Alaska Natural Heritage Program
Alaska Center for Conservation Science
University of Alaska Anchorage

Alaska Natural Heritage Program Conservation Status Report

Bombus occidentalis Greene, 1858

Common Name: Western Bumble Bee

ELCODE: IIHYM24250	**Taxonomic Serial No.:** 714827

Synonyms: None.
Taxonomy Notes: There are two recognized subspecies:
B. occidentalis mckayi Ashmead, 1902, occurs in Alaska and Yukon.
B. occidentalis occidentalis Green, 1858, occurs south of Alaska and might be parapatric in BC.

Report last updated – November 2, 2020

Conservation Status

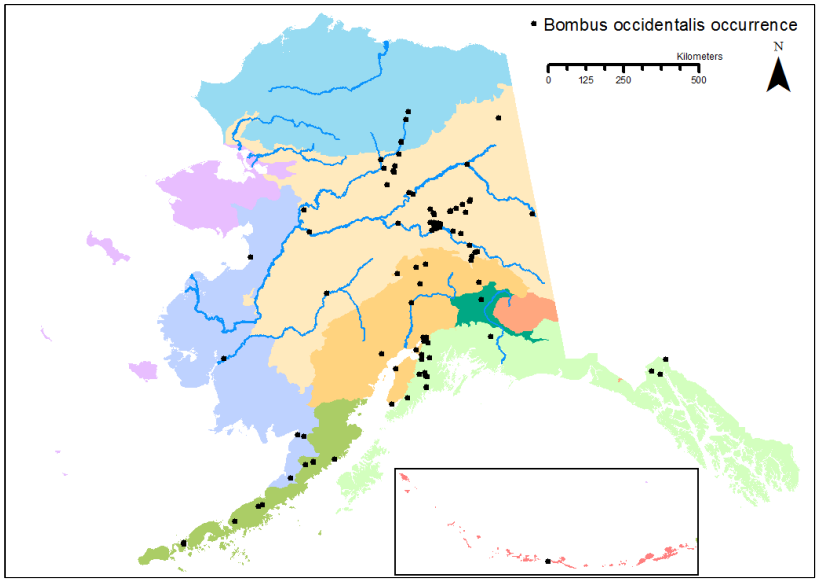
G4 S4

Occurrences, Range

Number of Occurrences: 105; number of museum records: 3034 (American Museum of Natural History, Canadian National Collection, U.C. Riverside, KenaiN.W.R., Univ. of Kansas, University of Alaska Museum Insect Collection, Koch et al 2015, and Yale Peabody Museum).

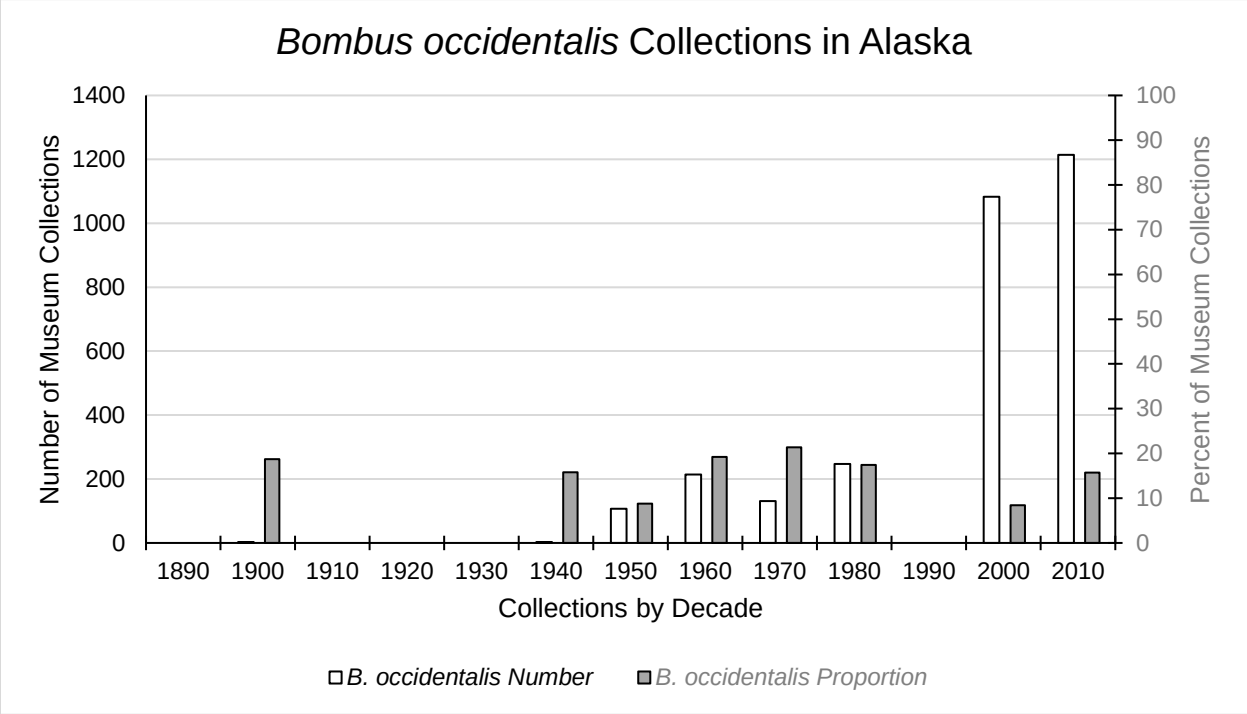
AK Range Extent: 985,277 km^2 (doesn't include disjunct occurrence of Atka Island); 4- km^2 grid cells: 109; Wide distribution and common species. Found from the Brooks Range south to the Interior, Alaska Range, Alaska Peninsula and Kenai Peninsula. Few scattered occurrences in YK Delta, Haines, and Aleutian Islands.

North American Distribution: Wide distribution in western North America. Widespread in Alaska and southern Yukon Territory south to all of British Columbia and western Alberta. Common in Pacific Northwest, the Great Basin, and Rocky Mountains south to Mexico Border. Also in Sierra Mountains and California coast.



Trends

Trends are based on museum voucher collections of all *Bombus* species. Short-term trends are focus the past two decades (2000's and 2010s), whereas long-term trends are based on all years. Data originate from museum voucher collections only and are summarized by decade. White bars indicate the number of voucher collections for the species. Grey bars indicate the percent of *Bombus occidentalis* to all *Bombus* species.



Short-term: In the last decade there is a slight increase in the proportion of collections, however does not appear to be significant. The southern subspecies has declined drastically with a sharp decline observed in the Pacific Northwest and California, while the northern appears stable (but has received far less survey attention).

Long-term: Consistent proportion of collections (~20%) since the 1940s. No collections between 1907 and 1945 or in the 1990s.

Threats

Scope and Severity: Large (31-70%): Moderate (11-30% pop. Decline): Susceptible to intracellular fungal pathogen, *Nosema bombi* (Microsporida) and found more prevalent in *B. occidentalis* that other *Bombus* species in Alaska populations (Koch and Strange 2012, Pampell et al. 2015). Infection rate (up to 40% of collected species) appears to be similar to Lower 48 and assumed to be natural pathogen association and not brought from transmission of commercial *Bombus* (Koch and Strange 2012). Pathogen is thought to lead to population declines in Lower 48 (cited in: Koch and Strange 2012, Pampell et al. 2015).

Intrinsic Vulnerability: Not intrinsically vulnerable. Found widespread in Alaska and associated with multiple floral resources

Ecology

Habitat: Open grasslands, Boreal forest, urban areas, meadows, alpine meadows.

Known Alaskan Floral Resources: Chamerion angustifolium, Chamerion latifolium, Epilobium parviflorum, Hedysarum alpinum, Heracleum sp., *Linaria vulgaris, Melilotus albus*, Pedicularis labradorica, Rosa acicularis, Solidago* sp., *Trifolium pretense*, Trifolium repens*, Vicia* sp.*

*denotes non-native plant species

Nesting behavior: Underground.

Parasitism: Host of *B. suckleyi*, possibly of *B. bohemicus, B. insularis,* and *B. flavidus*.

Ecological Integrity of Occurrences: Current and future Landscape Condition Models have occurrences intact with high ecological integrity.

Literature

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http://www.idigbio.org/portal/recordsets/a6eee223-cf3b-4079-8bb2-b77dad8cae9d (43165 records); http://www.idigbio.org/portal/recordsets/271a9ce9-c6d3-4b63-a722-cb0adc48863f (56 records); http://www.idigbio.org/portal/recordsets/4f436daa-01d5-4be6-b5c3-fdd255677536 (51 records); http://www.idigbio.org/portal/recordsets/eaa5f19e-ff6f-4d09-8b55-4a6810e77a6c (37 records); http://www.idigbio.org/portal/recordsets/5e893602-84ca-4c8c-bac1-99111c777582 (27 records); http://www.idigbio.org/portal/recordsets/da67ebd9-52de-444d-b114-e23c03111ac6 (27 records); http://www.idigbio.org/portal/recordsets/69037495-438d-4dba-bf0f-4878073766f1 (12 records); http://www.idigbio.org/portal/recordsets/6539877e-82dc-485c-ad3d-038f383d5431 (9 records); http://www.idigbio.org/portal/recordsets/db4bb0df-8539-4617-ab5f-eb118aa3126b (6 records); http://www.idigbio.org/portal/recordsets/fc628e53-5fdf-4436-9782-bf637d812b48 (5 records)

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