

URBAN FORESTRY

A Manual for the State Forestry Agencies in the Southern Region



Unit: Urban Wildlife

The Urban Forestry Manual is being developed by the USDA Forest Service, Southern Region and Southern Research Station, and the Southern Group of State Foresters as an educational tool for State forestry agency employees and others who work with communities on urban forestry. It can be used for self-guided learning, finding specific information on a topic and developing workshops and presentations. There are 16 units (chapters) in the Manual - at this time 9 units are on the web site (www.urbanforestrysouth.usda.gov). The other units will be added as they become available.

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Using this Manual

The Urban Forestry Manual provides the scientific, technical, and practical information needed to work with communities on urban forestry. There are 16 units (listed below) that address specific topics in the practice of urban forestry. These units have been developed as a series, each building upon the information in previous ones. The units may also be used individually to gain information about a specific topic.

Benefits and Costs of the Urban Forest is the first unit in the Urban Forestry Manual. This is an introduction to urban forestry and it explains why your work with communities and individuals in urban forestry is important. This unit also includes information about how to maximize the benefits and minimize the costs related to the urban forest.

The Role of the State Forestry Agency in Urban Forestry is an introduction to State forestry agencies' responsibilities and activities in urban forestry. It explains why partnerships are important to State forestry agencies activities in urban forestry. This unit also discusses the importance of working with communities and individuals.

Tree Biology is an introduction to how trees grow and live. It describes how trees are structured, how they function, and how they grow and develop. It also explains how the urban environment influences tree growth and development.

Dendrology is an introduction to identifying and understanding trees in the urban environment. It explains the classification of trees, naming trees and tree identification. This unit also includes information on how characteristics of the urban environment influence tree identification.

Urban Soils is an introduction to the role that soils play in the health of the urban forest. It explains what soil characteristics are important for healthy tree growth. This unit also includes information about common soil problems in urban areas.

Site and Tree Selection provides information on how to select a site and species to maximize the benefits and minimize the costs related to urban forestry. It explains what factors you need to consider when selecting a planting site, tree species, and tree stock. This unit also discusses how to match these factors to ensure healthy tree growth and development.

Tree Planting is a unit that will introduces factors to consider and techniques to implement when planting trees. It includes recommended guidelines for planting and post-planting. It also explains how to work with communities and individuals to successfully plant trees.

Tree Maintenance is an introduction to the importance of providing regular maintenance to the urban forest. The basic steps to preventative maintenance are discussed, such as fertilization, mulching, pruning and tree protection.

Tree Diagnosis and Treatment provides an introduction on how to diagnosis and treat tree health problems. This unit explains how your knowledge and application of diagnosis and treatment can improve the health of the urban forest. It also includes information on why it is important to prevent tree health problems.

Trees and Construction is an introduction to the relationship between construction activities and trees. It explains the importance of communication during the construction process. The focus is on the impact of construction activities on trees, the protection of trees during construction, and care for the tree before and after construction.

Hazard Trees is an introduction to the importance of recognizing a hazard tree. It gives a general overview on evaluating a target, site conditions and the tree. This unit also includes information on how to prevent and manage hazard trees.

Urban Wildlife is an introduction to the relationship between wildlife and the urban environment. It first defines urban wildlife and describes the needs of wildlife, such as food, water, cover and living space. Then it discusses wildlife habitat in urban areas and how wildlife adapts to urban habitat. It also includes information on how to encourage and discourage wildlife.

Urban Ecosystems is an introduction to the role that trees play within an urban ecosystem. It first defines an ecosystem and why it is important to understand ecosystems. Then it discusses ecological concepts, such as structure and function, that are important to understanding ecosystems. This unit also includes information on understanding challenges in the urban forest ecosystem.

Urban Forestry Planning and Management is an introduction to the importance of planning and managing the urban forest. It starts with a definition of an urban forest management plan and why they are important. Then it discusses the steps involved in developing a management plan. It also includes information on the different components in a management plan.

Urban Forestry and Public Policy is an introduction to understanding public policy and how it relates to urban forestry. It first describes the role that each level of government has in setting public policy related to urban forestry. Next it provides information on local government in more detail because this is where most urban forestry policy is created and implemented. The role that Tree Boards have with local government is also discussed. The final section reviews public policy tools that can be used to address urban forestry issues in a community.

Working with the Public is an introduction on how to effectively work with the public. It starts with tips on how to work together as a team and how to work with volunteers. Then it discusses the role of communication and education in working with the public. The unit also includes information on the importance of leadership in urban forestry.

Using Each Unit

Each unit in the Urban Forestry Manual is organized as follows:

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Lists major topics that are included in the unit.

Unit Overview

Presents goals and objectives for the unit.

Before You Begin

Consider how your current activities and experiences relate to this topic.

Content

Presents specific material about this subject under several headings.

Next?

Think about how you can use the information in your daily responsibilities and in developing your career in forestry.

For More Information

Lists other sources of information about this subject, as well as the literature cited in the unit.

Appendix

Some units have an appendix that may include checklists or other information.

In addition, each unit has two sections that will help you assess your learning of the information.

Checking Your Understanding

At the end of major sections in the unit, there are short-answer questions about the information you have read. After you have written the answers, you may compare your responses to the answers provided at the end of each unit.

Case Study

These are stories based on the real experiences. The questions at the end of the case study challenge you to use the information you learned to solve a problem similar to what you will be facing when working. You will be asked to analyze an actual urban forestry problem and prepare your solutions. There are no right or wrong answers -- only what you decide is the best course of action after considering all of the information.

Urban Wildlife

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Overview

As areas in this region become increasingly urbanized, land that wildlife once had to itself must now be shared with people. So, it is important to understand the relationship between the urban environment and wildlife so that you can offer recommendations to homeowners, planners, developers, and others on general wildlife issues.

This unit begins by defining urban wildlife and describing its needs. Then ways the various species have adapted to living in an urban area and the characteristics of urban wildlife habitats are discussed. Finally, suggestions for encouraging or discouraging wildlife are given.

Give Me Liberty!

A Peaceful Solution

Early this spring Ray, the county forester, got a call from Jane, a homeowner, asking him to look at a couple of liberty elms she said were not growing. Upon examination Ray found that the local deer were using the trees as a sort of salad bar and had pruned them back severely. He checked with the Cooperative Extension Service's wildlife biologist who offered no easy solution short of shooting the deer, which was not an option for Jane, the property owner. Ray hit on the idea of building cages around the trees to keep the elm-munching critters away long enough for the little trees to get a bit of growth. Over several days, Jane and Ray constructed two frames 3 x 3 feet across and about 6-feet high from ½-inch PVC (poly vinyl chloride) pipe. They wrapped chicken wire around each frame and secured it with small cable ties. The tops were left open, and there was space at the bottom to allow for weeding and other maintenance. How well these odd structures work will not really be known until around this time next year. Meanwhile, Jane has a lot of fun telling her friends at work about her adventures in caging her wild elms.

*A tree that may in Summer wear
A nest of robins in her hair
Joyce Kilmer, "Trees"*

Before You Begin

This unit provides information useful in answering questions about urban wildlife issues when you work with individuals or groups in the community. Think about the wildlife in your community and how you can use this information in your work.

- What kinds of urban wildlife habitats are in your community?
- What do you know about the needs of urban wildlife where you live and work?
- How will your understanding of the habitat and problems associated with urban wildlife help in the management of the urban forest?

On a separate piece of paper describe the wildlife in your area, and think about how this information will assist you in your job.

Wildlife in Urban Areas

Urban wildlife is any wild creature that lives in an urban environment or an urban-rural interface, including birds, reptiles, amphibians, mammals, fish, insects, and worms. There are native species, such as squirrels, millipedes, and cardinals, and non-native species, such as pigeons and starlings. Our shift from a rural to an urban society has caused many changes in land use across the country as farms, forests, and grasslands become subdivisions and shopping centers. These changes greatly impact the habitat that wildlife depends on for food, water, cover, and living space.

The challenge is to work within the community to enhance those parts of the urban environment that contribute to wildlife survival and diversity while eliminating or minimizing as many of the negative aspects as possible. Participating in the planning process, especially in situations where urban and rural areas come together, can help prevent unnecessary destruction of wildlife habitat. Working with property owners and the public can encourage appropriate wildlife. Methods to discourage nuisance wildlife can also be recommended. There are various to provide assistance related to urban wildlife (table 1).

Table 1. Examples of urban wildlife assistance and potential recipients

Technical/Educational Assistance	Planning Assistance	Potential Recipients
<ul style="list-style-type: none"> • Native plants and animals • Urban wildlife habitat • Needs and habits of urban wildlife • Urban environmental and contamination problems • Tree protection techniques • Techniques to encourage wildlife • Techniques to discouraging wildlife 	<ul style="list-style-type: none"> • Establishment and maintenance of urban wildlife habitats • Protection of natural wildlife corridors • Water management program • Maintenance of native vegetation • Habitat management to control nuisance wildlife • Comprehensive planning 	<ul style="list-style-type: none"> • Local nature groups and associations • Developers and home builders • Businesses and homeowners • Parks and recreation boards and staff • Rural landowners • Neighborhood associations

The Benefits and Costs of Urban Wildlife

Urban wildlife can add to the enjoyment of everyday life. Watching a squirrel grind away on a nut or listening to a dove coo offers moments of relaxation. Wildlife provides opportunities for observing and photographing animals that live near and in urban areas. Urban wildlife also serves as an educational stimulus by stirring people's curiosity about the natural world. Wildlife in the urban environment can also cause problems by destroying property, carrying disease, producing unsanitary waste, and conflicting with human activities. Wildlife that is forced to live in urban areas may displace other species of animals that are already living there.



Urban wildlife can provide many benefits in an urban setting, including recreation.

Four Basic Needs

Wildlife has four basic needs: food, water, cover and living space.

Food

Plants, whether in a backyard, a park or a large urban forest, are vital food sources for wildlife. Trees and other vegetation provide fruit, nuts, foliage, bark, and roots as part of the diet of many animals. Decaying wood is also a source of food for many small organisms, such as earthworms, millipedes, and mites, that are in turn eaten by animals higher on the food chain. Each animal is an important link in the food chain, with the existence of some species dependent on the presence of others.

Water

Wildlife species must have fresh water to live. Wildlife can find water in various places, such as puddles, gutters, birdbaths, ponds, creeks, wetlands, lakes, and rivers. In some urban areas, water pollution from pesticides, fertilizers, oil, and other materials may adversely affect wildlife.

Cover

Cover provides a place of safety for wildlife. Examples include tree litter, grasses, shrubs, understory trees, and tree canopies. Some wildlife species prefer cover adjacent to open spaces, while others prefer cover near a river. In some areas, development has changed

the natural areas that provide cover, so wildlife must adapt to the new environment, migrate to more habitable surroundings, or perish.

Living space

All animals need living space. This is the place where an animal finds food, water, cover, and a place to reproduce. The size of the living space varies with each species. For example, a house sparrow requires less living space than a migratory bird. The amount and type of living space influence which animals live in an area. Williamson (1973) found that inner-city neighborhoods with few trees had exotic bird species, such as pigeons and house sparrows, while suburban areas with many trees supported more native species. He attributed this difference to the amount of vegetation available for cover.



Desirable urban wildlife can be encouraged by knowing their specific habitat needs and managing for those needs.

How Wildlife Adapts to an Urban Area

Habitats are always changing due to land development, floods, fire, and other occurrences. Species of wildlife that adjust easily to a variety of habitats are called habitat generalists. Generalist species in urban areas adapt to living near humans and to utilizing artificial habitats. Conditions or characteristics that enable many species to live in an urban community include cover, nocturnal behavior, and diet. Knowledge of how animals adapt to a new environment helps in managing them.

Cover

Many places in urban areas offer shelter for wildlife. Parks, greenspaces, and backyards are places where animals often find cover. Property owners can encourage specific types of wildlife by constructing birdhouses and small ponds and planting dense ground covers. Other wildlife can be more opportunistic; finding cover in places rarely visited by people. Attics and backyard storage sheds sometimes offer unintentional cover for animals. Warehouses, sewers, railroad yards, and the lofts and rafters of large buildings may also provide shelter and breeding places for many species.

Nocturnal behavior

Wildlife species that are nocturnal (night animals) or have secretive behavioral patterns have obvious advantages that help them survive. Because owls, raccoons, opossums, skunks, and rodents move around at night, they often exist in surprising numbers but remain unknown to many people in the community.

Diet

Animals that eat both meat and vegetation can take advantage of a wide variety of foods. Many urban homeowners encourage certain types of wildlife by feeding them in their backyards. Other species, such as raccoons and opossums, have successfully adapted to the urban environment, learning to survive on pet food left outside and food discarded by humans.



The National Wildlife Federation's "Backyard Wildlife Habitat Program" can provide information for creating an urban wildlife environment.

Characteristics of Wildlife Habitat in Urban Areas

Wildlife habitats exist everywhere within a community and its vicinity. They include parks, natural areas, golf courses, airport grounds, industrial parks, schools, hospitals, churches, cemeteries, backyards, university campuses, railways, roads, streams, and rivers. Some species take advantage of man-made structures, while others adapt to the existing ecosystems in urban areas. Several common characteristics of urban environments that influence wildlife habitats are described below. Each of these factors is important to consider in planning for wildlife in urban areas.

Fragmentation

Habitat fragmentation occurs when streets and highways, shopping centers, and other large-scale developments are built. The change in land use breaks up large habitat areas into many small ones, which influences the types and numbers of animals that can now live in these smaller habitats. Fragmentation creates more edge habitats, along the edge of a forest but decreases the forest's interior habitats. Such fragmentation benefits species that thrive on habitat edges, such as deer and skunks, but is detrimental to animals that live in interior habitats, such as bobcats and wood thrushes (Barnes 1998).

Corridors

Corridors are areas that wildlife, such as migratory birds and mammals, use to move from one location to another. Natural corridors, such as rivers and streams within a city, are valuable for wildlife. There are also human-made corridors, such as railroads, utility rights-of-way and greenways that can connect nature preserves, parks, and other sites. However, these corridors need to be wide enough to provide food, water, and cover for the wildlife (Barnes and Adams 1999). Land development can disrupt corridors, such as when a migration route is interrupted by an interstate highway.



It is fairly common is to see a deer crossing a road.

Changes in Soil and Vegetation

Most of the soil in an urban environment has been disturbed by land development such as

grading and paving. These activities can change soil conditions, influencing the plant species that can grow there. And, in turn, this influences the wildlife habitat at the site. Changes in habitat may occur when—

- forests are cleared during land development.
- native vegetation is removed, mixed, or replaced with exotic or undesirable species, which may impact the density and diversity of the vegetation.
- drainage patterns and soil conditions are changed.

Poor Water Quality

Various forms of waste, including industrial chemicals and fertilizer nutrients, found in urban streams, lakes, ponds, wetlands, and rivers can damage aquatic wildlife, such as insects, fish, and salamanders. The increased amount of impervious surfaces, such as roads and parking lots, increases storm-water runoff that may increase in sedimentation and change nutrient levels in the water.

Loud Noises

Loud noises in urban areas, such as mass transit systems, automobiles, and airplanes, can disturb wildlife although wildlife usually adapts to these noises.

Structures

The urban environment is full of artificial structures used by wildlife: buildings, bridges, highway overpasses and underpasses, culverts, radio towers, utility lines, and light fixtures. These structures may provide cover and a place to reproduce for many species, for example the nighthawk that nest on the roofs of buildings and the painted turtle that survives in artificial impoundments. Some of these, such as utility lines and locations near highways, can also be dangerous for animals.



How do these factors affect the wildlife in your community?

Encouraging and Discouraging Wildlife

Wildlife management is basically habitat management to encourage or discourage animal populations. There are several ways to encourage appropriate wildlife or to discourage nuisance species.



Wildlife management begins with habitat management.

Enhancing Wildlife Habitat

Encouraging wildlife consists largely of providing food, water, cover, and living space for specific types of animals. Techniques that can enhance wildlife habitats in urban areas include the following.

Plan cooperatively

Cooperation between planners and developers during the initial phases of development is perhaps the best way to assure the enhancement or preservation of wildlife habitat. Identifying critical wildlife habitats so that they can be considered for preservation through comprehensive planning or acquisition of land is the first step toward protecting the land that is most valuable for wildlife. It is important to work cooperatively with the community to preserve identified areas, such as natural ponds, lakes, and wetlands, from development.



Land can be developed to include open green spaces and undisturbed areas.

Preserve native vegetation

Try to use native vegetation whenever possible. During land development, as much as possible of the native vegetation suitable for habitat should be left undisturbed, particularly trees and shrubs. Exotic vegetation that has displaced native plants can be removed to encourage native plant growth.

Reduce turf grass

Replace turf grass with trees, shrubs, and flowers.

Create buffer strips

Buffer strips of vegetation can be created along the banks of natural waterways. These habitats serve as corridors for wildlife and help control soil erosion. Different animals require different amounts of space, so the width of the buffer strips depends on the species that will be using the area.

Encourage habitat diversity

Different wildlife species require different habitats (figure 1). The urban forest can contain a variety of tree species of different ages and heights, creating a multi-layered system of vegetation, including ground cover, understory, and canopy. Plant species can be selected to encourage specific types of wildlife, such as species with different flowering and fruiting seasons.

Retain snags

Snags (dead trees and limbs) should be allowed to remain in the urban forest if they do not endanger people or property.

Utilize sand and gravel pits and quarries

In formerly rural areas, sand and gravel pits and quarries are sometimes common. These have potential for fish and wildlife habitat as well as recreational opportunities.

Make use of storm-water basins

Properly designed storm-water detention areas can function as wildlife habitat. The USDA Natural Resource Conservation Service can assist in designing storm-water basins.



Contact the [U.S. Fish and Wildlife Service](#), [State Department of Natural Resources](#) or [Cooperative Extension Service](#) for assistance with managing urban wildlife.

Discouraging Nuisance Wildlife

Habitat management can also help control individuals or populations of wild animals that damage property, threaten human health and safety, or otherwise become nuisances. Eliminating one or more of the needs of wildlife (food, water, cover, or living space) will usually induce the problem animals to leave. Four basic ways to control unwanted wildlife are habitat modification, exclusion, repellents, and, as a last resort, elimination. Often a combination of methods is most effective. Ideally, the approach should be safe, selective, effective, and humane.



It is often easier to prevent nuisance animals than deal with them after they arrive.

Habitat modification

- Plant alternative species
Animals are attracted to certain kinds of plants, particularly well-fertilized ones in urban areas. Planting species known to be unattractive to a particular type of nuisance animal may serve as a deterrent. However, in times of extreme weather conditions, drought, or overpopulation, the animals will eat even those plants that otherwise they would reject.
- Design and modify buildings
Design and construct buildings to avoid places likely to be occupied by unwanted house sparrows, starlings, pigeons, bats, and other undesirable species. These places include exposed beams, ledges, unscreened ventilation holes, and other nooks, holes, and crannies. In existing buildings, screen beams, ledges, and other openings to prevent access by birds, squirrels, bats, and other animals. Install heavy screen or other devices on chimneys to deny access to raccoons, squirrels, and birds.
- Trim and thin trees
Large roosts of starlings, grackles, and blackbirds may be reduced by trimming or thinning trees where they roost.
- Squirrel-proof feeders
Bird feeders that are counter balanced or in some other way "squirrel-proofed" can reduce pilfering by squirrels.
- Secure garbage cans
Outdoor garbage containers need to be tightly covered and secured to prevent raccoons, dogs, rats, and other animals from invading them.



Learn about various animal-resistant plants in your area from your local Cooperative Extension Service.

Exclusion

- Install fencing or wire netting
Entire areas or individual trees can be protected with fencing or netting. Where deer are a problem, consider installing deer-proof fencing around the property. Screens or individual guards around young fruit trees can prevent damage by rabbits. Fencing can also be used to prevent beaver damage to trees.
- Use noise makers
Loud noises typically scare off wildlife, but this may only be a short-term solution. For example, noise machines and firecrackers have been used to scare sparrows from buildings and trees, and wind chimes can discourage woodpeckers from pecking on the side of a house. A tape recording of "seagulls" in distress has been used successfully to ward off gulls, grackles, and crows.



Nuisance wildlife can be discouraged.

Repellents

Offensive tastes, smells, or feel typically repel animals. Repellents can be homemade or purchased commercially. Some are applied directly to the plant leaves, creating a bitter taste when eaten. Others are simply placed in the general area where the animals feed. There is disagreement about the effectiveness of these methods.

Trapping

As areas become urbanized, animals lose their living space, and natural enemies that control population in the wild are often lacking. Under these circumstances, it may be necessary to physically remove the animals when other means have failed. Live trapping and removal of the animals to another area is one option. This may, however, only transplant the problem. Some animals need to be trapped and eliminated because they are dangerous or diseased.

Trapping, poisoning, and killing animals, particularly game species, should be done only with legal authority. Property owners need to contact county or state officials before taking any action. The local health department should also be contacted if animals are suspected to be rabid.



Dealing with nuisance wildlife can result in negative public relations. Are you prepared to deal with this situation and communicate the necessary information to the community?

When humans change rural landscapes into urban ones, many types of wildlife find a livable habitat within this altered environment. For the most part, people who live in urban areas find it beneficial to share this environment with wildlife, except for the occasional nuisance species or individual. Foresters can enhance the interaction between humans and wildlife by learning how to improve and increase habitat for wildlife and educating the public on how to maintain a quality environment.

Checking Your Understanding of Urban Wildlife

On a separate sheet of paper, briefly answer the following questions.

1. How do you define urban wildlife? What native species live in your area, and what exotic or non-native animals are also present?
2. What does an animal need to survive in an urban setting?
3. As habitats change from rural to urban, what adaptations have some animals made to survive?
4. What are two ways you might suggest to encourage urban wildlife, and what are two ways that you would try to discourage unwanted wildlife?

Answers are at the end of the unit.

Case Study

It Is Always Greener on the Other Side

Donna is a forester with the State forestry agency. She recently received a request from the homeowners association of a planned community about 20 miles outside a major southeastern city. Among the many attractive features of the area are open and forested natural areas. Most people who move here appreciate the benefits of living in a forested area and usually are happy to share this environment with animals such as rabbits, deer, and raccoons. Recently, a colony of beavers moved into one of the stream valleys.

Chances are, the humans would not have been too upset if the beavers had stayed out of people's yards. However, the beavers began cutting down trees in the yards of residents along the west bank of the stream while largely ignoring the trees on the east bank. Not surprisingly, the attitudes of the homeowners on either side of the stream were quite different. People on the relatively unscathed east side adopted the position that beavers were an integral part of the natural environment that had attracted them to this community and should be able to chew on any tree. People who lived on the west bank regarded these zealous aquatic woodcutters as oversized, flat-tailed nuisances with no respect for private property. One group of neighbors was threatening to dynamite the beavers, while the other group threatened to sue the dynamiters. In an effort to resolve the issue, Donna was called in to help devise a solution to the beaver conflict.

You and the Beavers and the Neighbors at Odds

You are the forester who has been asked to help resolve the problem with the beavers. What would you propose? Decide what solution you would offer and then write your answers to the questions below, explaining your solution.

- Knowing that tempers are hot, what is the first thing you would do?
- What options can you offer to the homeowners?
- Are there legal issues you may need to consider?
- What are the main things you hope to accomplish with the solution you are proposing?

After you have answered the challenge questions, read the rest of the story to compare your solutions with what really happened.

The Rest of the Story

It was a Done “Deed”

As often happens with beaver problems, tempers were running high. Donna knew she had to act fast. She called both sides together for a meeting and asked the wildlife biologist from the State forestry agency to attend. A wildlife story such as this one does not always end happily for all parties involved, but this one did. The solution that Donna proposed was accepted by both groups of neighbors, quickly implemented, and it worked!

The first order of business was accomplished when all the neighbors agreed that a peaceful outcome was best -- as long as it kept the beavers out of *their* yards. The solution Donna then worked out with the community was simple, but it did require waiving the neighborhood covenant against fences. It was decided to “deed” certain portions of the natural habitat to the beavers. A green, welded, wire fence was installed along the stream bank to prevent the beavers from entering people's yards. The same fence was also used to encircle and protect some of the specimen trees within the newly defined beaver zone. Both sets of neighbors were content with this solution, and within two years the beaver colony moved farther downstream.

Note: No one ever figured out why the beavers only attacked the trees on the west bank of the stream.

Beaver to Beaver Comparison

- How did your solution compare to what the neighbors actually did?
- If you suggested something different, what did you see as the advantages that your solution offered?
- This particular encounter between homeowners and wildlife ended positively. Have you ever been in a situation in which the results were not positive? How have you handled it?
- What could you recommend to property owners that might prevent a similar situation?

Next?

Understanding the relationship between the urban environment and wildlife is important in planning for and managing the urban forest. The questions on this page will help you incorporate this knowledge into your work with the local community.

- How will you use this information to help the people in your community solve problems concerning urban wildlife?

- What are some of the characteristics and location of wildlife habitats in your community? How can this knowledge help to better manage the urban forest?

- What is the best way for you to communicate this information to the community and help them use it in their planning?

- What other information will you need to improve your understanding of urban wildlife in your area?

For More Information

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Web Sites

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[Urban Wildlife Resources](#)

Checking Your Answers

Checking Your Answers about Urban Wildlife

1. How do you define urban wildlife? What native species live in your area, and what exotic or non-native animals are also present?

Urban wildlife is any wild animal that lives in an urban environment or in an urban/rural interface. Examples include birds, reptiles (such as snakes and turtles), amphibians (such as frogs), mammals, fish, rodents, insects and spiders, and worms.

Native species may include the gray squirrel perhaps the most common wild mammal in North America (Miller 1988). What other species have you listed for your area? Non-native species may include the pigeon, commonly found in downtown areas, and the house sparrow, found in neighborhoods. What other non-native animals have you come across in your work?

2. What does an animal need to survive in an urban setting?

An animal has four basic requirements for survival, whether in an urban or rural location:

- Food
- Water
- Cover or shelter
- Living space

3. As habitats change from rural to urban, what adaptations have some animals made to survive?

Some animals have adapted to urban conditions by modifying their living and eating habits.

- Cover – Man-made structures often provide shelter and breeding places.
- Nocturnal behavior – Feeding and moving about at night is a means of protection for the animals.
- Diet – meat and vegetation diet, being fed by humans, and taking advantage of a wide variety of foods allow animals to take advantage of whatever food sources are available at any particular time.

4. What are two ways you might suggest to encourage urban wildlife, and what are two ways that you would try to discourage unwanted wildlife?

Habitat management is the key to encouraging or discouraging wildlife in an urban location. There are a number of specific things that make an area better for wildlife:

- Working with others during land development planning for the preservation of natural habitat
- Preserving and planting native vegetation
- Creating and preserving buffer strips and corridors for animals
- Reducing turf grass and replacing it with trees, shrubs, and flowers
- Ensuring a wide variety of plant species, flowering and fruiting seasons, heights and ages of trees
- Using natural and man-made elements of the land, such as snags, gravel pits, and storm-water basins, for wildlife habitat

To discourage wildlife, eliminating one or more of the needs of wildlife (food, water, cover or living space) will usually cause the problem animals to leave. There are four primary ways to control unwanted wildlife, each offering different options:

- Habitat modification
 - planting alternative tree species
 - modifying buildings, including screening
 - trimming or thinning trees to remove roosting or nesting places
 - using squirrel-proof bird feeders
 - securing garbage cans
- Exclusion
 - fencing
 - netting
 - using noise or other distractions
- Repellents that create
 - a bitter taste
 - an unpleasant odor
 - an uncomfortable touch or feel
- Elimination
 - live trapping for relocation
 - elimination because of health concerns |
 - other means of removal based on legal considerations