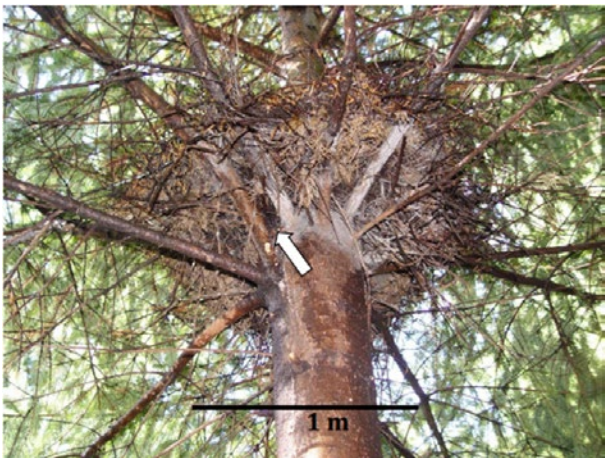
Red Tree Voles and Forestry

Red tree voles (*Arborimus longicaudus)* are small rodents with round ears, long tails and fur that is reddish brown in color. As adults, they can weigh up to two ounces. Red tree voles form canopies to build nests in Douglas-fir trees. They have small home ranges, low reproductive rates and a specialized diet consisting mostly of Douglas-fir needles, and are mostly active at night. Red tree voles commonly utilize older, structurally complex forest stands for nesting and foraging. Nests are made in habitat features such as tree cavities, broken tops, whorls, and dense branch clusters. They are an Oregon Department of Fish and Wildlife Conservation Strategy species, and are listed as a G2-Imperiled species by NatureServe. They are an endemic species that only occurs in western Oregon and northern California.

Red tree vole. Photo by Stephen Destafano, USGS.

WHERE ARE RED TREE VOLES FOUND IN OREGON?

In Oregon, red tree voles inhabit primarily old growth coniferous forest stands within the Coast Range, Klamath Mountains, and West Cascades ecoregions. In addition to the Douglas-fir, other important tree species include grand fir, Sitka spruce, and western hemlock. Evidence suggests that red tree voles eat the needles of these species in addition to Douglas-fir needles. Red tree voles benefit from a gradual forest edge to reduce the chances of predation.



Red tree vole nest. Photo by Eric Forsman, USGS.

WHY ARE RED TREE VOLES IMPORTANT?

Managing red tree vole habitat is generally congruous with managing for species that rely on closed-canopy, late-successional forest, such as the northern spotted owl. In addition, red tree voles are a food source for a variety of native arboreal predator species in Oregon, including the northern spotted owl and weasels.

WHAT ABOUT RED TREE VOLES AND FORESTRY?

Land managers can increase habitat for red tree voles by:

- maintaining forests as forests
- identifying high-priority sites to protect by locating potential red tree vole nests
- maintaining interlocking forest canopies for dispersal
- maintaining living legacy trees across the landscape
- maintaining structural complexity throughout Douglas-fir stands, vertically and horizontally, particularly those that are late-successional or are in close proximity to old forest (80 years or older)
- installing artificial platforms in younger stands to create structure necessary for red tree voles to build nests
- creating gradual, "feathered" edges to managed stands rather than abrupt transitions to open habitats

WHAT ARE SOME THREATS TO RED TREE VOLES?

The greatest threat to red tree vole populations is habitat degradation. Reasons for habitat degradation include the following:

- **fire:** High-intensity, stand-replacing fires where large trees are lost
- **lack of canopy structure:** Limited deformities or wide branches limit places for red tree voles to build nests and move among trees.
- **drought:** During extensive droughts, Douglas-fir trees drop their needles, experience branch mortality and can die completely
- **human disturbance:** Removal of habitat due to urban, agricultural and road development, as well as logging of old forest stands
- **habitat fragmentation:** Noncontiguous stands of appropriate forest habitats inhibits the already poor dispersal ability of red tree voles. This limits gene flow between populations and increases the risk of disease within their small home ranges.

HOW DO RED TREE VOLES INTERACT WITH MANAGED FORESTS?

Oregon red tree voles can spend their entire lives in Douglas-fir stands. They use the forest canopy to nest, forage and rear young. In late-successional forest stands, nests are usually built on large branches about 50 feet above the ground. Red tree voles are also known to use younger stands (younger than 80 years) that are in close proximity to older forest stands.

Red tree vole sign. Photo by Eric Forsman, USFS.

SOURCES & MORE INFORMATION

Forest Ecology and Management: Conservation and relative habitat suitability for an arboreal mammal associated with old growth
Field Guide to Red Tree Voles

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http://oregonconservationstrategy.org

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https://www.blm.gov/or/plans/surveyandmanage/MR/RedTreeVole/RTV.pdf

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