



January 9, 2009

Members Oregon Board of Forestry  
Oregon Department of Forestry  
2600 State Street  
Salem, OR 97310

Dear Board Members,

I am writing to express concerns about management of the Tillamook and Clatsop State Forests and to offer our assistance in developing management plans for state forests that preserve habitat for species of concern, protect healthy watersheds for fish and people, and develop and maintain resilient forests.

Because of a combination of a lack of federal lands, the Tillamook Burn and a history of intensive industrial forestry, there is currently a severe lack of old forests in northwest Oregon. ODF (2002), for example, estimates that less than 1% of state forests ~~are~~ currently contain old forest conditions. This catastrophic loss of old forests has led to the decline and loss of numerous species in northwest Oregon, including severe declines in well known species like the northern spotted owl, marbled murrelet and Pacific salmon, as well as lesser known species like the Pacific fisher and dusky tree vole.

Moving part of the state forest toward industrial forest practices that maximize timber volume removed will only lead to increased declines in these and other species, necessitating the need for federal protection under the Endangered Species Act. Indeed, the Center for Biological Diversity has filed a petition with the U.S. Fish and Wildlife Service requesting federal protection for the dusky tree vole, which is only found in northwest Oregon and appears to have experienced substantial declines. We provided a copy of this petition at a previous board meeting and are now providing a copy of a letter by a prominent scientist sent to the Fish and Wildlife Service in support of the petition.

We understand that no one is proposing for the entire forest to be run on an industrial model. But the target for a 35% increase in harvest adopted at the last BOF meeting will undoubtedly require more intensive harvest than the current plan.

Oregonians increasingly expect more from state lands than mere timber revenue, including habitat for species of concern and other wildlife, space for recreation and solace, clean water and high quality fisheries. The burden to provide for these values falls disproportionately on state lands in northwest Oregon because of the

predominance of industrial forest lands in the area that are managed on short rotations with little consideration for maintaining old forest conditions, such as large trees and snags, downed wood, and multi-layered dense canopies (Franklin and Spies 1991).

Fortunately, state forests are at a cross roads, whereby many stands that were replanted following the Tillamook Burn and salvage logging are beginning to obtain old forest characteristics. These stands can either be protected to preserve the many values supported by Oregonians or again cut to meet short-term demands for timber dollars. The latter course will lead to increased conflict over forest management, further species decline, watershed degradation and likely increased federal regulation. It is our sincere hope that the Board will not choose this course and will instead take a proactive approach to managing the state's forests for the benefit of Oregonians now and in future generations.

Toward this end, it is our hope that the Board of Forestry will instruct the Oregon Department of Forestry to develop and implement state forest management plans that protect species of concern and ecosystem integrity. This will require at a minimum the following actions:

- ❖ Identifying and protecting a system of interconnected reserves that protects remnant mature and old forest patches, stands most likely to develop mature and old forest characteristics, areas of low road density and high value watersheds.
- ❖ Surveying for key species of concern to identify and protect important occupied habitats for these species.
- ❖ Reducing road densities to protect watersheds.
- ❖ Adopting forest management practices that minimize forest fragmentation and watershed degradation.

I am willing to help in anyway I can to develop such an alternative for state forests and thus please do not hesitate to contact me at 503-283-5474.

Sincerely,



D. Noah Greenwald M.S.  
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Center for Biological Diversity  
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**Literature cited:**

Franklin, J.F. and T.A. Spies. 1991. "Ecological definitions of old-growth douglas-fir forests." In: *Wildlife and vegetation of unmanaged Douglas-fir forests*. U.S.D.A. Forest Service Pacific Northwest Research Station. *General Technical Report PNW-GTR-285*.

ODF. 2002. Pathway to the future for Northwest Oregon state forests. Oregon Department of Forestry state forests management program, 2600 State St., Salem, Oregon 97310.

17 December 2007

Mr. Ren Loehoffner, Regional Director  
US Fish and Wildlife Service  
911 NE 11<sup>th</sup> Ave  
Portland, OR 97232-4181

Dear Mr. Loehoffner,

I wrote my Master of Science degree on the natural history and ecology of both the dusky tree vole (*Arborimus longicaudus silvicola*) and the red tree vole (*Arborimus longicaudus longicaudus*) in Oregon, which I studied from July 1962 to until August 1965 (Maser 1966). I also conducted an ecological study of mammals of the entire Oregon Coast from June 1970 to September 1973. This study, commissioned by the Museum of Natural History, University of Puget Sound, in Tacoma, Washington, resulted in the publication: "Natural History of Oregon Coast Mammals," (Maser, et. al., 1981). Oregon State University Press asked me in 1996 to update and expand that book, which I did when I wrote: "Mammals of the Pacific Northwest: From the Coast to the High Cascades" (Maser 1998).

As a scientists versed in the biology of tree voles in Oregon, I'm writing to support listing of the dusky tree vole (*Arborimus longicaudus silvicola*) as a threatened or endangered subspecies under the Endangered Species Act. Based on my experience with and knowledge of tree voles, it is my determination that the best available information indicates the dusky tree vole is a distinct entity that qualifies for protection under the Endangered Species Act.

***The dusky tree vole qualifies for listing under the Endangered Species Act as either a subspecies or a distinct population segment***

First, a subspecies, like a species, comes into being due to some sort of primary ecological barrier to distribution within the overall population of the nominate species. The dusky tree vole fulfills this condition:

The dusky tree vole is confined to the Coast Range of western Oregon from the Columbia River southward to about Reedsport in Douglas County. I say, "confined," because the Columbia River is an impassible barrier to the north and the Willamette Valley is an impassible barrier to the east due to a lack of habitat—effectively isolating the dusky tree vole from the red tree vole of the western flank of the Cascade Mountains. With respect to the southern extent of its geographical distribution, there is a change in habitat, which acts to constrain dusky tree voles to the coastal mountains.

From Eugene, Lane County, southward, the overall habitat east of the crest of the Coast Range, in what is physiographically considered to be the interior valley, is one of mixed coniferous-deciduous forests composed largely of austral vegetation and soil types. This entire area is much drier than either the Coast Mountains or the western flank of the

Cascade Mountains—where the red tree vole has scattered populations. Besides a general lack of habitat for either tree vole, the valley's dryness prevents the formation of sufficient dew and fog-drip to sustain tree voles, which depend on such moisture for drinking water in their arboreal habitats.

From Reedsport northward, the Coast Range is comprised of volcanic headlands and uplifted mountains clothed in a northern coniferous forest dominated by western hemlock (*Tsuga heterophylla*), Douglas-fir (*Pseudotsuga menziesii*), and Sitka spruce (*Picea sitchensis*). From Reedsport southward, the coastal area is a series of flat, elevated marine terraces, which again support a distinctly austral vegetative composition. Forests of the northern Coast Range are generally denser, darker, and have a greater proportion of Sitka spruce and western hemlock, whereas coastal forests south of Reedsport become dominated primarily by Douglas-fir.

The historical combination of habitat differences isolates dusky tree voles in the northern portion of the Coast Range from red tree voles in the southern portion of the Coast Range and Siskiyou Mountains. This separation has been accentuated in recent decades by extensive habitat fragmentation from logging and roads, making dispersal of tree voles into the intervening area all but impossible. This separation is confirmed by genetic analyses:

“Spatial genetic analyses of control region sequences demonstrated a primary genetic discontinuity separating northern and southern sampling areas, while a secondary discontinuity separated northern sampling areas into eastern and western groups divided by the Willamette Valley” (Miller et al. 2006).

Moreover, where the two habitat types meet there is a shift in fauna. To the north are the Yaquina shrew (*Sorex yaquinae*), snowshoe hare (*Lepus americanus*), bushy-tailed woodrat (*Neotoma cinerea*), and dusky tree vole (*Arborimus longicaudus silvicola*). To the south, are the Pacific shrew (*Sorex pacificus*), brush rabbit (*Sylvilagus bachmani*), dusky-footed woodrat (*Neotoma fuscipes*), as well as a few, widely scattered populations of the red tree voles (*Arborimus l. longicaudus*) until one gets to southern Curry County, where I found them to be more abundant in the early 1970s (Maser et. a., 1981, Whitaker and Maser 1976).

Based on their darker color and larger size, the dusky tree vole was described as a species (*Phenacomys silvicola*) by Howell (1921) and as a subspecies (*Arborimus longicaudus silvicola*) by Johnson (1968). This designation was accepted by Hall (1981) in his definitive treatise *The mammals of North America*. Although Bellinger et al. (2005) failed to find support for recognition of *A. l. silvicola* using mtDNA, the dusky tree vole continues to be recognized as a subspecies by the scientific community. In fact, a recent study by Miller et al. (2006), including further work with mtDNA, found genetic differences that correspond with the general boundaries of the dusky tree vole's range. As such, the best information available supports continued recognition of the dusky tree vole as a subspecies.

Should the U.S. Fish and Wildlife Service decide to not recognize the dusky tree vole as a subspecies, however, then it clearly qualifies for listing as a distinct population segment (“DPS”). According to the Service’s policy on recognition of distinct vertebrate populations (Federal Register V. 61, No. 26, February 7, 1996), a population qualifies as distinct if it is “discrete” in “relation to the remainder of the species to which it belongs” *and* it is “significant” to the species to which it belongs.

As discussed above, the dusky tree vole is reproductively and geographically isolated by historic habitat differences combined with recent habitat fragmentation due to logging and roads. Such isolation is supported by observed morphological and genetic differences (Hall 1981, Miller et al. 2006) that clearly indicate the dusky tree vole is a discrete entity.

The dusky tree vole is highly significant to the taxon because, as required by the Service’s policy, because: (1) it occupies a unique ecological setting, (2) its loss would result in a significant gap in the range of the species, and (3) it is markedly different in its genetic characteristics. The dusky tree vole occupies forests that are denser, darker and dominated by Sitka spruce and western hemlock, rather than the more open Douglas-fir forests occupied by the species in the majority of the rest of its geographical distribution. In response to this ecological setting, the dusky tree vole has developed unique adaptations.

Their darker color makes it harder to see them in the dim light of dense forests. The dusky tree vole is adapted to feeding on spruce and hemlock in the northern-most part of its geographical distribution. In fact, many in Tillamook County were found in pure stands of ancient hemlocks in the 1950s, 1960s, and early 1970s, where they occupied hollows in old trees, as opposed to making outside nests of their own. Nor did these individuals construct the usual nest of resin ducts in captivity. In fact, the ones Dr. Murray Johnson and I worked with for 14 years were often so adapted to the ancient hemlocks they did not even split the resin ducts from the hemlock needles, and did not know how to do so with Douglas-fir needles—which they refused to eat. As a consequence, they would starve to death in captivity without a constant supply of western hemlock needles as food. These adaptations clearly make the dusky tree vole a significant taxon.

The dusky tree vole is also significant because its loss would create a singular, irreversible gap in the geographical range of the red tree vole—roughly a third to half the species geographical distribution in the Coast Range and nearly a quarter of the species overall distribution. It would also eliminate the species from an area in which it is adapted to a unique set of ecological conditions, potentially reducing the species ability to survive changing conditions in the future.

Finally, the dusky tree vole differs markedly in its genetic characteristics, which caused Miller et al. (2006) to conclude:

“Our phylogenetic analyses indicated generalized support for the presence of a group of northern haplotypes that were distinct from those detected among southern locations.”

Combined with the observed differences in color, size, and local adaptations, these genetic differences clearly indicate the dusky tree vole differs markedly from the conspecific red tree vole.

***The dusky tree vole warrants protection as a threatened or endangered species***

The best available information indicates the dusky tree vole warrants listing as a threatened or endangered species. My colleague, Dr. Eric Forsman, has been conducting surveys in areas where tree voles were historically found in the range of the dusky tree vole and has found few to no active nests. This fact, in combination with extensive destruction of the tree vole’s habitat caused by the Tillamook Burn and industrial logging, suggest that the dusky tree vole may be close to extinction.

It is thus my opinion that the dusky tree vole should be protected as a threatened or endangered species under the Endangered Species Act. If you have any questions, please do not hesitate to contact me.

Sincerely,

Chris Maser  
(541) 757-3479

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