

Washington Status Factors

Elcode AAAAD12190
Gname PLETHODON VANDYKEI
Gcomname VAN DYKE'S SALAMANDER

Number of Occurrences

D = 81 - 300

Comments Approximately 96 occurrences have been documented since 1982 (Washington Department of Fish and Wildlife reptile and amphibian database, Olympia, WA. Retrieved October 2002).

Number of Occurrences with Good Viability

D = Some (13-40) occurrences with good viability

Comments Approximately 22 occurrences have good viability. Element Occurrence rank specifications have not been written for this species. Occurrences were considered to have good viability, if the habitat within 1 kilometer of the element observation was mature or late-seral forest. Element occurrences with multiple element observation locations were considered more viable than Element Occurrences with only a single observation location.

Population Size

D = 1,000-2,500 individuals

E = 2,500-10,000 individuals

Comments Total adult population size is unknown, but likely exceeds several thousand. Generally uncommon.

Range Extent

E = 5,000-20,000 km² (about 2,000-8,000 square miles)

Comments Washington endemic. Occurrences in the Willapa Hills, Olympic Peninsula and southern Cascade Mountains are disjunct from each other and are separated by glacial and alluvial deposits that may limit the regional distribution (Wilson et al. 1995). Generally occurs in small, isolated populations (L.C.C. Jones, personal communication).

Area of Occupancy

D = 20-100 km² (about 5,000-25,000 acres)

E = 100-500 km² (about 25,000-125,000 acres)

LD = 200-1,000 km (about 125-620 miles)

LE = 1,000-5,000 km (about 620-3,000 miles)

Comments Van Dyke's Salamander is primarily associated with streams and seeps (Leonard et al. 1993, Wilson et al. 1995), but also occurs in upland forest (Slater 1933), talus (Herrington 1988), lake shores (C. Crisafulli, personal communication) and cave entrances (Aubry et al. 1987). The spotty distribution within the range suggests the species may have narrow ecological tolerances (Wilson et al. 1995).

Long-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

D = Moderate Decline (decline of 25-50%)

Comments Populations have probably declined in the last 200 years, due to habitat loss and degradation (Wilson et al. 1995).

Short-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

E = Stable. Population, range, area occupied, and/or number or condition of occurrences unchanged or remaining within $\pm 10\%$ fluctuation

Comments The general extent of occurrence and number of occurrences are similar for recent (1990 to present) and historic (pre-1990) occurrences. Individual occurrences have apparently been lost (Wilson et al. 1995, C. Crisafulli, personal communication), but new occurrences are still being found. Some populations survived the 1980 eruption of Mount St. Helens (Zalisko and Sites 1989), but the number of populations lost is unknown. The habitat condition for most occurrences in the Willapa Hills is degraded, due to timber harvest activities. Habitat condition for occurrences on the Olympic Peninsula and Cascade Mountains varies from degraded, on lands managed for timber, to excellent in the National Parks.

Threats

D = Moderate, non-imminent threat. Threat is moderate to severe but not imminent for a significant portion of the population, occurrences, or area.

Scope Moderate **Severity** Moderate **Immediacy** Low

Comments The species is relatively sedentary, with narrow ecological tolerance that limit its ability to survive in or colonize disturbed habitats. Approximately 60% of the occurrences are in areas where timber has been harvested within 1 kilometer of the element observation and where additional harvests are probable. Although no definitive studies have been published to document losses from specific threats, timber harvest activities, especially clear-cutting, seem intrinsically detrimental for a species that requires cool temperatures and wet habitats. Clear-cutting has the potential of eliminating populations in areas where woody debris is the primary source of surface shelter and nesting sites (Wilson et al. 1995). The level of impact timber harvest will have on a population is expected to vary, depending on the level of disturbance to the microhabitats and microclimate (Welsh 1990). The Cascade Range populations are also threatened by volcanic activity.

Number of Appropriately Protected and Managed Occurrences

D = Many (13-40) occurrences appropriately protected and managed

Comments Adequately protected in Mount St. Helens National Monument (6 EOs), Olympic National Park (11 EOs), Department of Natural Resources' Natural Areas (3 EOs) and Long Island National Wildlife Refuge (3 EOs).

Intrinsic Vulnerability

A = Highly Vulnerable. Species is slow to mature, reproduces infrequently, and/or has low fecundity such that populations are very slow (> 20 years or 5 generations) to recover from decreases in abundance; or species has low dispersal capability such that extirpated populations are unlikely to become reestablished through natural recolonization (unaided by humans). Ecological community occurrences are highly susceptible to changes in composition and structure that rarely if ever are reversed through natural processes even over substantial time periods (> 100 years).

Comments Growth rate and age at maturity are unknown, but the salamanders are probably not sexually mature until the fourth or fifth year (Nussbaum et al. 1983). Females lay approximately seven to twelve eggs (Blessing et al. 1999, Jones 1989,) every other year (Leonard et al. 1993). Eggs take up to 144 days to hatch (Blessing et al. 1999). The dispersal capability has not been studied, but the species is assumed to be relatively sedentary, with narrow ecological tolerances that limit its ability to colonize disturbed habitats.

Environmental Specificity

B = Narrow. Specialist or community with key requirements common.

Comments Habitat affinities are poorly understood. Although usually associated with streams and seeps, it has been found in a variety of habitats (Leonard et al. 1993). This would suggest a generalist; however, its distribution is spotty across its range and it does not occur in many areas that appear to have suitable habitat (Wilson et al. 1995).

Other Considerations

Edition 11/26/2002 **Edauthor** L. Hallock, WA Natural Heritage Program

Grank S3 **Grank Date** 11/26/2002

Reasons

Washington endemic, with 96 occurrences, less than 25% of which have high viability. A total of 23 of the sites are protected, and the species doesn't appear to move much, so the ranking is a definite S3.

BCD Sources

New Sources

Personal Communication. Charlie M. Crisafulli. Research Ecologist. USDA Forest Service. Pacific Northwest Research Station, 3625 93rd Ave. SW, Olympia, WA 98512.

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