Tree cutting and pruning to benefit urban wildlife

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Abstract

Many wildlife managers, especially in urban area, are not communicating as well as they could with the people who can most affect population levels of urban wildlife. Consider the following statistics for the State of Washington:

- **640 species of birds and mammals live in Washington State throughout the year,**
- **an estimated 46% to 53% of these species use snags(standing dead trees), logs, or woody debris at 1 or more critical stages in their life cycle,**
- **trees can enhance the value of a property by as much as 20%**
- **trees add as much as 10% to the value of architecturally similar houses,**
- **in the U.S. alone, an estimated $720,000 to $875,000 is spent each year to attract wildlife to yards,**
- **the loss of nesting cavities in snags is one of the most limiting factors in wildlife populations.**

The decisions made every day by wildlife biologists, homeowners, park maintenance workers, utility crews, street maintenance workers, contractors, construction supervisors, landscape architects, and engineers can have a direct impact on the population levels of urban wildlife. Awareness of the wildlife potential in an area, combined with knowledge of the life cycle needs and some basic botanical information can impact decisions about trees, shrubs, and vegetation that can significantly improve desirable urban wildlife populations. This can be done without any negative impact on time schedules or budgets.

Techniques have been developed over the years based on wildlife research in the U.S. and Canada that have been applied at the local level. These are based on looking at what work is being done and how decisions can be made to work with the natural environment in urban settings. These techniques include creation of habitats from hazardous trees, providing brush and rock piles, judicious placement of nurse logs and water sources, plant selection to match the site and benefit wildlife, and enhancements for bats with the use of nest boxes and platforms.

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INTRODUCTION

In 1900, the United States population was 76,212,168 and over 60% lived in rural areas. As of 21:39p.m. EDT, on 1 May 1999, the U.S. Census Bureau estimated the United States population to be 272,406,391 with more than 75% of us living in urban or suburban areas (U.S. Census Bureau 1999). In 1998, the estimated population of Washington State was 5,689,000. From these data one can theorize that other than trips to the zoo, the average American family's exposure to wildlife is a 2-week vacation every year – if they choose to vacation in an area where wildlife exists. Given that the majority of American live in urban and suburban settings, and that we spend most of the year in those metropolitan settings, it makes sense to focus our energy conserving existing urban wildlife and enhancing wildlife opportunities. This paper is a summary of over 10 years experience in bringing basic wildlife techniques into the metropolitan setting in conjunction with arboricultural techniques applied to urban forest management.

Selected statistics from Washington State:

A look at Washington State information is used here to illustrate a concept that is true in many other urban areas of the country. Consider the following:

- 640 bird and mammal species inhabit Washington State throughout the year
- 84% are non-game species (Wildlife Diversity 1997)
- an estimate 46% to 53% of species use snags, logs, or woody debris at one or more critical stages in their life cycles (Wildlife Diversity 1997)
- in the United States alone, an estimated $720,000 to $875,000 is spent each year to attract wildlife to yards (Wildlife Diversity 1997)
- trees can enhance the value of a property by as much as 20% (Council of Tree and Landscape Appraisers 1992)
- trees add as much as 10% to the value of architecturally similar houses (Council of Tree and Landscape Appraisers 1992)
- the top 3 primary causes of wildlife loss in urban areas are:
    1) loss of habitat;
    2) predation by cats and dogs; loss of nesting cavities in standing dead trees (snags),
    3) loss of logs on the ground, and downed woody debris (information from Washington State Department of Fish and Wildlife General Information Bulletin, and personal conversations with Steve Negri, Wildlife Biologist for the Department).

GENERAL CONCEPTS APPLIED

Many humans desire to see, interact with, and enjoy wildlife. This combined with:

- the census data previously mentioned
- statistics about the numbers of wildlife that previously lived in an area
- the species of wildlife that previously lived in an area
- the wildlife currently existing in an urban area
- the importance of urban forests
- how urban forests are managed, and
- the means we have to potentially and positively impact wildlife populations.

Urban Forest Management

A major problem for homeowners, street managers, park maintenance employees, developers, and property managers, is how to deal with the trees for which they are responsible. For decades, the process has been to prune when required to and remove when necessary. However, if we look at the larger picture of Urban Forest Management, decisions about what to do with individual trees have the potential to develop into a large cumulative effect. The standard response to a dead, dying, or diseased tree in most areas today is to cut it down and remove all the debris from the site. This results in the removal of numerous wildlife habitat opportunities from the urban setting. Wildlife biologists know the value of these components of wildlife and have been trained to look at the components that make up a habitat and manage that habitat for maximum wildlife benefit. Most homeowners, property managers, and park maintenance workers do not have this training. Until recently, few biologists have applied their training to the urban setting. Many state-sponsored "Backyard Wildlife Habitat" programs exist that promote the planting of species known to attract birds and mammals. These programs have been moderately successful.

The range of opportunities and information for urban wildlife management has not been fully tapped to benefit wildlife. Henderson (1987) in his book written for the Minnesota Department of Natural Resources titled, *Landscaping for Wildlife*, included the structural components, along with the plant components of habitat in a way that is useful for homeowners, property managers, and biologists

alike. Henderson talks about the value of going beyond nest boxes and feeders and also including dead tress, fallen trees and perches, brush and rock piles, cut banks, cliffs and caves, salt, dust beds, and grit and water. In ponds, he discusses shallow-water brush piles, logs, rock piles or riprap along the shore. These are all concepts with which wildlife biologists are trained to work. There is a huge audience in the urban setting that can take advantage of these same concepts on s a small scale in their own back yards or city parks.

Hazard Tree Mitigation

Does a hazardous tree automatically mean loss of habitat? Not if a few questions are asked before the tree is cut to the ground and hauled away. Hazard trees are a consequence of having large specimens in proximity to homes and businesses. As urban areas spread further into the surrounding land, many communities desperately seek to keep as many trees on a site as possible without many guidelines for protecting the long-term survivability of the trees. Three to 12 years after the structures are built, an arborist is called in to try and save the trees (Matheney & Clark 1994). The tree has finally succumbed to the damage that occurred during construction – it is now dead or nearly dead.

The International Society of Arboriculture sponsors a protocol for assessing trees and determining if a tree really is a hazard. Basic biological principles of tree physiology, disease processes, site factors, and physics are applied to individual trees and groups of trees to determine the failure or hazard potential (Matheny &Clark 1994). Trees are rated on a scale of 1 to 12. A rating of 1 is a healthy tree. A rating of 12 is an imminent hazard that must be dealt with. Key to the rating scale is the concept that a tree without a target, even though it is rotten and may fall down, is not necessarily a hazard. A dying tree in a park that leans away from a trail into a greenbelt is rated as a 5 or 6, while the same tree leaning over a house or picnic shelter may be rated as an 11. When trees are rated at 8 or above, action may be warranted. The question is, "Does the tree need to be removed completely?" This is an opportunity for the property manager, owner, or tree service to leave some sort of structural habitat component for wildlife. These elements can be incorporated into landscape plans as features or they can be left to the back wooded area of a park, greenbelt, or open space.

OPPORTUNITIES

Utility Corridors in Urban Areas:

The area underneath power, telephone, and television lines can provide important wildlife habitat. However, the question needs to be asked when a tree must be trimmed or removed, "Is there an opportunity to solve this problem and enhance wildlife at the same time?" Some of the opportunities in utility corridors that we have enacted at the local level are:

- trimming trees down to a height below the wires to eliminate the hazard, or trimmed down to a height so that, when they do fall, they will not strike the wires
- leaving nurse logs on site
- staking nurse logs onto hillsides to aide in erosion control as well as wildlife habitat
- leaving brush piles in appropriate settings for wildlife
- making habitat trees (snags) of inappropriate tree species under wires and then replacing the trees with species that will not grow into the power lines
- choosing replacement species that have wildlife value such as fruit, nesting cover, etc. (Henderson 1987; Appendix A, pp. 74 – 100; and Appendix J, page 117).

Property Managers

Park maintenance workers, apartment and condominium managers, as well as site managers for office building, industrial and retail business all have a huge impact on the urban forest. Many struggle with the challenges of managing wildlife habitat. Most often they have not been taught wildlife management concepts.

Conversely, they have other priorities. They are pressured by high demands, limited staff, and budget resources. When a tree problem arises, they most often want it solved quickly and inexpensively. If they can be shown that the hazard can be eliminated by proper pruning or development of habitat trees or nurse logs in a way that can actually save them money, they will often listen to the wildlife benefits too. Many park maintenance workers have not been taught that wildlife habitat is part of their responsibility. Their focus has been to provide the greatest level of service for park visitors for the budget they have to work with. Although, we may assume that most park workers enjoy wildlife in their parks, they have not been taught that they have any affect on wildlife populations in the areas under their care. Once exposed to the opportunity of solving tree problems and enhancing wildlife potential at the same time, many of these same workers and managers become staunch supporters of new ways to get their work done. Leaving structural components that wildlife need, is now standard practice in our parks, open spaces, and green belts on Mercer Island.

Street Engineers and Maintenance Workers

A number of opportunities exist to enhance wildlife habitat in routine street maintenance, in road construction, and re-construction. Once the engineer's need for conveyance and safety are met, there may be additional space left that has existing vegetation or will be re-vegetated as part of the capital project. These are areas where snags can be left or created. When plants are selected for planting they are often chosen by such criteria as cost, survivability in the harsh right-of-way environment, and low maintenance. An additional criterion can be wildlife benefits (Henderson 1987, Appendix A). When the U.S. Interstate 90 freeway was widened and rebuilt across Mercer Island, city officials worked with Department of Transportation landscape architects to include plants that provide excellent wildlife benefits such as canopy, potential nest sites, cover, fruits, and berries.

SPECIFIC WILDLIFE COMPONENTS

Snags, Nurse Logs, and Perches

- 46% of northwestern birds and mammals use snags and logs in 1 or more critical life phases such as: nesting, perching, as a food source, or territorial establishment.
- The larger the snag, the greater its value for wildlife. However, snags as small as 4 feet have been used by chickadees as nest sites.
- Snags provide perches for species such as kingfishers, herons, and flycatchers.
- Nurse logs absorb water and create microclimates that support amphibians and small mammals well into the summer months.
- Logs anchored in ponds support waterfowl and turtles. (Henderson 1987)

It is now our goal in all public properties in the City of Mercer Island that we leave as many nurse logs and snags as is practical. Safety must be a paramount deciding factor as to its practicality. This often saves the city departments money because the tree company hired to do the work is on site less time and has less work to do.

Nest Boxes and Platforms

While preserving natural snags and cavities is the best way to provide homes for wildlife, nest boxes and platforms have also proven successful.

- At least 46 species of northern wildlife use nest boxes and platforms. They need to be constructed and placed with a specific species in mind. The needs of the target species must be considered as well as the need to prevent predation as much as possible (Henderson 1992)
- Species or groups successfully using nest boxes include: blue birds, mergansers, goldeneye, wood duck, many owl species, pileated woodpeckers, flickers, purple martins, swallows, nuthatches, wrens, kestrels, warblers, flying squirrels, raccoons, and bats (Henderson 1992).
- Species successfully using nest platforms include: ospreys, Canada geese, loons, great blue herons, cormorants, bald eagles (Henderson 1992).

We have had only moderate success in providing nest boxes and platforms due to the lack of staff resources. Boy Scout and business volunteers have built and placed platforms for bald eagles and wood ducks. This is an area we hope to expand into in coming years.

Brush and Rock Piles

The primary benefit of brush and rock piles is to provide escape cover, nesting sites, and den sites. If placed along the edge of water, they can be important habitat for amphibians and reptiles. Wildlife using brush and rock piles can include: rabbits, long-tailed weasels, wood chucks, northern prairies skinks, red foxes, garter snakes, frog, turtles, and salamanders (Henderson 1992).

CONCLUSION

Urban wildlife biologists can have a significant effect of urban wildlife populations by working with other disciplines that affect wildlife habitat components in urban settings. These other disciplines include arborists, tree services, park maintenance workers and managers, utility foresters and line clearing crews, homeowners, street maintenance workers and managers, contractors, developers, construction supervisors, engineers, and landscape architects. Giving these disciplines additional knowledge and support will benefit urban wildlife.

One key element is knowing where wildlife is or has been present. Knowing this, I can then look for opportunities to solve tree pruning/removal problems in a way that enhances wildlife. I can look at how a site is being managed, look at the tree problems and evaluate alternatives that include wildlife needs. There are places where snags and brush piles are not desirable. Often it is the people involved who are opposed to these concepts. Many of these people feel that leaving a standing dead tree is wrong according to decades of one-sided information on how a property is managed. This is where the knowledge of wildlife biologists can engage people, often one at a time, and educate them on the

possibilities and the opportunities. When I encounter managers who are opposed, I ask them what the area was like when they arrived. What wildlife did they see in decades past? What do they see now? Then, I tell them what specific elements are missing from this particular forest area that the previous wildlife need. This approach generally has a positive affect on the person being willing to talk and learn more.

This knowledge combined with solving hazardous tree problems and the daily management of the urban forest can be added to what wildlife biologist know to increase wildlife potential in the metropolitan areas.