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BRODIE, EDMUND D., JR. AND ROBERT M. STORM. 1970. *Plethodon vandykei*.

***Plethodon vandykei* Van Denburgh
Van Dyke's salamander**

Plethodon vandykei Van Denburgh (1906:61). Type-locality, "Paradise Valley, Mt. Rainier Park, Washington." Holotype destroyed by the 1906 San Francisco fire. A neotype, California Acad. Sci. 47495, was designated by Slevin and Leviton (1956:535) but it is from the opposite end of the range of *P. v. vandykei* and should not be recognized.

• CONTENT. Two subspecies are recognized; *vandykei* and *idahoensis*.

• DEFINITION AND DIAGNOSIS. A stocky, long-legged, western salamander of the genus *Plethodon* with parotoid glands, partially webbed toes, a modal number of 15 trunk vertebrae, and an uneven dorsal stripe. The ground color of *P. v. vandykei* may be black, yellow or pinkish-rose; that of *P. v. idahoensis* is always black. A light, often irregular, gular patch is usually due to the absence of melanophores. Juveniles are brighter than adults and have a more uneven dorsal stripe; the ground color of light phase of *P. v. vandykei* is brownish in juveniles and lightens with age.

Costal grooves number 13 to 16, usually 14. Adults have 11 to 28 vomerine teeth and 0 to 3 costal folds between adpressed limbs. Sexual maturity is reached at a snout-vent length of about 45 mm. Males have a mental gland and more elongated naso-labial cirri than females; vent lobes are sometimes present in males.

Plethodon vandykei is distinguished from congeneric sympatric species by the following characteristics of those species: *P. dunni*, modal number of 15 costal grooves, greenish dorsal stripe, unwebbed toes, and black ground color (*dunni* is sympatric only with light phase *P. v. vandykei*); *P. vehiculum*, modal number of 16 costal grooves, straight edge dorsal stripe, and unwebbed toes.

• DESCRIPTIONS. For descriptions, see Bishop (1943), Brodie (Ms.), Dunn (1926), Highton (1962), Slater and Slipp (1940), Slevin (1928), Stebbins (1951, 1954, 1966), and Van Denburgh (1906); those by Stebbins (1951) and Brodie (Ms.) are the most complete. Noble reported a clutch of eggs found in nature (1925a) and described the capillary distribution in the skin (1925b). Brodie (1968) described the mental gland.

• ILLUSTRATIONS. Photographs of adults were presented by Bishop (1943), Slevin (1928) and Slater and Slipp (1940). Drawings were provided by Stebbins (1951, 1954, and 1966, in color). Brodie (1968) illustrated the mental gland, Hilton (1951) the nasal glands, and Noble (1931) the embryo.

• DISTRIBUTION. The range of *P. vandykei* is discontinuous and distribution within the range is spotty. Three disjunct populations of *P. v. vandykei* are known: the Olympic Mountains (Clallam, Jefferson, Mason, and northern Gray's Harbor counties, Washington), the Willapa Hills (Pacific and Wahkiakum counties, Washington), and the Cascade Mountains (Pierce and Lewis counties, Washington). One specimen of *P. v. vandykei* has been recorded from Bean Creek, Skamania County, Washington (Slater, 1964b). This specimen apparently is lost and collection data are incomplete, so the record must remain in question. A supposed specimen of *P. vandykei* from Marysville, Snohomish County, Washington (Dunn, 1926) has since been reidentified as *Ensatina eschscholtzi* (James A. Peters, pers. comm.)

Three previously unreported localities and new county records (Skamokawa, Wahkiakum County, Washington; Avery, Shoshone County, Idaho; and Canyon Ranger Station, Clearwater County, Idaho) have been recently established by R. A.

Nussbaum (pers. comm.) and are included on the accompanying map.

The range of *P. v. idahoensis* is broadly separated from that of *P. v. vandykei* and may itself be discontinuous since the Bitterroot Range apparently isolates Idaho and Montana populations.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Brattstrom (1963) gave thermal data for one specimen and Wake (1966) discussed distribution and relationships. Brodie (Ms.) discussed geographic variation and taxonomic relationships. Several short papers cited range records: Dumas (1957), Slater (1955, 1964a), Storm (1955) and Teberg (1963). Papers by Burns (1954, 1962), Fichter and Linder (1964), Hilton (1948), and Storm (1966) briefly mentioned *P. vandykei*.

The papers cited here and elsewhere in this account are thought to represent all the scientifically pertinent literature on this species.

• ETYMOLOGY. The species is named in honor of Edwin Cooper Van Dyke who collected the type specimen. The name *idahoensis* refers to the State of Idaho.

**1. *Plethodon vandykei vandykei* Van Denburgh
Van Dyke's salamander**

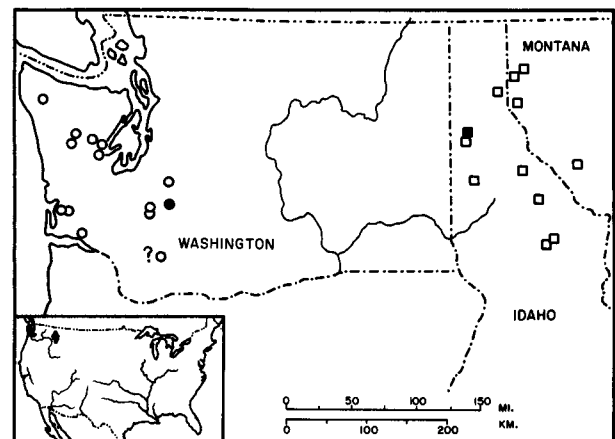
Plethodon vandykei Van Denburgh, 1906. See species account. *Plethodon vandykei vandykei*: Lowe, 1950:93.

• DEFINITION. A yellowish dorsal stripe extends to the tip of the tail; dorsal surfaces of proximal limb segments are light colored.

**2. *Plethodon vandykei idahoensis* Slater and
Slipp
Coeur d'Alene salamander**

Plethodon idahoensis Slater and Slipp, 1940:38. Type-locality, "Northwest corner of Coeur d'Alene Lake, Kootenai County, Idaho, elevation about 2160 feet; zone, Semiarid Transition." Holotype, College of Puget Sound No. 2710 (since transferred to the U. S. Natl. Mus., No. 110504), an adult male collected by J. R. Slater 13 September 1939. *Plethodon vandykei idahoensis*: Lowe, 1950:93.

• DEFINITION. A greenish-yellow, orange, or red dorsal stripe which does not extend to the tip of the tail; the limbs are black.



MAP. Circles indicate localities of *P. v. vandykei*, squares for *P. v. idahoensis*. Solid symbols mark type-localities. Distribution within and between subspecies is largely disjunct (see text).

COMMENT

Savage (1952) recognized the possibility of the two subspecies of *P. vandykei* coming into contact along the Canada-United States border. The level of rainfall in this area is low compared to that in the known range of *P. vandykei*, so we think it unlikely that the two subspecies are in contact at present.

Plethodon vandykei is considered one of the most primitive members of the genus (Thurrow, 1969) and the most primitive western *Plethodon* (Brodie, Ms.).

Plethodon vandykei is the most aquatic member of the genus: it is commonly found in seepages and under rocks along streams associated with moist coniferous forests. Slater (1933) reported finding them under bark and other surface objects far from water. Where sympatric with *P. vehiculum* (the entire range of *P. v. vandykei*), *P. vandykei* seems to be more closely associated with very moist habitats. In Idaho, where *P. v. idahoensis* is the only plethodontid salamander, it occupies a broader range of habitats, from streambanks to talus slopes and leaf litter.

The disjunct populations of *P. vandykei* are highly variable morphologically; the effect of this variability on the systematics of the species is currently being studied (Brodie, Ms. in prep.).

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