

CAREY, A.B. 1999. Red tree vole/Arborimus longicaudus. Pages 620-622 in D.E. Wilson and S. Ruff, eds. The Smithsonian book of North American Mammals. Smithsonian Institution Press, Washington, D.C. 750 pp.

### **Red tree vole** | *Arborimus longicaudus*

The secretive nocturnal red tree vole is one of least studied and most specialized voles in North America. It is found only along the coast and in the Western Cascades of Oregon where it spends most of its life in the tops of tall conifers, eating needles of Douglas-fir (*Pseudotsuga menziesii*) and, occasionally, other conifers. The voles clip small twigs and bring the twigs and needles back to their nests. They lick the needles to obtain water from dew rain and condensation from

fog. Home from dew rain and condensation from fog. Home ranges are thought to be small—one or more trees. Dispersal ability, and the ability to colonize new habitats seems limited. Early mammalogists reported that red tree voles occupied only areas of extensive forest. Recent studies have shown them to be most abundant in old-growth forests: they are undergoing declines due to logging. Red tree voles are rare in sapling, pole and managed sawtimber stands, and

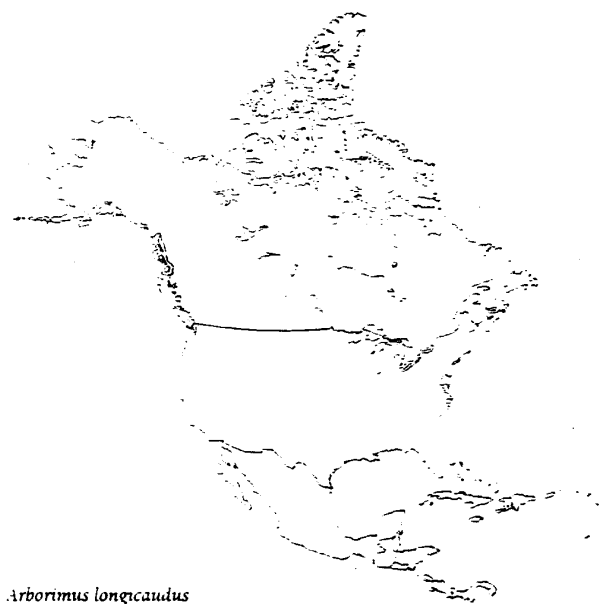


young stands may serve as barriers to their dispersal.

Red tree voles build nests wherever there is a suitable foundation and a readily accessible food supply. Only one adult occupies each nest. Whorls of branches provide support in young trees: the large branches of old-growth trees can support the large nests needed for maternal nests or nurseries. Nests are constructed of resin ducts (leftovers from eaten needles), lichen, feces, conifer needles, and fine twigs. They are sometimes built in cavities and hollows in trees or under the moss covering large branches of old trees. Nests range from 2 to 50 m above the ground and may be in trees of any size. Even in old growth, however, voles select the largest available trees for nesting and most commonly build their nests in the lower third of the live crown. Several nests may be built in large trees. The voles are not at all alarmed by living so high in trees: when threatened, some will launch themselves from branches and free-fall as far as 18 m, land, and race for cover.

Red tree voles breed throughout the year, but their litters, of one to four young, are usually born between February and September. Gestation is 28 days but may be extended to 48 days in lactating females. Nursing may be extended and the development of the young is slow. This low reproductive potential may be interpreted as an adaptation to the difficulty of converting conifer needles into energy for metabolism. These adaptations to a restricted diet are only adaptive in a relatively stable environment, such as old growth.

Old-growth trees provide stability, whereas in growing trees, the voles have to relocate their nests. Needles are concentrated on fewer (but larger) trees in old growth. Providing maximum food availability. The tall, multilayered canopies of old growth have high humidity and fog interception, providing



*Arborimus longicaudus*

the voles with water. Large branches provide solid support for nests, protection from storms, and facilitate travel among trees—all contributing to the formation of colonies of red tree voles. Old growth, however, is also the preferred habitat of the northern spotted owl (*Strix occidentalis*), the primary predator of the red tree vole. A.B. Carey

**Size**

Females are slightly larger than males.

Total length: 158-206 (males, 12; females 184) mm

Length of tail: 60-94 (males, 70; females, 77) mm

Weight: 25-47 g

**Identification**

The pelage of this vole is thick, relatively long, and soft. Northern Oregon coastal populations are slightly larger, with brownish-red backs. The central and southern Oregon subspecies is brighter brown to orangish-red. The undersides

are pale gray and, in southern populations, sometimes washed with reddish-orange.

The tail is long, hairy and black to brown.

The eyes are small and the ears are pale

and hairless. The California congener,

*Arborimus pomo*, is similar in size and color

to *A. longicaudus longicaudus*, but its

chromosome count is different, and their

ranges do not overlap.

**Recent Synonyms**

*Phenacomys longicaudus*

**Other Common Names**

Reddish tree mouse

**Status**

Uncertain: rarely seen; geographically limited to western Oregon

**Subspecies**

*Arborimus longicaudus longicaudus*, central and southern Oregon

*Arborimus longicaudus silvicola*, coastal northern Oregon

**References**

*Mammalian Species* 532; Carey: 1991; Johnson and George. 1991; Maser et al., 1981