

## **Watershed Development and Wildlife - Part II**

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The initial article on watershed development and wildlife (Winter Issue 2007 KLA Newsletter) described importance of different ages of forestlands to wildlife and how development impacts these stages. This article identifies various habitat components required by wildlife and describes how watershed development affects wildlife by impacting these habitat components.

All wildlife species have basic requirements: food, water, nesting/breeding structures, and shelter from weather and enemies. **Wildlife habitat** is that specific combination of food, water, and nesting and shelter structures needed by every wildlife species. Some critters have relatively simple requirements; others are complex, requiring more complex habitats.

**Food .** - There is a vast array of different foods provided by forests and found nowhere else: nuts, fruits, and seeds by trees such as oaks, hickory, cherries, beech, aspen, maples, ashes, birches, and Juneberry, and by shrubs such as elderberry, hobblebush, blackberry, and sumac. Plants in the understory (close to the ground) include tree seedlings (favorite deer food), grasses, some but not all ferns, and wildflowers such as trillium, wild lily of the valley, and jack-in-the-pulpit. Deer, bear, squirrels, mice, and turkeys gobble up oak acorns, and beech and hickory nuts. Pine cones and seeds are favorite foods of squirrels and birds like crossbills. Dozens of forest birds, as well as bear, raccoon, foxes, and deer feast on the multitudes of berries and fruits produced by cherries, Juneberry, shrubs, and wild grape. Native grasses are a favorite of deer, bear (in spring), and mice. Shrubs and seedlings are gnawed on by deer, bear, beaver, and rabbits. Grubs found in decaying wood (snags, logs) are prime foods of woodpeckers and bears. Forest songbirds such as nuthatches and chickadees march up and down tree trunks and branches, gleaning insects that live on and under bark and on leaves. Bats, swallows, bluebirds, and nighthawks scoop insects out of the air: concentrations of these small bugs are found along forest streambanks and ponds. Farms close to forests (where wildlife live and hide) are additional rich sources of food such as apples, grapes, corn, alfalfa, oats, barley and wheat, and berries.

**Cover.** - Snags (decaying trees, large and small, with lots of holes) are primary nesting places for many birds including flickers, woodpeckers, and chickadees. Larger snags are used by raccoons and squirrels. Extremely large snags with very large openings are used by bears for “hibernating” over winter. Large trees with broken open tops, especially white pine, are essential nesting spots for bald eagles. Live trees with cavities, such as beech and maples, are prime nesting places for squirrels. Logs are hiding/breeding places for many small mammals such as mice, voles, and shrews, and are also used by some species of salamander. Some forest birds nest on the ground next to or under logs. Many birds nest only in conifers such as hemlock and pines, and deer shelter underneath them in winter to escape snow and prevent heat loss. Dense patches of young trees (saplings) form “dog hair” thickets that deer hide in during hunting season. These thickets are also prime feeding areas (for earthworms) for woodcocks. Thick patches of understory vegetation (seedlings, ferns, shrubs) are the only places some birds, including turkeys, will nest in. Large rocks the size of cars and larger, especially if they have many cracks and crevices, are required by some salamanders. Rock concentrations are also favorite rattlesnake dens and breeding places. It is important to note that all these forms of cover must also be inside intact forests: most wildlife will not use snags, rocks, logs, single conifer trees, shrubs or ferns if they are in open fields – surrounding forests are an absolute must, because of the additional cover, and cooler, moister micro-climates found within leaf-covered forests.

**Water.** - All wildlife need drinking water, as found in lakes, streams, ponds, pools, and seeps. Additionally, some critters require these aquatic habitats for food (mink for the fish, beavers for the woody plants they eat and build their lodges from for protecting their young) and for nesting by streamside birds such as Acadian flycatchers and Canada warblers, which additionally require that the streamside trees are mixes of conifers and other trees (oaks, maples, etc). Woodland frogs, toads, and salamanders must have calm ponds for breeding, and the waters must be shaded by overhanging trees from the heat of the sun. Fish, such as trout, require forested streams for cooling shade like the amphibians, and for prevention of soil erosion which silts up streams and suffocates fish eggs.

**Impacts of Development.** - Watersheds surrounding Keuka Lake (and other Finger Lakes) are the last bastions of large, intact patches of forests in western New York with all the habitat components required by the diverse community of wildlife species. At the turn of the last century (late 1800s) these watersheds were stripped of trees and planted to vineyards and other farm lands. Conversion of forests to non-forest uses resulted in the loss of eagles, ospreys, deer, bear, turkeys, and nearly all other forestland-dependent wildlife. Indeed, at that time, most state game agencies were founded to recover habitats and wildlife that had been nearly extirpated by habitat loss.

Some wildlife species, like deer and turkeys, require a number of different habitats. Some require large, unbroken blocks of forest with all the necessary components. Retaining enough numbers of individual wildlife species to maintain populations over time requires large amounts or blocks of large forest, close enough for exchange of genetic material by different populations of the same species.

Since the late 1800s, watersheds for Keuka and other Finger Lakes have gradually reforested themselves as agriculture was abandoned in many places (some were helped by creation of red pine plantations in the 1930's by Civilian Conservation Corps programs). And wildlife species gradually have returned (excepting eagles, still not enough large snags on hillsides above lakes). However, optimizing the breadth of the wildlife community in Keuka Lake's watershed forests requires maintenance and preservation of the remarkable diversity of habitats, with all their components, and at the required scale of overall abundance (large blocks of intact forestland not isolated from each other).

Keuka Lake's forests were cut down once, with great loss of wildlife, in the late 1800's. These forests, and their dependent wildlife species, slowly returned as the agricultural lands reverted to forests. Current agricultural land very likely will not again be abandoned and revert to forests. As forestlands are opened up for residential development, and as agricultural lands also revert to residences, the diverse forest and wildlife community in Keuka Lake's watershed will be reduced permanently. Many wildlife species will leave and not return. Retaining small chunks of forestland (residential properties with an acre or more of forestland) will not provide the variety of wildlife habitats, nor will it provide the aggregate amount of habitats required to support viable populations of all native wildlife species.