

A SEMIARBOREAL NEST OF THE AMERICAN SHREW-MOLE,
NEUROTRICHUS GIBBSII

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The American shrew-mole, *Neurotrichus gibbsii*, is unusual among moles in having morphology, physiology, and behaviors that are more like shrews than other moles. American shrew-moles are often active above ground and in low vegetation and are the only moles known to nest above ground (Dalquest and Orcutt 1942; Yates and Pedersen 1982; Carraway and Verts 1993). However, the biology of shrew-moles in the wild remains poorly known (Verts and Carraway 1998).

To our knowledge, only 1 nest of wild shrew-moles has been reported. That nest was found in a rotten alder stump, 0.6 m above the ground on 24 March 1941 in Seattle, Washington (Dalquest and Orcutt 1942; Dalquest 1948). The nest cavity was lined with damp leaves and was connected to a tunnel through the interior of the stump.

On 5 May 2000, we observed a similar nest of *Neurotrichus gibbsii* near the north bank of the Dosewallips River in the Olympic Mountains, Jefferson County, Washington (elevation about 150 m). The nest was 1.25 m above ground in a standing, thoroughly decayed red alder (*Alnus rubra*) snag (Fig. 1A). The snag was 0.38 m in diameter at the base, 0.23 m in diameter at the level of the nest, and 1.52 m tall. The habitat in the vicinity of the snag was primarily deciduous forest of red alder and bigleaf maple (*Acer macrophyllum*), with a few Douglas-firs (*Pseudotsuga menziesii*). The forest floor was covered with nettle (*Urtica dioica*), red alder saplings, and sword ferns (*Polystichum munitum*), as well as extensive fallen wood and leaf litter. The site was on a gentle slope (about 10 to 15°) at the bottom of a steeper (about 20 to 30°) slope and was about 40 m from the riverbank.

The nest cavity was 0.08 m in diameter and filled only with soft, dry, apparently shredded wood duff (Fig. 1B). The mother and 3 well-de-

veloped young were present. When we exposed the nest by removing some of the outer wood, the mother fled down a tunnel through the snag. The young were fully furred and able to crawl, but remained in the nest. When an individual was uncovered for photographing, it would immediately bury its snout in the wood duff, turn toward the center of the nest cavity, and try to burrow into the duff with its siblings. Several fleas were visible on the outer surface of the fur of the young moles. After photographing the nest and young, we covered the nest cavity with bark from the base of the snag. The nest remained undisturbed until 14 May 2000, when we re-examined the nest cavity and traced the tunnel down through the snag; by then, the animals had left the nest.

The elevated nest we observed was not a truly arboreal nest. The animals did not need to climb the outer surface or any branches (there were none) of the snag to reach the nest; instead they could reach the nest entirely by tunnel. Access to an elevated nest by tunnel may protect shrew-moles from predation by surface or aerial predators, such as raccoons (Dalquest and Orcutt 1942; Scheffer 1949), coyotes (Toweill and Anthony 1988), and owls (for example, Dalquest and Orcutt 1942; Giger 1965; Maser and Brodie 1966). Shrew-moles may nest underground as well as above ground. Racey (1929) observed a shrew-mole burrow system and suggested that an enlarged cavity lined with leaves was a nesting chamber. However, elevated nests, or nests in wood, may be warmer and drier than underground nests. By burrowing through rotten wood and nesting above ground, shrew-moles may exploit favorable nesting environments with minimal exposure to predators.

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FIGURE 1. A nest of wild shrew moles, *Neurotrichus gibbsii*, in the Olympic Mountains of Washington. A. The red alder snag that contained the nest, photographed after the nest material had been removed. B. The nest cavity and 3 young moles; some of the shredded wood was removed for photography. Photographs by BRM.

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