

Guidance for Identifying Marbled Murrelet Nest Trees in Washington State



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The definition of marbled murrelet (murrelet) nesting habitat is an important component of any assessment of murrelet exposure in the terrestrial environment. It informs evaluations of exposure risk (or likelihood of occupancy) at the site scale and provides the basis for programmatic scale assessments. For these reasons, we developed the following guidance to assist action agencies and other parties in their assessment of potential impacts to the species in Washington State. If a tree or forested area does not support the habitat features described below, it is our best professional judgment that it is “extremely unlikely” to support a nesting murrelet.

This guidance is the result of extensive collaboration among WFWO staff and managers, including John Grettenberger, Carolyn Scafidi, Emily Teachout, Vince Harke, Kim Flotlin, Deanna Lynch, and Mark Ostwald. Bridgette Tuerler of the Oregon Fish and Wildlife Office also provided valuable insights.

We believe the definition of nesting habitat for purposes of assessing exposure risk should be reasonably conservative and supported by section 7 policy. Given the species’ declining status and extremely poor resiliency at the population scale to any reduction in fitness¹, it is critical that potential impacts in the terrestrial environment receive careful scrutiny if population declines are to be stabilized or reversed.

The following guidance is based on characteristics associated with almost all of the nests found to date in Washington State, as well as data from other nests in similar forest conditions in Oregon and British Columbia. It is important to note that a very small number of nests have been documented in cliffs (Nelson 1997, p. 6; Bloxton and Raphael 2009, p. 6) and deciduous trees (Bradley and Cooke 2001, p. 53) and these situations are not addressed in the following definition. Additionally, the likelihood of nest success was not a consideration in the development of this definition (i.e., expected high predation rates had no influence on the definition). At this time, there is no simple linear relationship between habitat quality and likelihood or density of nests (Burger and Waterhouse 2009, p. 109). Nonetheless, we recognize that individual trees in a matrix of urban, agricultural, or certain rural landscapes may support the habitat features described below but are still “extremely unlikely” to support nesting murrelets. When there are questions about likelihood of occupancy in a particular location, the WFWO should be contacted for assistance.

Important Components of Marbled Murrelet Nest Trees in Washington State

Murrelet nest trees in Washington occur within 55 mi (88.5 km) of marine waters and support the following structural and landscape components:

Platforms – The most important component of murrelet nest trees is the presence of platforms. Old-growth, mature, or younger coniferous forests with appropriate structure can provide these platforms. We define a platform as a relatively flat surface ≥ 33 ft (10 m) above the ground in the live crown of a coniferous tree. A platform should be at least 4 in (10 cm) wide (Hamer and Nelson 1995, p. 74; Nelson and Wilson 2002, p. 59). A platform may be a depression on a branch, an area where a limb branches, a surface created by a deformity such as a dwarf

¹ Fitness is defined as an individual’s current or expected future reproductive contribution.

mistletoe broom, a debris/moss platform or stick nest equal to or greater than 4 inches in diameter including associated moss, lichen, or duff if present (Bloxtton and Raphael 2009, var.; Burger 2002, p. 41; Evans Mack et al. 2003, p. 2; Hamer and Nelson 1995, p. 79; Nelson 1997, p. 16). Any forested area with one observed platform is capable of supporting a nest (Evans Mack et al. 2003, p. 3). Platforms may be clumped in one area or dispersed throughout the forested area.

Cover - Other important attributes of nest trees are vertical and horizontal cover for platforms to protect chicks and adults from predation. Higher quality nest sites have platforms that are generally protected by branches above (vertical cover) or to the side (horizontal cover) (Huff et al. 2006, p. 14). Such cover can be provided by limbs or foliage within the same tree or in adjacent trees. At this time, we are unable to provide specific measurements or criteria to characterize these habitat attributes.

Other Tree and Forested Area Characteristics – Additional characteristics of murrelet nest trees are accessibility, tree diameter, and tree height. Variable canopy structure or openings that allow murrelets to access nest platforms is also an important consideration (Hamer and Nelson 1995, p. 80-81), but the appropriate degree of canopy cover cannot be quantified without additional research (Grenier and Nelson 1995, p. 201). Although tree diameter and height have been positively correlated with platform size and abundance, this relationship may change depending on the variety of tree species and forest types murrelets use for nesting (Nelson and Wilson 2002, p. 100; Huff et al. 2006, p. 12). The smallest nest tree documented to date was a 19-inch (48.3-cm) diameter-at-breast-height (dbh) western hemlock in Oregon (Nelson and Wilson 2002, p. 43). However, dbh and height should not be used to limit consideration if adequate structure is present, and dbh should not be averaged at the stand level.

Other stand-level considerations are worth noting: 1) murrelets have occupied small patches of habitat within larger areas of unsuitable habitat (Nelson and Wilson 2002, p. 104); 2) some occupied sites have included large, residual trees in low densities (less than one tree per acre (<0.41 ha)) (Grenier and Nelson 1995, p. 196); and 3) over 20 percent of occupied sites in Oregon were \leq 80 years old (Grenier and Nelson 1995, p. 193). Given these considerations, any forested area with a residual tree component, or one platform, may support a murrelet nest tree (Evans Mack et al. 2003, p. 4). It is forest structure that is important to murrelets (Grenier and Nelson 1995; p. 199).

In summary, and for purposes of section 7 consultation, the WFWO considers potential nest trees to be coniferous trees within 55 mi (88.5 km) of marine waters that support at least one 4-inch (10.2-cm) diameter platform located at least 33 ft (10 meters) above the ground, with horizontal and vertical cover. If a tree or forested area does not support these habitat features, it is our determination that it is “extremely unlikely” to support a murrelet nest.

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