



Wildlife Habitat in Urban Areas

Arborists' work can help conserve wildlife habitat in our urban areas

Webster's Dictionary defines habitat as "the place or environment where a plant or animal naturally or normally lives and grows."

Sure, an animal's habitat is where it lives. But not all arborists may be aware of the contribution their work as arborists can make to the larger landscape in terms of ecosystem function and ecosystem processes.

Usually when we think of wildlife habitat we think of animals that make their homes in national forest ecosystems. As rural forests make way for urban growth, city parks and remnant forests in Oregon and many other parts of the country are becoming more critical to meeting habitat needs of local wildlife populations such as small mammals and birds.

Most arborists are in a unique position to *notice* how birds and wildlife use different habitats. This type of observational skill is of real value to leaving a wildlife legacy. But how often do we really remember to think about our activities and work projects in association with bird or wildlife implications?

Maybe you're wondering what kinds of wildlife are likely to be found living in, or nearby, our urban communities. They range from bear, deer and elk to small mammals and amphibians. Most common species include birds, especially neotropical (migratory) varieties, and birds of prey, like hawks, owls and eagles. Amphibians such as frogs and salamanders, and many small mammals including deer mice, voles, tree squirrels, ground squirrels, chipmunks, bats, opossums and moles round out the list.

A literature review of urban forest and wildlife habitat studies produced a variety of "pieces" to the larger puzzle of actions we arborists can take to conserve and promote wildlife habitat where it is often needed most: in our urban forests - especially our rapidly expanding urban fringe areas. This publication works to tie together some of the existing research and thinking along the lines of wildlife and their needs in urban areas, and what we as arborists



can do to help mitigate ever-shrinking habitats in urban fringe areas.

Here are some common work settings an arborist is likely to encounter in the field, and several ideas to get you started thinking along these lines.

Conserving habitat in new construction areas

Let's say your work as an arborist takes you into areas where new construction is taking place. Construction activities remove natural habitat components so that the needs of some native birds and animals are no longer satisfied. Most developed and constructed sites result in conditions acceptable to species such as sparrows, pigeons, and raccoons, but compared to natural sites, accommodate fewer native species (i.e., they lower native biological diversity).

The effects to species that are threatened or endangered can be even worse. Construction activities can remove habitat and result in animals abandoning the area - eliminating these species both from the site, and from adjacent areas (Schaefer 1996).

Whether working within city or county governments, or as

consultants in the private sector, what measures can arborists take in newly developing areas to maintain the greatest possible diversity of wildlife habitat requirements?

*Heaven is under our feet as well as over our heads.
- Henry David Thoreau*

Wildlife Habitat in Urban Areas, cont.



Thinking in terms of conserving the widest diversity of wildlife habitat requirements (food, cover, water, space) is a helpful first step. **Here are the basics:**

Food

Plants are a primary source of energy and are the building blocks of large, complex food webs in any environment. Their twigs, leaves, bark, fruits, seeds, nuts and roots are eaten by animals, birds and insects who in turn are eaten by larger animals. For example, fruit and nut-producing trees like oaks, hazelnut, elderberry and huckleberry are especially valuable food sources for wildlife. Arborists who work to maintain the greatest diversity of native plants - such as ground cover, small and tall shrubs, understory trees, and overstory trees - will be leaving the kind of site characteristics needed to meet food requirements of wildlife.

Cover

Since birds and wildlife need protection from weather and predators, having diverse types of cover on a site is also important. A combination of native conifers and deciduous trees and shrubs - including perennial and annual plants with summer and fall fruits and flowers - is optimal. Also, a mixture of vegetation reduces the possibility of losing all plants to disease or insects.

Because each tier creates its own niche, providing different layers of vegetation (canopy, understory, shrub layer, herbaceous layer, and the floor) are helpful (USDA Agroforestry Center, 2007) Again, striving to leave a diversity of plants, as well as dead or dying trees, stumps, and underground burrows, helps meet the habitat needs of wildlife in developed areas like construction sites.

Water

Fresh water, essential for most wildlife, is another key element to consider. A water source within a construction site can be used by wildlife living in the entire neighborhood (Schaefer 1996). Leaving a travel corridor from uplands to existing water supplies like ponds or streams near the site will allow access by many species. These buffers also filter nutrient-laden runoff from adjacent land to improve water quality.

Habitat conservation in open spaces and natural areas: providing corridors

Perhaps your arborist duties take you into a city's natural areas or its open spaces. Maybe you've been called upon to make recommendations about tree health...tree retention...or tree planting. In Oregon and indeed all over the world, urban parks play a role in biodiversity (Padoa-Schioppa 2007). But this increasing urbanization results in "fragmenting" forest habitat into smaller, more isolated tracts.



East Springfield, Oregon: maintaining or enhancing corridors that link stands of trees and facilitate wildlife movement is one way arborists can help minimize habitat loss in urban fringe areas.

2005 State of Oregon Framework Imagery

When this happens, the individual stands of trees have less "interior" habitat and are more prone to "edge effects" like changes in microclimate (drier conditions, or subject to more extreme temperature changes), and to increased predation by exotic predators like cats, or predation of bird nests by other animals like raccoons, crows, and even mice. Research shows this fragmentation is a primary contributing factor to loss of wildlife habitat, with migratory bird species some of the most adversely affected (Galvin 1999; SFRA Final Report 2002). Among the most important ways we can minimize habitat destruction caused by fragmentation is by consolidating open space set-asides, and by providing corridors that link habitat patches to facilitate wildlife movement (Soule 1991).

Whether working as an arborist in a city park's forested areas (perhaps marking blown-down timber to sell following a storm event), or working as a consultant in a new housing development in the wildland/urban interface, what factors need to be considered to help maintain effective wildlife corridors?

One easy rule of thumb is to seek out areas of natural water flow. Streams and the trees and plants that grow alongside them often provide connections between larger areas of habitat essential to survival in fragmented patches of urban forest. In urban areas, these landscape links are often called "greenways."

In fact, because of the rapid growth of urban areas in many parts of British Columbia, Canada's government provides detailed guidelines for developments next to streams, and guidelines for integrating development and greenways. (Dunster 1998) Within these guidelines, a 50-foot setback from the top of the bank is considered the minimum amount of land to be left undeveloped. (In Oregon, Forest Practice Rules require landowners to retain all trees within 20 feet of the high water level, all trees leaning over the channel, and all downed wood and snags that are not safety or fire hazards. Snags felled for



safety or fire reasons are left in place).

A word of caution, remember that narrow bands of remnant forest are often prone to windfall, and should be avoided in highly populated areas.

As an arborist, you may encounter more rural situations where the urban fringe site you are working in is located next to lands managed for grazing or agriculture. Incorporating clumps of native plants, grasses and forbs in these areas can provide quality habitat for wild turkey and other animals. If you know the landowner(s) and feel comfortable doing so, you can advise them to select native plants for future planting projects.

Working with schools

Public and private schools located in urban fringe areas provide another opportunity to join forces with others to plant and execute wildlife habitat conservation projects. Working with schools, whether from an urban lot, lawn-covered suburban grounds, or in an open rural landscape, there are a variety of actions arborists can take to leave behind an improved wildlife habitat legacy.

Ideas include:

- Work with a school or classroom to create an arboretum by planting a variety of native trees and shrubs during Arbor Week
- Work with school kids to create a butterfly garden by planting host plants for larva and food plants for adult butterflies

See the following websites for more info.:

www.boskydellnatives.com/plantlist_butt.htm

www.naba.org/Chapters/Nabaes/btrfly-gdng1.html

- Think about leaving habitat for small animals by piling yard waste into a brush pile, and/or making a rock pile.

A word about street trees

While we're mainly focused here on actions arborists can take to conserve habitat in urban fringe areas, a brief mention about street tree composition is also warranted.

Biological diversity is a key to sustainability in our urban forests. To avoid catastrophic losses and pest outbreaks, look at the makeup of your street trees; shoot for target levels of no more than 30 percent of any one family, 20 percent of one genus, or 10% of one species (Galvin 1999).

Recognizing and preserving wildlife trees

When thinking about the habitat characteristics of our urban forests, we arborists need to better understand which trees and what characteristics are most suitable for present and future wildlife needs.

As most foresters and natural resource managers well know, dead and dying trees are just as important to the overall quality of wildlife

habitat as live, healthy trees. But, since the traditional response to dead or dying trees in urban areas is to remove them because they're unsightly or hazardous, arborists need to be mindful about the wildlife benefits provided by these types of trees.

Without going into too much detail, animal species that use trees for habitat can be sorted into 5 basic categories:

- **Primary cavity excavators** — Examples include woodpeckers, flickers, and nuthatches that make and use new cavities every year.
- **Secondary cavity users** — Owls, bluebirds and wooducks, and raccoons, martens, and deer mice, are examples of species who cannot excavate cavities by themselves, but use abandoned holes to nest and raise young.



In southern Oregon, birds like these acorn woodpeckers make good use of tree cavities for nesting habitat.

Photo by Floyd Schrock

- **Open nesters** — Larger birds like eagles or osprey can use either dead or live trees, but they usually prefer trees with a broken top or flat crown to support their nest and provide a good view of the area.
- **Other mammals** — Small mammals like bats, flying squirrels or mice look for shelter and nesting places under loose bark and other small cavities.
- **Amphibians** — Frogs and salamanders use dead and dying trees for habitat, especially once the wood is in an advanced stage of decay. In general, decaying trees are also an important food source at all levels of the food chain.

Protecting and creating wildlife trees

If you see raptors such as eagles, osprey or herons nesting in an area, the nest trees might need to be specially designated as wildlife trees (check with local environmental organizations or government agencies).

If dead or dying trees are determined to present a high enough hazard to warrant removal (see The Hazard Tree Prevention Page at: www.pnwisa.org/htp), some of the cover requirements they provided can be maintained by placing bird houses in the area.

You can also create the wildlife trees needed by birds like woodpeckers for nesting or perching. How? Watch for trees too tall and unstable to retain, and cut them to a height where they won't be a hazard to people or nearby developments when they eventually fall over. You can roughen up the top or have it notched to encourage nest building.

Careful extraction of the tree tops, coupled with retention or replanting of understory trees and plants, can help provide for a wide variety of future wildlife habitat needs.

In conclusion: visualize, plan, and network with others

Keep your eyes open, noticing how wildlife needs and uses the different habitats you're working in. As you talk with others about how trees and wildlife interact, you may find you're offering information other arborists may not be aware of, and, that it's a great way to connect with clients.

Remember, too, that the multiple stakeholders managing our urban fringe areas means coordination and communication skills are key to successfully planning for habitat conservation during development. Key players can include landowners, land managers, non-profit groups, residents and city planners.

Overall advice?

To help conserve or reestablish habitat:

- *Take a look* at the regional landscape patterns around you.
- *Make an assessment* of other landowners and land managers in the vicinity and, where feasible,
- *Share information* and resources.
- Then *devise a plan* that will have the greatest impact for the wildlife you are trying to provide habitat for in your area.

For more information

www.nwf.org

www.nwf.org/backyard

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Frogs and salamanders often rely on dead and dying trees for habitat.

Photo by Cynthia Orlando, ODF

Written by Cynthia Orlando, Certified Arborist, ODF

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www.oregon.gov/ODF

urbanforestry@odf.state.or.us