

The Forest as a Habitat

By

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Although trees are the largest, most productive organisms in forests, the forest ecosystem is much more than a population of trees growing on the land. Forests also provide habitat for a host of other species of plants, along with numerous animals and microorganisms. Most of these associated species cannot live anywhere else; they have an absolute requirement of forested habitat. Often that need is very specific, as when a bird species needs a particular type of forest, in terms of tree species, age, and other conditions.

For example, Kirtland's warbler (*Dendroica kirtlandii*) is an endangered species of bird that only nests in stands of jack pine (*Pinus banksiana*) of a particular age and density in northern Michigan. This songbird does not breed in any other type of forest, including younger or older stands of jack pine. Similarly, the endangered spotted owl (*Strix occidentalis*) only occurs in certain types of old-growth conifer forests in western North America. These same old-growth forests also sustain other species that cannot exist in younger stands, for example, certain species of lichens, mosses, and liver worts.



Dendroica kirtlandii



Pinus banksiana



Strix occidentalis

Usually, however, the many species occurring in forests have a broader ecological tolerance, and they may in fact require a mosaic of different habitat types. In eastern North America, for example, white-tailed deer (*Odocoileus virginianus*) do well in a mixture of habitats. They require access to relatively young, successional stands with abundant and nutritious food for

this species, along with refuge habitat of mature forest with some conifer-dominated areas that



have shallower snow depth in winter. Similarly, ruffed grouse (*Bonasa umbellus*) does best on a landscape that has a checkerboard of stands of various age, including mature forest dominated by trembling aspen (*Populus tremuloides*) with a few conifers mixed in.

Odocoileus virginianus

Bonasa umbellus

Populus tremuloides

More generally, forests provide the essential habitat for most of Earth's species of plants, animals, and microorganisms. This is especially true of tropical rain forests. Recent reductions of forest area, which since the 1950s have mostly been associated with the conversion of tropical forest into agricultural land-use, are a critical environmental problem in terms of losses of biodiversity. Deforestation also has important implications for climate change and access to natural resources.