdbath directly on the ground, where most mammals are accustomed to looking for water. A hollowed-out stump or a section of log can hold a waterproof container and make a great birdbath. Even a garbage can lid will hold enough water to attract many animals. Place these water sources in the shade so that the water remains cool.

Natural Wetlands

Low, damp areas with poorly drained clay soil, or gardens in areas where the water table is close to the surface, have the makings of a natural wetland. The concept behind creating a wetland is the same as that of building a pond, only in this case the earth is excavated into a shallow pool with gently sloping sides and a maximum depth of about 12 to 18 inches. After the liner is put in place, small holes should be punched in the liner, about one for every square yard of material. This allows some of the water to escape slowly and creates an outlet for some of the excess overflow during periods of heavy rain. Before replacing the soil, put a piece of plastic pipe with holes punched in the top about every 18 inches for drainage. Lay the pipe at the back of the pool and on top of the liner. The pipe should extend out into a trench dug in the land downslope from the future wetland. You can cover the pipe with stones to camouflage it. This extra drain also keeps the pool from becoming a muddy soup in times of heavy rain. Once you have laid the pipe, replace the soil and cut away the excess liner. You can use flat stones or rocks to finish the edges.



Usually rainfall is enough to keep the soil constantly wet, but if you have an unusually dry summer, the pool can be brought back to normal dampness with the garden hose. Observe the pool for several days to make sure the area is remaining consistently wet. If it dries out, you might not have an ideal location for a wetland, and you may need to find a way to maintain the water supply or try creating a wetland in another location.

Moist Soil/Water's Edge Plants

Common Name	Scientific Name
Willows	<i>Salix spp.</i>
Rhododendron	<i>Rhododendron maximum</i>
Spiraea	<i>Spiraea alba</i>
Button bush	<i>Cephalanthus occidentalis</i>
Winterberry	<i>Ilex verticillata</i>
Royal fern	<i>Osmunda regalis</i>
Ostrich fern	<i>Matteuccia struthiopteris</i>
Marsh marigold	<i>Caltha palustris</i>
Joe-pye-weed	<i>Eupatorium spp.</i>
Cottongrass	<i>Eriophorum virginicum</i>
Mannagrass	<i>Glyceria spp.</i>
Common skunk cabbage	<i>Symplocarpus foetidus</i>
Swamp milkweed	<i>Asclepias incarnata</i>
Blue vervain	<i>Verbena hastata</i>
Cardinal flower	<i>Lobelia cardinalis</i>
New York ironweed	<i>Vernonia noveboracensis</i>

Aquatic & Marsh Plants

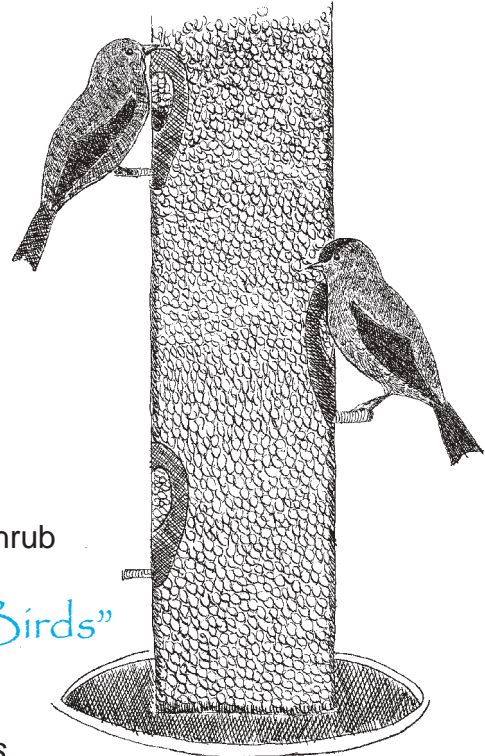
Common Name	Scientific Name
Barnyard grass	<i>Echinochloa crusgalli</i>
Pondweed	<i>Potamogeton spp.</i>
Smartweed	<i>Polygonum pennsylvanicum</i>
Swamp smartweed	<i>Polygonum hydropiperoides</i>
Marsh marigold	<i>Caltha palustris</i>
Spikerush	<i>Eleocharis spp.</i>
Sedges	<i>Carex spp.</i>
Sweet flag	<i>Acorus calamus</i>
Common arrowhead	<i>Sagittaria latifolia</i>
Cattails	<i>Typha spp.</i>
Rushes	<i>Juncus spp.</i>
Bulrush	<i>Scirpus spp.</i>

City Gardens

People who live in apartments, condominiums or townhouses can provide habitat for wildlife. There are almost no limitations to the types of habitat elements we can provide in an urban setting, and there are a limited number of wildlife species likely to be present. However, with a little creativity, habitat can be provided for wildlife even in limited space.

Space Savers for City Gardens

- Tube feeders
- Hanging baskets
- Trellis for climbing plants
- Hummingbird and Oriole feeders
- Branches trained out past railings
- Dwarf varieties of trees and shrubs
- Suction-cup bird feeders on windows
- Nesting shelves for phoebes and robins
- Window box with nectar or seed-producing plants
- Container gardens on balconies, decks, or roof tops
- Interplantings of trees, shrubs and annuals
- Annuals placed in a larger container with a tree or shrub



Food Preferences of some “Downtown Birds”

Blue jay	<i>peanuts, sunflower seeds</i>
Cardinal	<i>sunflower seeds, fruit</i>
Hummingbird	<i>sugar water, nectar from flowers</i>
Robin	<i>worms</i>
Rock dove (pigeon)	<i>seeds</i>
American crow	<i>wheat, rice</i>

Containers

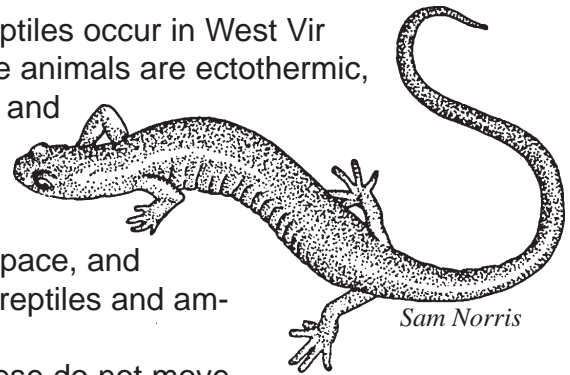
Never underestimate the effects of planting in containers! Small areas, such as fenced in backyards and porches, can be completely transformed by planters. You can use the more traditional pots, or branch out into anything that will hold soil and some moisture. Old wooden boxes or crates, tubs, tires, stumps, even old tin pails with a few holes drilled in the bottom can all be utilized to transform your city space into a gardener's paradise. You could even create a perfect butterfly garden by putting some larger planters clustered together in an area of sunlight that is protected from the wind. *See the information on butterfly gardening to learn what to plant for butterflies.*

Window Boxes

A window box can support the same basic processes as any natural area; soil, water, sunlight and plants combine to produce life in a microcosm. Provide flowering plants in your window box like grasses and wildflowers that will produce seeds for songbirds. Place a heavy shallow pan filled with fresh water in the center of the box all year round.

Amphibians & Reptiles

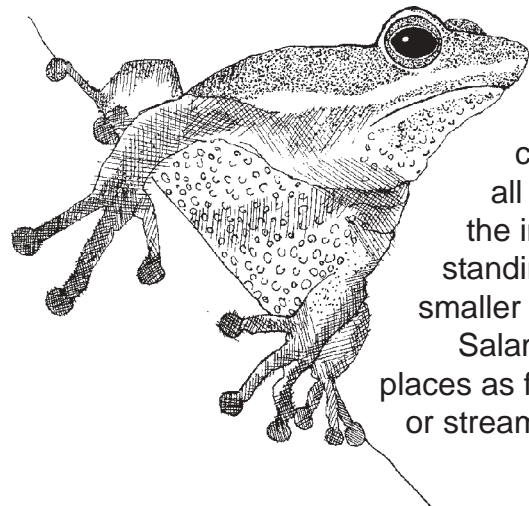
At least 85 species of amphibians and reptiles occur in West Virginia. Unlike mammals and birds, these animals are ectothermic, which means they use the environment and regulate their internal temperature. They use “shuttling” behaviors, moving in and out of cover, to keep their internal temperature at the perfect level. Therefore, providing the right kinds of cover, open space, and moisture can be particularly important for attracting reptiles and amphibians.



Remember that small terrestrial animals like these do not move about on the larger landscape as readily as birds, butterflies, bats and larger mammals. So providing habitat will not guarantee their presence. There **MUST** be populations of reptiles and amphibians in the vicinity, e.g. in nearby woodlands, streams, or pools prior to providing habitat for them. It is best to find out what is already in your area, and target those species. Also keep in mind that a neat and tidy yard, devoid of plant litter and other debris, is not the best environment for ground dwelling animals like reptiles and amphibians. Short, cropped lawns and other organized landscaping with no hiding places will not attract these types of animals in abundance. Hiding places are key for reptiles, and hiding places with moisture or standing water are key for amphibians. Imagine that you are small and are looking for places to hide!

Amphibians

Frogs, toads, and salamanders, the amphibians in our midst, have very specific moisture requirements in addition to their thermoregulatory needs. All frogs and toads in West Virginia lay their eggs in water and have an aquatic larval (“tadpole”) stage during which they spend several months to several years in the water. Adults are “amphibious,” spending much of their time on land and returning to the water for a variety of reasons, including breeding, egg-laying, hibernation, and as a refuge from predators. Larvae are mostly herbivorous and require pools or ponds with lots of organic material for foraging, e.g. leaf litter and aquatic vegetation.



These pools should be free of predatory fish. Adult frogs and toads are carnivores and will eat almost any insect, worm, or even small mammal, reptile, or amphibian that they perceive to be the appropriate size. Provide lots of spaces with soft soil substrate and leaves where toads and frogs can hide. Old boards, logs, bricks, and debris piles can all be ideal hiding places for frogs and toads, and also for the insects they will eat. Holes in trees, snags (dead standing trees), or downed logs are used by some of the smaller species such as tree frogs and chorus frogs.

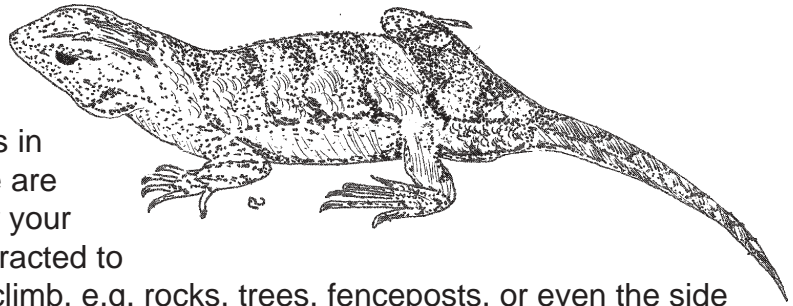
Salamanders will use many of the same pools and hiding places as frogs and toads. Some species will lay eggs in pools or streams and have a larval stage, though these are carnivorous.

rous larvae unlike the larvae of frogs and toads. The woodland salamanders have no aquatic stage outside the egg and lay their eggs in moist places under rotting logs or rocks and crevices. Many species of salamanders in West Virginia (not all) are lungless and conduct most of their respiration through their skin, increasing the need for moisture. Placing logs, rocks, boards, or other objects under which salamanders can hide and find a moist microclimate is important for attracting these diminutive animals. Adults eat a wide variety of insects, worms, and other small invertebrate prey.

Reptiles

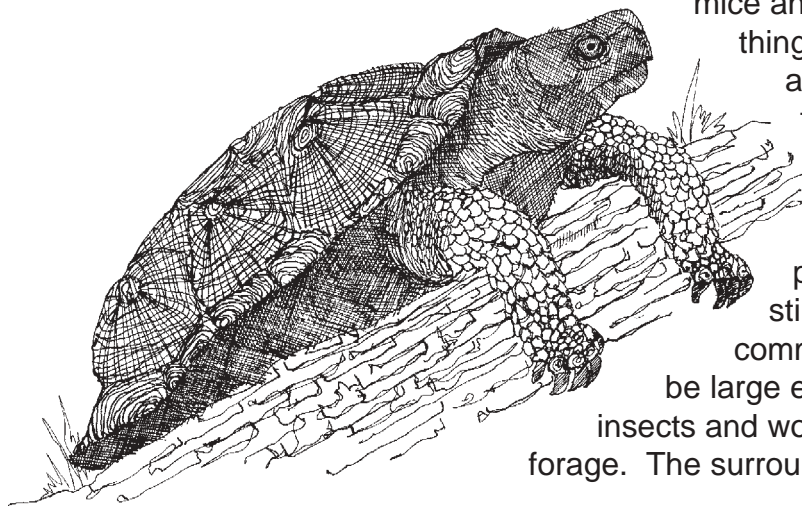
Reptiles are less restricted by moisture than amphibians because they have skin covered by tough, dry scales to prevent desiccation (drying out), and they either give birth to live young or lay eggs with shells which also prevent desiccation. As with the amphibians, a complicated landscape is best. Providing many logs, rocks, debris piles, old boards, etc. will attract these animals.

There are five species of lizards in West Virginia, and only two of these are likely to be seen with regularity near your home. Eastern fence lizards are attracted to dry places with plenty of objects to climb, e.g. rocks, trees, fenceposts, or even the side of your house or old barn. The Five-lined skink is a common woodland species which is attracted to abandoned barns and houses, as well as stumps, sawdust piles and rock piles. They are not climbers like fence lizards and will look for places to hide on the ground.



The most misunderstood reptiles you might attract to your yard are snakes. Our state has many species, most of which are nonvenomous and make fascinating and useful additions to your landscape. Debris piles, firewood stacks, crawl spaces under houses, old barns, and even ponds and streams can all attract snakes. Most importantly, there must be a good source of food such as insects, mice, rats, fish, crayfish, and even other amphibians and reptiles.

The most common snakes attracted to household landscapes with the right habitats are Black Ratsnakes, Gartersnakes, Ring-neck snakes, Brownsnakes, and if you are lucky, the small Smooth Greensnake. Ratsnakes ("black snakes") are well-known for eating your mice and rats and will climb almost anything to get them. Garter snakes will be attracted to any source of worms, tadpoles or fish. Other snakes eat a variety of small insect prey.



Attracting turtles to your yard requires a rather large permanent pond or stream. Snapping turtles, stinkpots and painted turtles are all common in ponds, but the pond must be large enough to support the fish, aquatic insects and worms on which the turtles may forage. The surrounding landscape must also provide

soft, sandy soils and places to hide for egg laying.

Our only fully terrestrial turtle, the eastern box turtle, needs woodlands and grassy edges in which to bask; this is not a likely turtle for your yard unless it is adjacent to a woodland where box turtles are present. Do not pick up a box turtle and bring it to your yard, as it is not likely to survive even if its habitat area may seem perfect.

Conservation Issues...

- Long-term human utilization of natural resources has resulted in numerous vertebrates requiring legal protection from further population decline. The primary cause of these declines is loss of natural habitat associated with the draining of wetlands, the creation of urban and suburban areas and the conversion of hardwood forests to pine plantations. There are several ways you can participate in the process to minimize the loss of our native amphibian and reptile fauna:

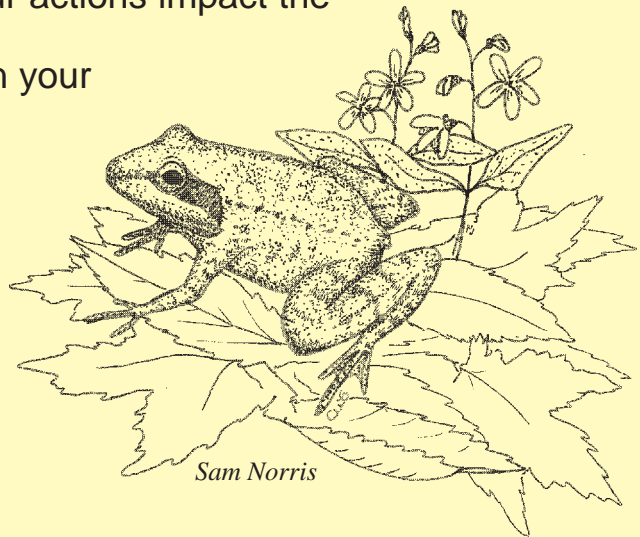
- Become educated about conservation issues, such as habitat loss, and become more aware of how your actions impact the natural landscape;

- Improve the wildlife habitats on your lands;

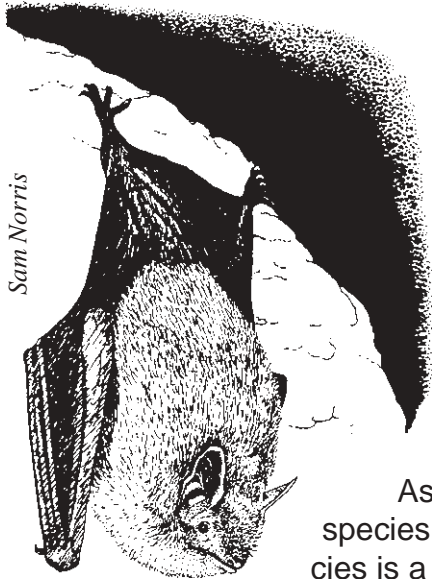
- Help with efforts to protect endangered and threatened species;

- Support inventory and research programs that survey private and public lands for amphibians and reptiles;

- Report illegal trapping or killing of reptiles and amphibians to your local Conservation Officer or WV DNR office.



Bats!



What are Bats?

Bats are a group of mammals that are very specialized for their unique life styles. Contrary to popular misconceptions, bats are not rodents with wings. The scientific name for the group is “Chiroptera” meaning “hand-wing,” and indeed, their wing is made up of elongated fingers with a thin membrane of skin stretched between them. Bats are the only mammals that can truly fly; others, such as flying squirrels, can only glide.

Diversity of Bats

As a group, bats are very diverse. There are nearly 1,000 species of bats in the world. In fact, 1 out of every 4 mammal species is a species of bat. Because bats are basically a tropical group, the diversity seen in North America is limited. About 40 species of bats occur in the United States and 13 have been found in West Virginia.

Throughout the world, bats feed on an amazing variety of foods including fruit, pollen, nectar, frogs, fish, small mammals, blood and of course, insects. All bats found in West Virginia feed only on insects.

Bats Are Beneficial

Bats are a highly effective natural form of insect control. Studies have shown that bats can catch and consume large quantities of insects. A little brown bat can catch 500 mosquitoes per hour and big brown bats are estimated to consume up to 3,000 to 5,000 insects in a single night! In tropical areas, bats are pollinators of important crop plants and play a role in the dispersal of seeds and the regeneration of forests.

Do All Bats Live In Caves?

Many bats in our state use caves, at least during part of the year. Because they feed on insects, there is no food available to the bats during the coldest months. Like woodchucks, many bats put on fat during the autumn and live off of these reserves until warm weather returns.

Caves offer ideal conditions for hibernation because they maintain fairly stable temperatures that remain cold, but above freezing, throughout the winter. To be able to move around in the total darkness of the cave, bats use an echolocation system. They emit ultrasound (above the range of human ears) clicks and listen for the echoes. The quicker the echo returns, the closer the object that reflected the sound. This system is so sensitive that objects as thin as monofilament fishing line can be detected.

Most bats spend the summer outside of the cave in hollow trees, old buildings, etc., but one species, the Federally endangered Virginia big-eared bat, raises its young in caves each summer.

Reproduction

Unlike mice, which may have several litters of young each year, most bats produce only one or two young, known as a “pup,” each summer. The young are born blind and hairless and may weigh almost a quarter of their mother’s weight at birth. The females nurse their young which grow rapidly. Most young bats start to fly by the time they are one month old. Although they reproduce slowly, bats are long-lived (sometimes up to 30 years) and can produce young for several years.

Bats and Rabies

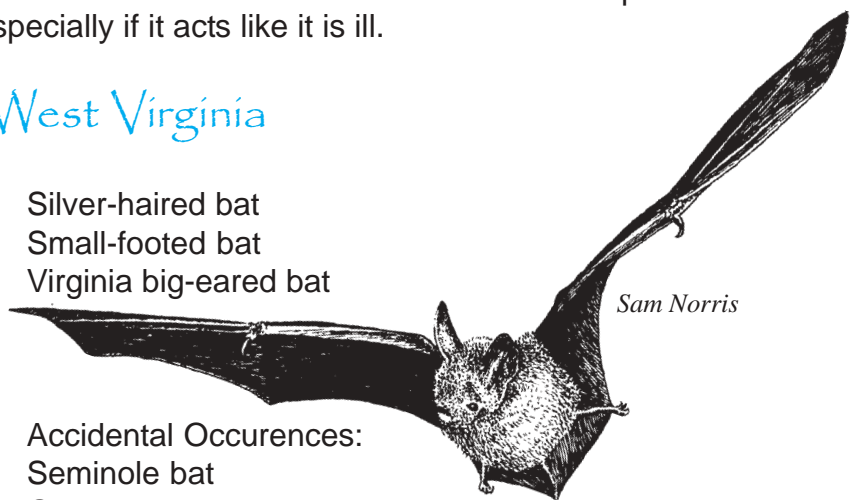
All mammals can contract rabies and bats are no exception. The incidence of rabies in bats has often been exaggerated. In fact, a person is 10 times more likely to be struck by lightning than to get rabies from a bat. In the past 40 years, only 10 people are suspected to have contracted rabies from bats. The best rule to follow to avoid problems is never handle any wild animal, especially if it acts like it is ill.

Bats That Occur In West Virginia

Big brown bat
Eastern pipistrelle
Evening bat
Hoary bat
Indiana bat
Little brown bat
Northern long-eared bat
Rafinesque’s big-eared bat
Eastern red bat

Silver-haired bat
Small-footed bat
Virginia big-eared bat

Accidental Occurrences:
Seminole bat
Gray bat



Bat Habitat and Bat Houses

Bats are attracted to water, such as ponds, where they feed on insects over the water, and to outdoor lights that attract flying insects. One way to attract bats to your property, or to give them an alternate roost after excluding them from your attic, is to provide them with a bat house, such as the one on the following pages developed by Bat Conservation International. Bat houses located near a permanent source of water, especially a marsh, lake or river, are by far the most likely to attract bats. The houses should be hung roughly 12-20 feet above the ground and sheltered as much as possible from the wind. There should be at least 3 feet of open space beneath the box.

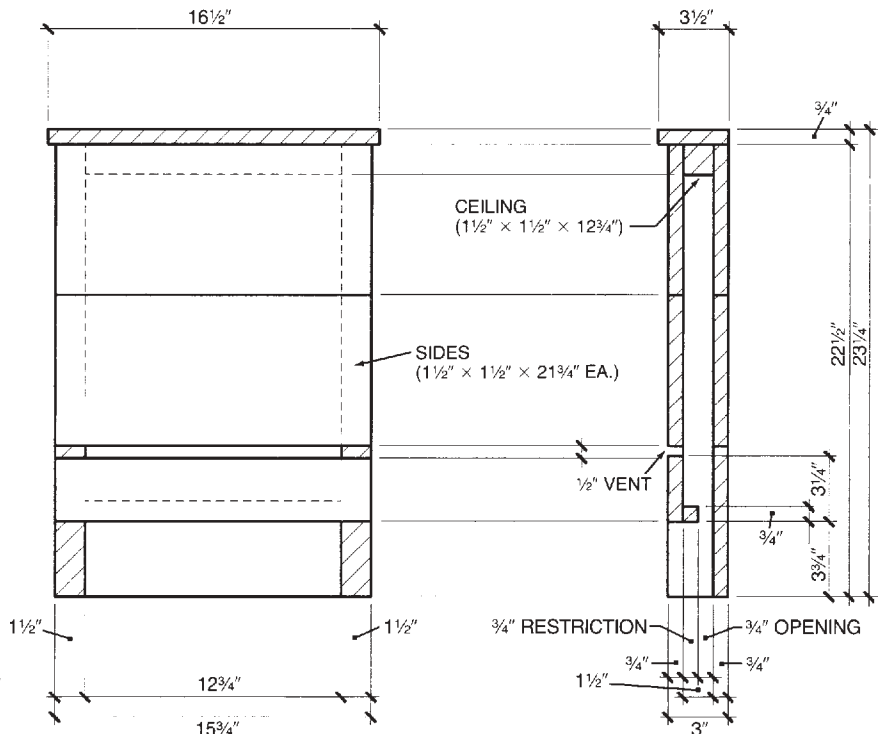
For maternity colonies, place the bat house on or very near the building where the colony was roosting before exclusion. Houses can be placed on the building, on poles or even on trees. The most important requirement is that the house receive about 7 or more hours of sunlight per day to maintain temperatures needed by the bats and their pups. Face the box southeast or southwest. Also, keep the location of the box away from a great deal of human activity or traffic, and place it where bat droppings will not be a problem. Don't be discouraged if conditions for your bat house are not perfect. Even natural roosts are seldom ideal.

If you put up a bat house and have bats using it, please report your success to:

Bat House Report
 WV DNR
 PO Box 67
 Elkins, WV 26241

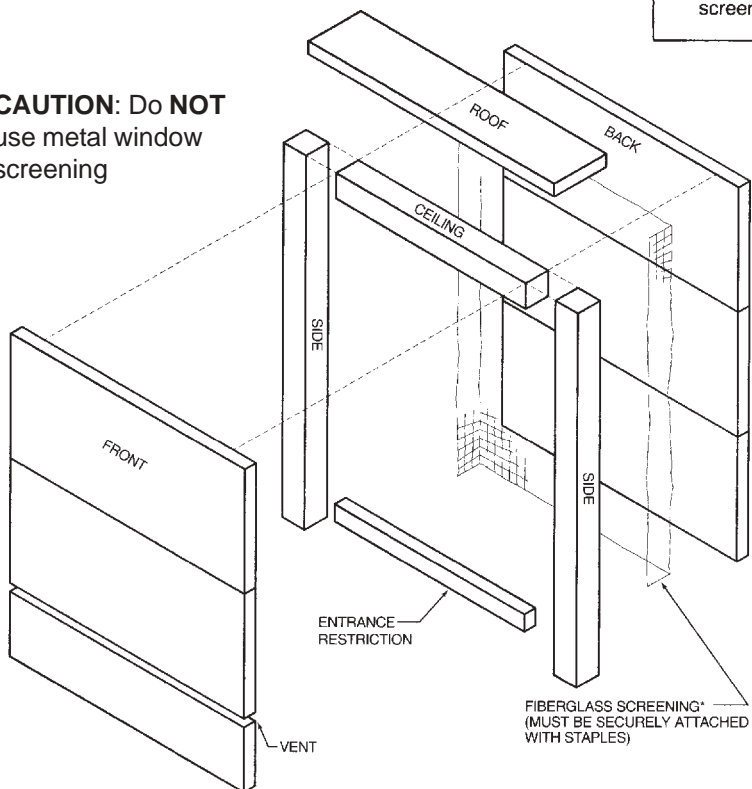
Bat Conservation International's Official Bat House

Here are the plans for building your own bat house. If you would like more information about bat houses and how to build them, contact Bat Conservation International, PO Box 162603, Austin, TX 78716 and the West Virginia Wildlife Diversity Program.



- Materials needed:**
- One 8' piece of 1" x 8" (3/4" x 7 1/2" finish-cut) lumber (front and back pieces, and entry restriction)
 - One 5' piece of 2" x 2" (1 1/2" x 1 1/2" finish-cut) lumber (sides and ceiling)
 - One 16 1/2" piece of 1" x 4" (3/4" x 3 1/2" finish-cut) lumber (roof)
 - One piece 15 1/2" x 23" fiberglass window screening*

CAUTION: Do NOT use metal window screening



Hanging Your Bat House

Your house can be hung in a variety of ways depending upon the circumstances. One of the easiest ways is to drill two 1/4" holes in the back of the box; the holes should be centered and about 4 inches from the top and bottom. Drive two stout nails into the desired surface for hanging; the sides of buildings are best, then poles, and then dead trees. Hang the box 15-20 feet off of the ground, if possible, and be sure it gets at least six hours of sunlight a day. It should also be painted a dark color to absorb heat.

Providing Habitat For Birds

Without question, songbirds are one of the most popular groups of all backyard wildlife. The best way to attract birds is simply to “supply what is most desired when it is most required”—nesting sites in spring, water in summer, food and shelter in winter.

Spring Gardens

The breeding season for songbirds starts in spring. However, songbirds fine tune their breeding cycle to coincide with the most favorable weather and abundant food resources. Since natural foods begin to become available as spring progresses, you may wish to slowly phase out your feeding stations even though a few resident birds may still be regular guests. Be careful not to stop feeding too early before insects become readily available.



Spring is the time to provide nest boxes for cavity nesting birds, plant shrubs and other vegetation for non-cavity nesters, and offer nesting materials like yarn and string. Seed and fruit producing plants sown or planted in spring will reap benefits to be enjoyed later in the year.

Summer Gardens

Because summer is a dry season, water can become a limiting factor to the survival of wildlife. A carefully planned water source or a variety of water sources can attract summer birds. Another need is a quiet, secluded and protected place where young birds can be reared. Shrubby and unmowed grassy areas are good places for young birds to learn about their surroundings in relative safety while their parents continue to feed and care for them.

Autumn Gardens

Autumn is the time to winterize your garden and prepare for winter needs. Prepare or build your winter bird feeders, and add additional cover to brush piles and protection around feeders. Improve shelter and wind break effectiveness of hedges and fencerows. Clean out nest boxes so they can be used as winter roost sites. Leave seed crops, such as grains and old field vegetation, unmowed. Birds will benefit from the seeds and cover provided.

Winter Gardens

Winter can be a critical time of year for wildlife. Fortunately, we can provide important habitat elements to help songbirds through the winter by feeding, providing cover, and maintaining an unfrozen water source. One feeder supplied with sunflower seeds, a second with a mix of millet or other small grains and a couple of suet feeders should cater to the majority of birds found around your home.

The presence of cover to provide shelter from winds, for refuge, and for roosting is also important. Evergreens and shrub thickets provide good winter cover. Lastly, it is necessary to provide clean, fresh, unfrozen water in bird baths, shallow containers on the ground, or small backyard ponds.

Native Plants for Nesting

You can attract a greater variety of birds to nest on your property if you provide a diversity of nesting situations to suit their specific requirements, such as clumps of shrubbery, tangled thickets and tall trees. The plants listed below are preferred by many birds for nesting. Some of these plants also provide food and shelter for birds. For best nesting success, plant them in masses or clumps, preferably in quiet areas of the yard.

Fir (*Abies balsamea* – Balsam fir)

Tanagers, grosbeaks, robins and jays are among the many birds that nest in balsam fir. Balsam fir is hard to grow at mid to low elevations.

Hackberry (*Celtis spp.*)

Many birds nest in the state's 3 native hackberry species, including indigo buntings and hummingbirds.

Dogwood (*Cornus spp.*)

Summer tanagers are attracted to nest in the 7 out of 8 native dogwoods species the Mountain State has to offer.

Hawthorn (*Crataegus spp.*)

The thorny branches of hawthorns provide abundant nesting sites for smaller birds, including hummingbirds, cardinals, indigo buntings and wood thrushes.

Holly (*Ilex spp.*)

Dense, prickly holly foliage attracts towhees, thrashers and mockingbirds.

Juniper (*Juniperus virginiana* – Red cedar)

Junipers are very valuable nesting plants. Chipping sparrows, robins, song sparrows and mockingbirds are among the many species that nest in this native tree.

Spruce (*Picea rubens*- Red Spruce)

Kinglets and many warblers nest in the evergreen foliage of the native red spruce. This tree grows best in cooler locales.

Pine (*Pinus spp.*)

Robins, purple finches and mourning doves are among the many birds that nest in pines.

Oak (*Quercus spp.*)

Oaks are outstanding trees for nesting. Blue-gray gnatcatchers, orchard orioles, summer tanagers and blue jays are among the many species that nest in oaks.

Rose (*Rosa spp.*)

The dense, prickly stems of native roses provide excellent nesting sites for smaller birds, including indigo buntings, cardinals, yellow warblers, towhees and sparrows. Five of the eight species found in WV are native to the state. However, avoid multiflora rose because it is aggressively invasive and will crowd out other plants!

Blackberry and Raspberry (*Rubus spp.*)

The spiny stems of these brambles provide secure nesting sites for indigo



buntings, cardinals, yellow warblers, tow-hees and sparrows.

Elderberry (*Sambucus spp.*)

Warblers, grosbeaks and goldfinches nest in the foliage.

Hemlock (*Tsuga canadensis* – Hemlock)

Hemlocks are outstanding nesting plants. Many species of warblers, as well as robins, juncos, veerys, American goldfinches and blue jays, are among the birds that nest in hemlocks.

Trees and Shrubs for Shade and Shelter

These native trees and shrubs have dense foliage, providing shade and shelter for birds. Some also provide food and nesting sites.

Fir (*Abies balsamea* – Balsam fir)

The evergreen foliage of firs is valuable to a wide variety of birds for shelter and roosting.

Alder (*Alnus spp.*)

Alders are good shelter trees for many birds, including blue jays and woodcocks (at higher elevations).

Holly (*Ilex spp.*)

The dense, prickly foliage of hollies provides good protective shelter.

Juniper (*Juniperus virginiana* – Red cedar)

Important food trees, junipers also provide valuable shelter. Juncos, sparrows and yellow-rumped warblers are among the birds that frequently roost in the foliage.

Mulberry (*Morus rubra* – Red mulberry)

Mulberries are useful for shelter and cover, as well as being outstanding food trees and providing secure nesting sites.

Spruce (*Picea rubens* – Red spruce)

Spruces provide excellent year-round nesting and roosting sites, as well as shelter for birds. They grow best in cool places.

Pine (*Pinus spp.*)

Excellent shelter for many birds, larger pines are favored roosting sites for migrating robins, warblers and waxwings.

Oak (*Quercus spp.*)

Oaks provide food, shelter and nesting sites for many birds.

Rhododendron /Azalea (*Rhododendron spp.*)

Rhododendrons and azaleas provide valuable shelter when planted in thickets.

Sumac (*Rhus spp.*)

Sumacs provide good summer shelter and winter forage.

Rose (*Rosa spp.*)

Thorny native (5 out of 8 species found in WV) rose thickets provide excellent shelter and protective cover for many birds.

Blackberry and Raspberry (*Rubus spp.*)

Prickly bramble shrubs provide shelter for towhees, native sparrows, warblers, thrushes and buntings.

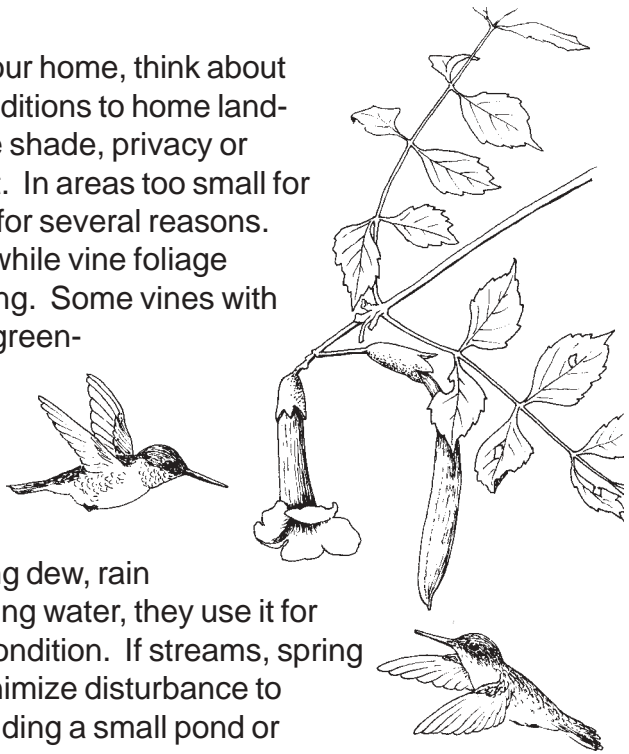
Hemlock (*Tsuga canadensis* – Hemlock)

Outstanding nesting trees, hemlocks also provide excellent shelter. Chickadees, titmice, juncos and cardinals are among the birds that shelter in the evergreen hemlock foliage.

--Information from: Adams, G. 1994. *Birdscaping Your Garden*. Rodale Press, Emmaus, PA

Vines

If you're looking for ways to attract birds to your home, think about planting vines. Vines are attractive and useful additions to home landscapes. Use vines for ground cover or to provide shade, privacy or protection from wind, dust, glare or reflected heat. In areas too small for shrubs, vines are perfect plants. Birds like vines for several reasons. Vine seeds and fruits are good sources of food, while vine foliage provides an ideal site for nesting and raising young. Some vines with high food and cover value to wildlife are grapes, green-brier, trumpet-creeper and Virginia creeper.



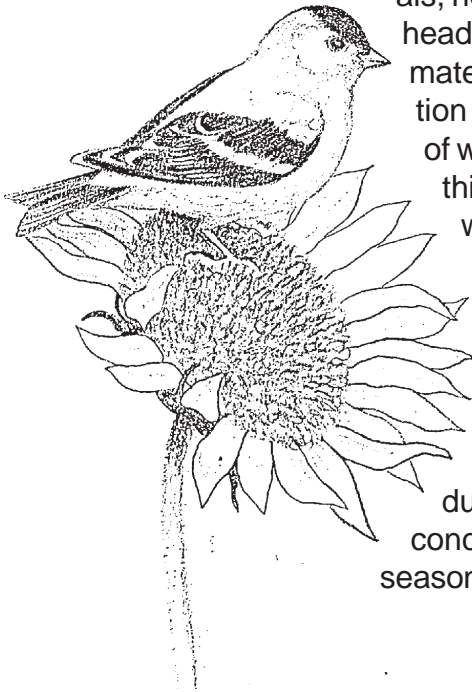
Water Sources

Songbirds obtain water from a number of sources including the food they eat, snow, morning dew, rain puddles, ponds and streams. In addition to drinking water, they use it for bathing, a necessity for keeping feathers in top condition. If streams, spring seeps or ponds are present on your property, minimize disturbance to these areas. If water is not present, consider building a small pond or putting out bird baths.

Bird baths should be kept shallow with gently sloping sides and a non-skid surface and placed close to shrubbery. During periods of hot weather and heavy use, a regular hosing and occasional scrubbing are important in maintaining clean bath water; this practice may be required on a daily basis.

Using Wildflowers

Wildflowers are among the most important wildlife food sources because they are widespread and produce an abundant supply of seeds. They are also of value for nesting materials, nesting cover and protective cover. Those with silky seed heads or other conspicuous plant down may furnish nest-lining material. Plants with dense branching or thorns offer good protection for nesting and wintering birds. Provide a variety of species of wildflowers as well as variety of plant types, such as tall, short, thin leaves, wide leaves, etc. Generally a greater variety of wildflowers will attract a greater variety of songbirds.



Pesticides & Herbicides

During the nesting season (April-July) almost all songbirds, no matter what their diet is at other times of the year, feed their young caterpillars and other insects. Therefore, pesticides that kill insects should be used sparingly, if at all, during this time of year. Herbicides might kill plants that are concealing nests and should also be avoided during the nesting season.

Supplemental Bird Feeding

No matter how extensive our wildlife gardens are, there's always room for more food – especially for birds. Choices in feeder types, seeds, and placement of feeders are endless! Here are some general guidelines to follow when feeding birds in your backyard.

Feeders

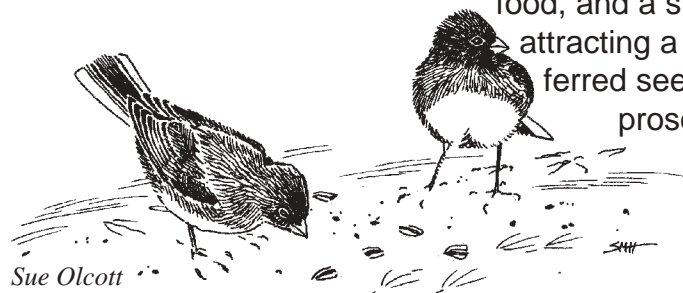
The common feeder types available commercially are:

- **Tray Feeders** – Long lasting and easy to make, this feeder allows a wide scope of vision giving the birds security from predators. It requires drain holes in the bottom and a cleaning gap on one side for easy cleaning.
- **Fly-through Feeders** – These tray feeders have a roof and corner posts, affording a full view around and they keep the seeds dry.
- **Screen Feeders** – The screen floor of this feeder allows wet seeds to dry out from below. The tray is hung by ropes from its four corners.
- **Self-feeders** – These feeders have reservoirs that can be filled periodically with the seeds flowing out at the bottom as they are eaten by the birds
- **Cylindrical Feeders** – Commercially made with large feeding ports to accommodate sunflower and other large seeds, these feeders are also readily used by small birds. Place the perches above the ports to discourage starling use.
- **Niger (Thistle) Feeders** – This feeder has very small slits to discourage larger bills. They attract goldfinches all year. Shorten the perches to 5/8" long to discourage house finches.
- **Window Stick-on Feeders** – Place these feeders in the center of your windows to make it difficult for squirrels or raccoons to reach.
- **Counter-weighted Feeders** – These contraptions have feeding troughs in front and counter-weighted balances in back which cause the feeder to close in front when heavy animals like squirrels stand on the perch.
- **Suet Feeders** – Suet feeders can be wire cages, dowel containers or string bags. They may eventually be overwhelmed by starling use; use starling-resistant feeders which force the birds to hang upside down to eat.



Types of Bird Food

There are about 20 possible kinds of seeds and nuts found in commercially sold bird food, and a successful mix will contain 5 or 6 kinds, attracting a variety of birds. Generally, the most preferred seeds include black oil sunflower seeds, white proso millet, peanut kernels, and thistle. The least needed or preferred by birds are canary seed, cracked corn, milo, wheat, hulled oats and rape seed.



- **Black oil sunflower seed** is by far the most preferred by backyard bird species. Your mixture should have at least 75% black oil sunflower seeds. The empty hulls that drop below the feeder should be regularly cleaned up and not placed in flower beds, gardens or compost piles because of a plant growth inhibitor in the hulls. It is important to know the difference between black oil and striped sunflower seeds; striped seeds have a longer, thicker shell which is more difficult for birds to crack open.

- **White proso millet** is also an excellent choice and less expensive than black oil sunflower seeds, but your mixture should still contain at least 75% of the sunflower seeds.

- **Niger (thistle)** is one of the most popular wild bird foods because it is so attractive to American goldfinches. It is also one of the more expensive seeds, often costing more than a dollar per pound.

- **Safflower** attracts many brightly colored songbirds while house sparrows, starlings and squirrels don't seem to care for the seed.

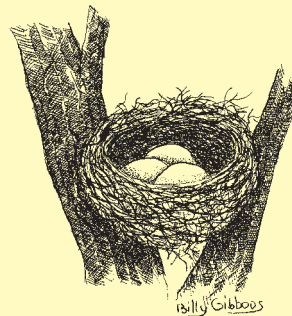
- **Peanuts** are a popular bird food that are easily offered to many birds in hanging hardware cloth feeders.

Potential Problem Seeds:

Canary seed is not a very common or necessary component of bird food. Black oil sunflower seeds will feed mourning doves and white-throated sparrows just as well and it won't attract as many house sparrows or cowbirds. When offered, cracked corn may attract "problem birds" like house sparrows, brown-headed cowbirds and starlings.

Many birds also enjoy:

- *Fruits (apples, oranges, bananas, watermelons & raisins)
- *Grape Jelly
- *Peanut Butter
- *Suet



Favorite Foods of Backyard Birds in West Virginia

SPECIES	FOOD TYPES								
	BO	MT	MO	CN	ST	NT	HP	PB	FR
Cardinal	*								
Grosbeaks	*								
Finches	*				*				
Goldfinch	*				*				
Chickadees	*					*		*	
Tufted Titmouse	*					*	*	*	
Nuthatches	*					*	*	*	
Woodpeckers	*					*	*	*	
Pine Siskin	*				*				
Song Sparrow	*	*			*				
White-throated Sparrow	*	*		*			*		
Tree Sparrow		*							
Field Sparrow		*							
Junco		*		*					
Towhee		*							
Wrens						*		*	*
Kinglets						*	*	*	
Yellow-rumped Warbler						*		*	*
Waxwing									*
Robin								*	*
Mockingbird									*
Bluebird									*
Blue Jay							*		
American Crow				*			*		
Grackle	*			*					
Mourning Dove	*	*							
Ducks			*	*					

KEY:

BO - Black oil sunflower seeds
 MT - Millets (white or red proso)
 MO - Milo (sorghum)

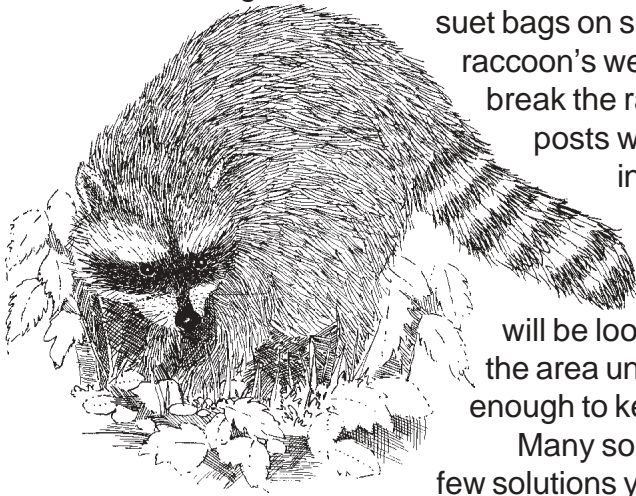
CN - Corn (cracked or whole kernels)
 ST - Suet (beef)
 NT - Niger thistle

HP - Hulled peanuts
 PB - Peanut butter
 FR - Fruits



Potential Problems at Feeders

Raccoons feeding at bird feeders should be discouraged. They are attracted to suet feeders, hummingbird nectar and seeds. Methods to discourage raccoons include hanging suet bags on small branches that are too slender to support the raccoon's weight, temporarily remove nectar feeders to break the raccoon's feeding patterns, and smear feeder posts with lithium grease – raccoons don't like grease in their fur.



The striped skunk normally feeds on insects and fruits and may occasionally be attracted to the area under feeders where it will be looking for grubs, beetles, mice and fruit. Keeping the area under your feeders cleaned up will usually be enough to keep skunks from becoming regular visitors.

Many songbirds are killed by house cats. There are a few solutions you might try such as keeping the cat indoors especially at dawn and dusk, as well as placing your feeders and bird baths at least 6' from trees, bushes and other hiding places. Attaching a bell to your cat's collar does not actually solve this problem, despite what many people may think. Cats are clever and learn to move slowly without making a sound even with a collar on.

House sparrows are not native to the U.S. and are a significant source of songbird mortality as they kill incubating females and chicks in the nests. Because this species is exotic, it is not protected like our native songbirds are. You may selectively remove house sparrows from nest boxes.

Another exotic nuisance bird, the European starling, competes with native songbirds for nesting cavities, driving away bluebirds, tree swallows and chickadees. Limiting the hole size in nest boxes to 1 1/2" or using a slot opening in the box will help deter starlings from using nest boxes designed for bluebirds and other small songbird species.

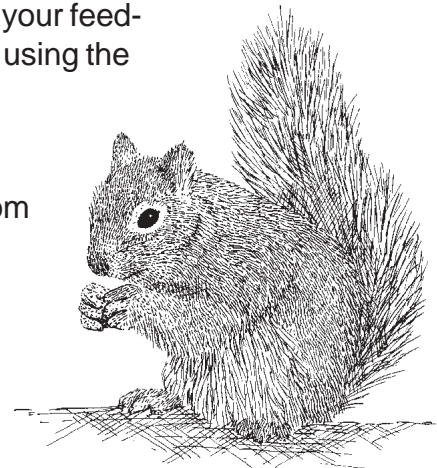
Your feeders, nestling birds and eggs in nests may be at risk from local chipmunks. Chipmunks also may invade buildings. Keep feeders inaccessible to chipmunks, and don't place feed on the ground if they are a problem.

Squirrels!

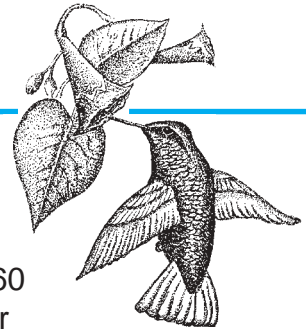
There are three different squirrel species that may visit your feeders: eastern gray, fox and red squirrels. The squirrels may chew up your feeders, eat large quantities of seed and/or prevent songbirds from using the feeders. There are a variety of solutions you might try:

- use squirrel-proof feeders;
- put protective shields (predator guards) on feeder posts;
- place feeders on the ground for squirrels to deter them from using bird feeders.

One of the most effective squirrel-proof feeders is a metal self-feeder with a counter-weight on the back. This counter-weight will cause the feeder to close when the squirrel stands on the front.



Hummingbirds



Tiny, iridescent hummingbirds can be an exciting addition to your backyard wildlife habitat. If hummingbirds live in your area, you can attract them by planting red, tubular flowers. There are many red-flowered plants to choose from. Over 160 native, North American plants depend exclusively on hummingbirds for pollination. Many of the red-flowered annuals, perennials, vines and shrubs available from mail order sources or local garden centers have been developed from the native red-flowered plants of the western hemisphere.

Interesting hummingbird facts

- ❖ Hummingbirds, like helicopters, can hover. They can also move ahead, sideways or backward at will.
- ❖ A ruby-throated hummingbird, weighing about one tenth of an ounce, can travel 600 miles total during migration.
- ❖ Hummingbirds not only sip nectar, but also eat tiny insects and spiders. They may drink up to eight times their body weight daily in water.
- ❖ There are 230 species of hummingbirds in the world; all found only in the western hemisphere. Of these, only one, the ruby-throated hummingbird, is found regularly east of the Mississippi.
- ❖ Flying consumes a great deal of a hummingbird's energy. Wingbeats have been measured at 20-200 beats per second.

Plants that most successfully attract hummingbirds:

Wild Columbine	Cardinal Flower	Butterfly Weed	Bee Balm
Trumpet-creeper	Wild Bergamot	Indian Paintbrush	Beardtongue
Larkspur	Phlox	Wild Bleeding Heart	Azalea
Coral Bells	Fire Pink	Spotted Touch-me-not	Blue-curls

Hummingbird Feeders

As a supplementary source of food, hummingbird feeders can be hung in your backyard wildlife habitat. Select feeders that can be taken apart and cleaned thoroughly to prevent fungus molds and bacteria.

Fill your feeders with a boiled solution of 4 parts water to 1 part white refined sugar. Any sweeter and the birds may develop kidney or liver damage. To blend the solution sufficiently, bring water to a full boil, add sugar, stir to dissolve and remove promptly from heat. Do not overboil; allow the solution to cool, storing unused portions in the refrigerator.

Warnings:

■ Since the safety of “food colorings” is in question, particularly red dyes, do not use food coloring in your solution. Avoid commercial solutions with red coloring also. It is not necessary to use red food coloring because most feeders already have red flowers or some form of red color decorated on them.

■ Do not use honey or brown sugar solutions in feeders as they may produce a fungal disease fatal to hummingbirds. Sugar water feeders should be cleaned every 3 to 5 days using hot water and a little vinegar. Do not use soap.

Butterfly Gardening

Butterflies in your garden are a sure way of adding color and life to your backyard, patio or window sill. Gardening for butterflies is a natural way to enhance your garden and intensify its beauty and splendor. A butterfly garden in your yard will also attract birds and small mammals, adding to the diversity of wildlife in your backyard habitat.

How to get Started

■ Observe and identify butterflies: Learn which butterflies visit your garden so that you can provide the correct foods for both the caterpillars and adults.

■ Provide water, shelter from wind, food sources for caterpillars, and flowering plants for adults.

■ Butterflies are most attracted to flowers with strong scents and smells. Plant a variety of flowers that bloom throughout the growing season; yellow, mauve or lavender flowers work best; red and purple flowers are good too.

■ Plant your garden in a sunny, wind free location.

■ Plant flower species with different, but overlapping blooming seasons:

Spring- lilacs, azaleas, violets, phlox

Spring/Summer- clovers, vegetables and herbs (dill, parsley)

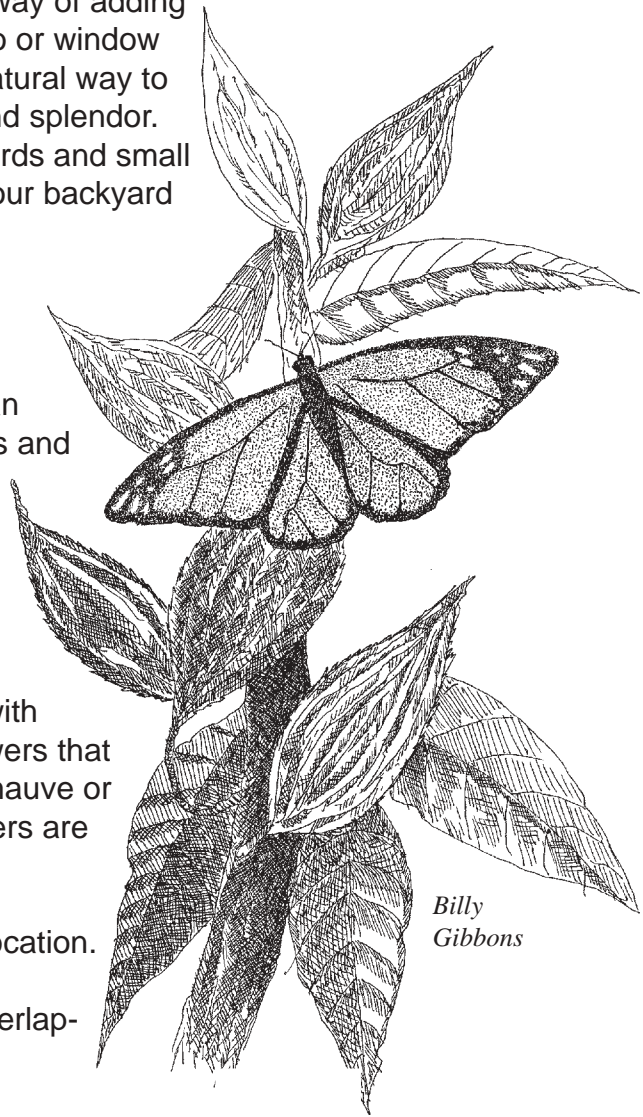
Summer- daisies, coneflowers, milkweeds, butterflyweed, sunflowers

Fall- ironweed, native thistles, joe-pye-weed, asters, goldenrods, bee balm, mint, cardinal flowers, vetch, nettles, yarrow.

■ Plant native plants whenever possible: Don't dig wild native plants.

- Purchase seeds or plants from reputable nurseries
- Collect only seeds from the wild (take only a few)
- Get permission to move native plants from planned construction sites

Remember: Butterflies are sensitive to herbicides and pesticides.



*Billy
Gibbons*

Suggested Native Plants for Caterpillars and Butterflies of West Virginia

Butterfly Species	Larval Host Plant	Native Nectar Sources
Pipevine Swallowtail	Dutchman's pipe	Milkweed, joy-pye-weed, T
Zebra Swallowtail	Pawpaw	Dogbane, redbud, milkweed, T
Spicebush Swallowtail	Spicebush, sassafras	Joe-pye-weed, dogbane
Black Swallowtail	Carrots, parsley, dill, fennel, W	Milkweed, phlox, T
E. Tiger Swallowtail	Black cherry, yellow poplar	Milkweed, T
Clouded Sulphur	Clovers	Aster, goldenrod
Orange Sulphur	Legumes, clover	Ttickseed, dogwood
E. Tailed-blue	Red cover, legumes	Cinquefoil, dogbane, aster
Spring Azure	Dogwood, black cherry	Holly, willow, spicebush
Great Spangled Fritillary	Violets, pansies, W	Dogbane, ironweed, T
Aphrodite Fritillary	Violets, pansies, W	Dogbane, milkweed, T
Pearl Crescent	Asters	Aster, ironweed, dogbane, T
Meadow Fritillary	Daisy, mallow family	Aster, ironweed, goldenrod, T
American Painted Lady	Pearly everlasting	Yarrow, goldenrod, aster
Monarch	Milkweed	Milkweed, dogbane, goldenrod
West Virginia White	Toothworts, mustard	Spring beauty, toothwort
Common Wood Nymph	Grasses	Sap, dung, milkweed, F
Little Wood Satyr	Grasses	Sap, carrion, dung, F
Red-spotted Purple	Black cherry, poplar, oaks	Sap, dung, carrion, cherry, F
Mourning Cloak	Willows, elms, aspens	Sap, dung, minerals from soil, F
Comma	Nettle, elm	Sap, dung, carrion, F
Question Mark	Nettle, elm, hackberry	Sap, dung, carrion, aster, F
Red Admiral	Nettle	Sap, dung, carrion, F
Hobomok Skipper	Panic grass	Blackberry, milkweed
Tawny-edged Skipper	Panic grass	Coneflower, dogbane
Silver-spotted Skipper	Black locust, stick tights	Joe-pye-weed, ironweed
Dreamy Duskywing	Willow	Redbud, blueberry, strawberry
Juvenal's Duskywing	Scrub oak, white oak	Vetch, cinquefoil, wild plum
Viceroy	Willow, cottonwood	Aster, carrion, sap, dung, T, F
Peck's Skipper	Grasses	Dogbane, ironweed, vetch
European Skipper	Timothy, orchard grass	Fleabane, daisy, milkweed
Cross Line Skipper	Grasses	Dogbane, ironweed, vetch
Long Dash	Grasses	Milkweed, tick-trefoil
Northern Broken Dash	Panic grass, switch grass	New Jersey tea
Sleepy Duskywing	Scrub oak	Blueberries, azalea, redbud
Little Glassywing	Grasses	Ironweed, dogbane, milkweed

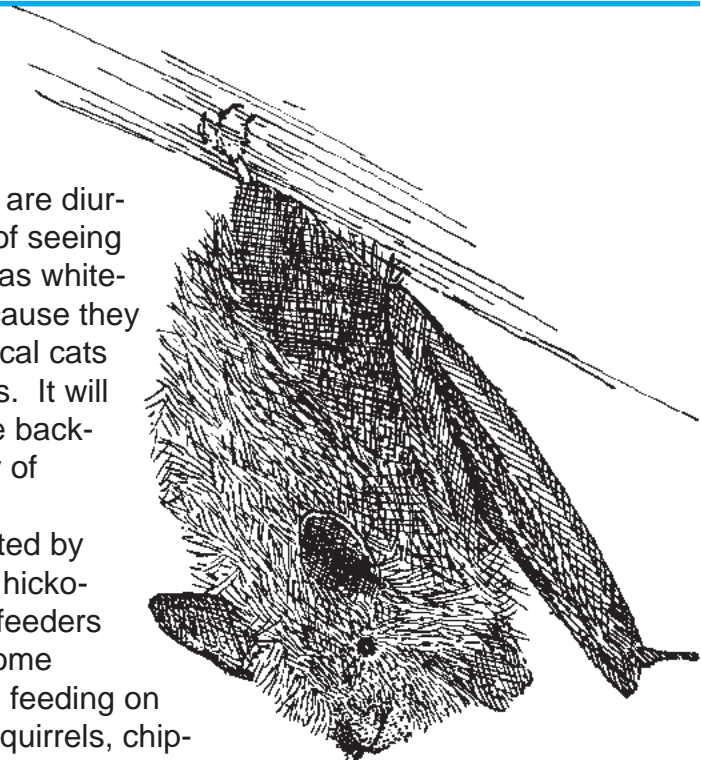


W- plants that are not native to WV, but are not aggressive invaders
 T- native thistles
 F- rotting fruit

Small Mammals

Providing for small mammals can be a fun challenge. Although many small mammals are nocturnal (active at night), there are a few, such as chipmunks and squirrels that are diurnal (active during the day). The chances of seeing the more nocturnal small mammals, such as white-footed mice and shrews, are fairly low because they are quite secretive and often fall prey to local cats and dogs due to their small size and habits. It will be the exceptional rather than the average backyard habitat that can attract a large variety of small mammals.

Many small mammals will be attracted by seed producing hardwoods such as oaks, hickories, pines and hazelnuts, or by providing feeders with peanuts, sunflower seeds or corn. Some examples of small mammals you may find feeding on seeds and nuts in your backyard include squirrels, chipmunks, raccoons and white-footed mice.

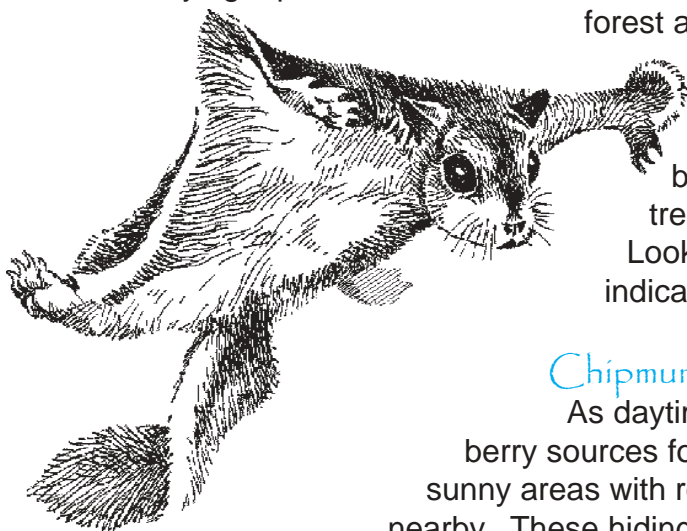


Bats

The most likely species of bats that might visit your backyard are little brown and big brown bats. These nocturnal animals require roosting areas like the ones provided by bat boxes and feed on flying insects attracted to electric lights.

Flying Squirrel

The flying squirrel uses nest boxes or cavities as daytime hideaways in mature forest areas. They will come to feeding stations stocked with sunflower seeds and peanut butter that are located in fairly open locations at night. A bluebird-sized nest box placed high (16-20 ft) in an evergreen tree may be provided as a daytime retreat. Look for gnaw marks around the entrance to indicate use.



Chipmunks

As daytime gatherers, chipmunks need seed and berry sources for food. Chipmunks feed and travel in sunny areas with rock piles, logs and other hiding places nearby. These hiding places provide protection from predators.

A large, flat boulder near dense shrubs well supplied with sunflower seeds makes an ideal feeding table.

Chipmunks will also feed on the ground under bird feeders. Rock walls, rock piles, brush piles, and even stacks of firewood provide cover for these entertaining little animals.

Squirrels

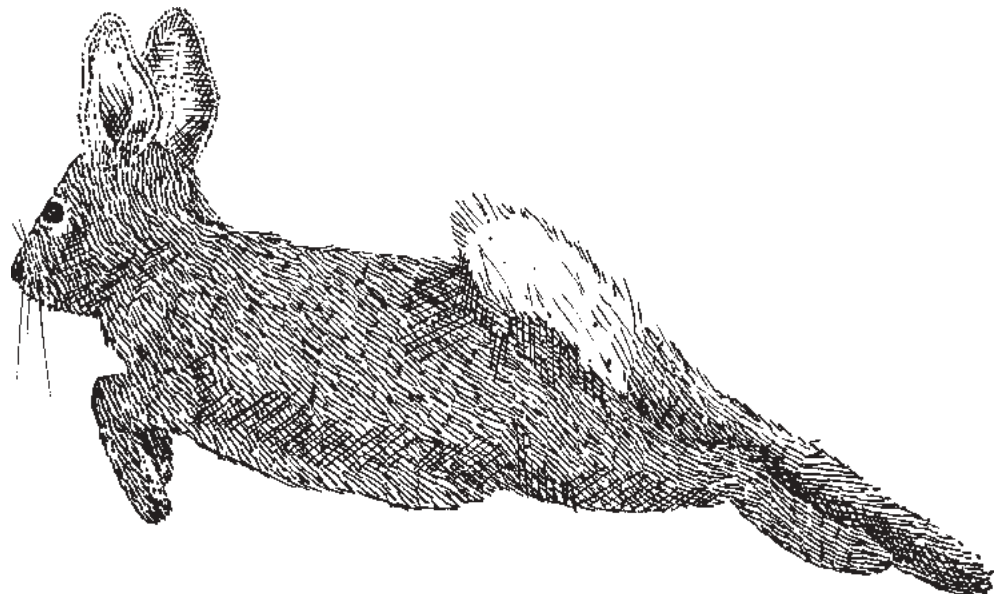
Gray and fox squirrels require large hardwood trees. Natural foods for these animals consist of acorns, hickory nuts and walnuts. They'll also feed at bird feeders. Placing a platform feeder near the ground can sometimes encourage them to leave the elevated bird feeders alone. Nest boxes can be placed to provide nest sites for these squirrels.

Acrobatic red squirrels need coniferous (cone-bearing) trees as aerial highways with a nearby seed source. They can be attracted to feeders with sunflower seeds and peanuts.

Cottontails

Eastern cottontails are frequent visitors to backyards, where they feed on young grass shoots, clover, plantain and sometimes, vegetables in the garden. These rabbits can be invited to our backyards by providing cover in the form of low-growing shrubs or brush piles near the areas where they feed. Rabbits will also use old burrows for refuge and shelter. In areas where natural holes are scarce, artificial burrows made of rough untreated wood or concrete drain tiles can be provided as substitutes. These, fitted with a bottom but no lid, can be partially or totally buried in areas where there is good drainage.

It's important to make sure the burrow doesn't fill with water during heavy rains. The top of the artificial burrow may be covered with soil, rocks, sod or brush. Placing these in close proximity to a bank, hedgerow, shrubbery or brush piles may increase their use.



Wildlife Landscape Planning

After learning about the four habitat components needed by wildlife – space, food, water and shelter- you are ready to begin planning your wildlife landscape. Your habitat design plan should benefit wildlife and be compatible with the needs of your home and property. These steps will vary for each individual. Many people already have completed habitat areas on their property. Utilize whichever steps pertain to you and, most importantly, have fun.

5 Steps for Wildlife Landscaping

Site Selection

This step is probably completed since you already have a yard, a porch or some other area that you are planning to utilize as wildlife habitat. However, what part of the yard you will use may be in question. Does it provide water, food, and shelter? In the summer, will there be shade for wildlife to seek relief from the heat? If you are hoping for a butterfly garden, is it in a sunny spot that is protected from the wind? In this stage of planning, it is time to bring together all of these considerations.

Site Analysis

Inventory and evaluate the features already present on your site. This is an inventory of the insects, birds, small mammals, amphibians and reptiles that are present in your neighborhood as well as a map of your backyard including physical structures and vegetation and other features. This evaluation will be an on-going process. As you add habitat to your yard, you could begin to notice wildlife that you did not previously know lived in your area.

Rough Plan

With your map of what is already present, the next step is the rough plan of your ideal wildlife garden. Try out different configurations of the habitat features you hope to create in your garden, and see how they all fit together. For some people this will entail creating areas to compliment what habitat is already available in their yard.

Final Plan

Now you are ready to draw up your final plan. Graph paper can be very useful for this task because it will keep your ideas to scale, which will give you a good idea of how the features fit in relation to one another. Add your list of plant names to this final plan, and you are ready to begin!

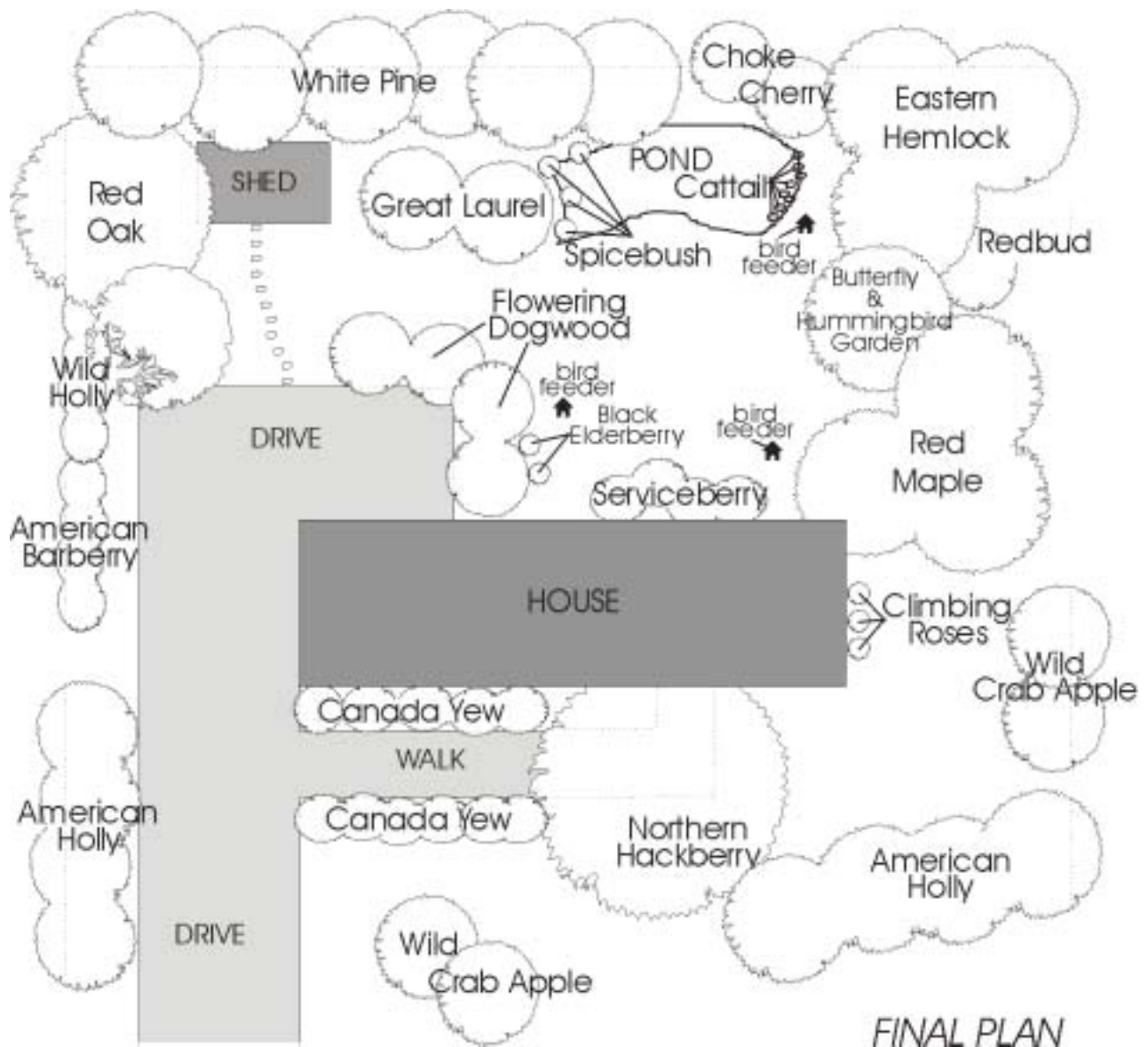
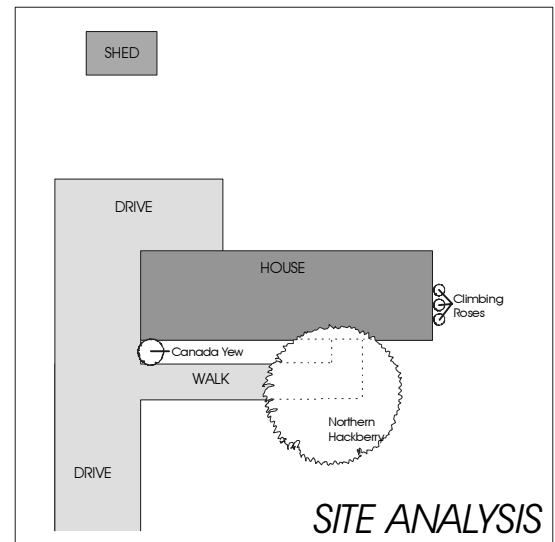
Building Your Garden

With your final plan in hand, you are ready to start creating or adding to your Wild Yard. Remember that creating habitat areas is a never-ending process, so be patient. Eventually you will see all the rewards of your hard work.



Examples of Site Analysis and Final Plan:

This ambitious plan shows how a plain, unplanted quarter of an acre yard can be turned into a wildlife haven. Make sure to select food bearing plants that provide a maximum variety of foliage, fruiting times and staggered heights. Also remember to provide water for your wildlife visitors.



Trees and Shrubs Used in Example Final Plan

<u>Height</u>	<u>Common Name</u>	<u>Scientific Name</u>
Trees		
60-80ft	Eastern white pine	<i>Pinus strobus</i>
40-60ft	Red oak	<i>Quercus rubra</i>
50ft	Red maple	<i>Acer rubrum</i>
50ft	American holly	<i>Ilex opaca</i>
35-60ft	Eastern hemlock	<i>Tsuga canadensis</i>
30-50ft	Black cherry	<i>Prunus serotina</i>
40ft	Northern hackberry	<i>Celtis occidentalis</i>
20ft	Choke cherry	<i>Prunus virginiana</i>
20ft	Common serviceberry	<i>Amelanchier arborea</i>
20ft	Redbud	<i>Cercis canadensis</i>
15-30ft	Wild crab apple	<i>Malus coronaria</i>
15-20ft	Flowering dogwood	<i>Cornus florida</i>
12ft	Spicebush	<i>Lindera benzoin</i>
12ft	Rhododendron	<i>Rhododendron maximum</i>
Shrubs & Others		
8ft	Black elderberry	<i>Sambucus canadensis</i>
8ft	Wild holly	<i>Nemopanthus mucronatus</i>
8ft	Climbing rose	<i>Rosa spp.</i>
5ft	Canada yew	<i>Taxus canadensis</i>
4-8ft	Cattail	<i>Typha latifolia</i>
3-4ft	American barberry	<i>Berberis canadensis</i>
<i>(For Butterfly & Hummingbird Garden: see separate handouts)</i>		

General Landscaping Rules:

❖ Your new habitat should make caring for your yard easier. Creating backyard habitat by replacing part of your lawn with native species not only provides habitat, but it is less expensive and easier to maintain. Less lawn makes less mowing. And many native plants are hardy and drought-resistant so they need little or no water.

❖ Plant a variety of native evergreen and deciduous trees along the perimeters of your property. These will simulate a forest canopy and provide food, nest sites and protective cover for wildlife. They also will screen your property from streets and other properties as well as shade your house from the sun in the summer.

❖ Plant smaller flowering trees in clusters, not rows, near tall trees to begin an understory.

❖ Protective and food-producing shrubs and ground covers should be planted around the smaller trees. These will also provide shelter areas for ground-feeding birds and mammals.

❖ Nature tends to arrange in random, disorderly ways and your garden will be most successful if you incorporate design features of randomness.

Reminder:

A necessary part of landscape planning is developing a time schedule and a budget. Time is needed to develop a successful garden and your budget may play a deciding role in your wildlife landscape. You might want to plan to do a little planting each year until you have realized your desired wildscape.

References & Printed Materials

- Adams, G. 1994. *Birdscaping Your Garden*. Rodale Press, Emmaus, PA.
- Adams, L. 1994. *Urban Wildlife Habitats*. University of Minnesota Press, Minneapolis, MN.
- Allen, T.J. 1997. *The Butterflies of West Virginia and their Caterpillars*. University of Pittsburgh Press. Pittsburgh, PA.
- Buckelew, A.R. Jr. and G.A. Hall. 1994. *The West Virginia Breeding Bird Atlas*. University of Pittsburgh Press, Pittsburgh, PA.
- Druse, K. 1994. *The Natural Habitat Garden*. Clarkson N. Potter, Inc. New York, NY.
- Duda, M.D. 1995. *Watching Wildlife*. Falcon Press Publishing Co., Helena, MT.
- Glassberg, J. 1995. *Enjoying Butterflies More*. Bird Watcher's Digest Press. Marietta, OH. (800) 879-2473.
- Hall, G. 1983. *West Virginia Birds*. Carnegie Museum of Natural History. Special Publication No. 7.
- Henderson, C.L. 1987. *Landscaping for Wildlife*. Minnesota Department of Natural Resources, Nongame Wildlife Program, St. Paul, MN. (612) 297-3000.
- Hobson, S.S., J.S. Barclay, and S.H. Broderick. 1993. *Enhancing Wildlife Habitats: A Practical Guide for Forest Landowners*. Northeast Regional Agriculture Engineering Service. Ithaca, NY.
- Marinelli, J. (ed.) 1994. *Going Native: Biodiversity in Our Own Backyards*. Brooklyn Botanic Garden, Inc. Brooklyn, NY.
- Merilees, B. 1989. *Attracting Backyard Wildlife*. Voyageur Press, Stillwater, MN.
- Merritt. 1987. *Guide to the Mammals of Pennsylvania*. University of Pittsburgh Press, Pittsburgh, PA.
- Minnesota Department of Natural Resources, Nongame Wildlife Program, Section of Wildlife, St. Paul, MN 55155: (*highly recommended publications*)
- Landscaping for Wildlife (see above)
 - Wild about Birds; the DNR Bird Feeding Guide
 - Woodworking for Wildlife
- Schneck, M. 1990. *Butterflies: How to Identify and Attract them to your Garden*.
- Shalaway. 1990. ***The Wild Side***. Saddle Ridge Press, Cameron, WV.

Shalaway. 1992. ***Birds, Bats, Butterflies...and Other Backyard Beasts***. Saddle Ridge Press, Cameron, WV.

Strausbaugh and Core, 1970. ***Flora of West Virginia***. Seneca Books, Inc., Morgantown, WV.

Tekulsky, M. 1985. ***The Butterfly Garden***. The Harvard Common Press, Boston, MA.

Tufts, C. and P. Loewer. 1995. ***Gardening for Wildlife***. Rodale Press, Emmaus, PA.

Tufts, C. 1993. ***The Backyard Naturalist***. National Wildlife Federation.

Wasowski, S. 1992. ***Requiem for a Lawnmower***. Taylor Publishing Company. Dallas, TX.

Xerces Society/Smithsonian Institution. ***Butterfly Gardening: Creating Summer Magic in Your Garden***. 1990. Sierra Club Books, San Francisco, CA.

Zickefoose, J. 1995. ***Enjoying Bird Feeding More***. Bird Watcher's Digest Press. Mareitta, OH. (800) 879-2473.

WV DNR Wildlife Diversity Program, Elkins, WV (304) 637-0245.

- Attracting Cavity Nesting Birds to Your Backyard
- Bats of West Virginia
- Bluebird Box Construction and Placement
- Butterfly Gardening
- For the Birds
- Invasive Plants of WV
- WV Bird Checklist
- WV Butterfly Checklist
- WV Frogs & Toads
- WV Tiger Beetles
- WV Turtles & Skinks
- WV Mammal Checklist
- WV Neotropical Migratory Birds
- WV Reptile and Amphibian Checklist

West Virginia University Extension Wildlife Program, WVU, Morgantown, WV
(304) 293-3391:

- Aquatic and Wetland Plants of West Virginia
- Guide to Common Birds of West Virginia
- Guide to Winter Botany
- Introduction to Dragonflies and Damselflies of West Virginia
- Introduction to Ferns of West Virginia
- Owls
- West Virginia Hawks
- West Virginia Wildlife
- Winter Birds of West Virginia

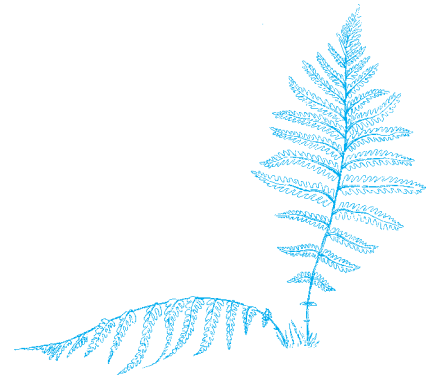
How To Apply to the West Virginia Wild Yards Program:

- Read the Wild Yards booklet provided or available online at www.dnr.state.wv.us.
- Fill out the application completely.
- Provide a rough sketch or diagram of the property you would like to have considered as a West Virginia Wild Yard. Label property dimensions and directional North. Show existing habitat features and habitat features you plan to add.
- Mail your completed application to: WV Wild Yards, WV DNR, P.O. Box 67, Elkins, WV 26241. If you have any questions about the application, call Wild Yards Coordinator, at (304) 637-0245 or email Jessica.N.Swecker@wv.gov.

If your application is approved, you will be added to a state-wide register of WV Wild Yards. You will also receive a certificate designating you as a Wild Yards participant and a sign to post in your backyard habitat area.

We would greatly appreciate any photographs, or preferably slides, of your backyard habitat! You could even send in shots of you, your family, or friends working in or enjoying your habitat area. These pictures may be used in presentations about the Wild Yards Program so that others may learn from your habitat management experiences. We will not be able to return any of your pictures to you. If your slides are used in presentations, you understand that we have your permission to use them unless you request that they not be used. You will be given photo credit if ever we publish your photographs in Wild Yards materials. This would be an enormous help to us to help get the word out about wonderful West Virginia Wild Yards!

We look forward to hearing from you!



West Virginia Wild Yards
A Backyard Habitat Certification Program for West Virginians

APPLICATION

Name _____

Address _____

City _____ County _____ Zip _____

Telephone _____

Property size (approximate square feet or acreage): _____

This property is best described as:

private residence park/recreation facility farm
 corporate land other: _____

Your neighborhood is located in an area best described as:

city/urban suburb rural community agricultural landscape
 forested landscape older neighborhood in city limits
 other: _____

Guidelines for WV Wild Yards:

Use primarily plants native to West Virginia. (See section in Wild Yards booklet on native plants.)

Provide food, water and cover for wildlife.

Clean up all problem areas on property, such as garbage.

Do not create unsafe situations for wildlife by attracting them to the dangers of cats or dogs or to interactions with humans that could be detrimental to them.

Use common sense and careful judgement when deciding which backyard habitat projects are most reasonable for your property.

A wild yard is not necessarily an unkempt yard. Particularly in urban areas, become familiar with local ordinances and consider the feelings of your neighbors when designing your yard.

TARGET SPECIES: What wildlife species or groups of species would you like to attract with your wild yard plan? (List the top 5) For example: cardinals, squirrels, salamanders, butterflies, woodpeckers, songbirds, small mammals, amphibians, etc.

WATER (drinking, bathing, etc.)

Water is provided: ___year round ___seasonally

It is provided in the following ways:

___bird bath ___water dripping into a bird bath ___natural spring
 ___wildlife pool ___pond ___stream
 ___other: _____

FOOD (plantings, vegetation)

List the plants on your property that provide food to wildlife such as acorns, berries, nuts, seeds, buds, nectar, etc. Use additional paper if necessary.

<u>Large trees</u>	<u>number</u>	<u>Small trees</u>	<u>number</u>
ex: red oak	3	ex. flowering dogwood	2
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

<u>Shrubs</u>	<u>number</u>	<u>Perennials</u>	<u>number</u>
ex: elderberry	7	ex: bee balm	3
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

<u>Vines</u>	<u>number</u>	<u>Annuals</u>	<u>number</u>
ex: summer grape	2	ex: zinnias	12
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Do you have an unmowed grassy areas to provide food from seeds, vegetation to wildlife, and cover for insects and small mammals? ___ Yes ___ No

If so, size of area(s): _____

FEEDERS:

List any feeders you have, what food is supplied, and the time of year that they are filled.

tube feeder (1) _____ black oil sunflower seeds _____ fall to spring _____

hummingbird feeders (2) _____ sugar water _____ spring to early fall _____

COVER (places to hide, nest, raise young, etc.)

Wind and weather breaks and places for wildlife to escape from predators are provided in the following manner:

___ dense shrub thickets (which types?) _____

___ evergreens (which types?) _____

___ ground covers (which types?) _____

___ brush piles

___ log piles

___ rock piles/walls

___ meadow/prairie patch (approximate size of area?) _____

___ shrubby, brushy habitat patch (approximate size of area?) _____

___ mature trees for nesting

___ small trees for nesting

___ trees with cavities

___ dens in ground or in rocks

___ wildlife pools or ponds

___ nest boxes (which types?): _____

___ plants for butterfly caterpillars (which ones?) _____

___ other: _____

Future plans for habitat improvements:

<u>What will be added:</u>	<u>Where:</u>	<u>To provide:</u>	<u>For what animals:</u>
Examples:			
<u>4-5 brush piles</u>	<u>along perimeter of yard next to prairie patch</u>	<u>cover</u>	<u>cottontail rabbits</u>
<u>2 nest boxes</u>	<u>in mowed area of yard</u>	<u>nest sites</u>	<u>bluebirds</u>
<u>1 suet feeder</u>	<u>on pole with bird feeders</u>	<u>food in winter</u>	<u>woodpecker</u>

Please continue on a separate sheet of paper if necessary.