

Specimen records of *Bombus (Alpinobombus)* in the Oregon State Arthropod Collection as of December 2018.

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Introduction:

The gold-belted bumblebee, *Bombus (Alpinobombus) kirbiellus* Curtis 1835, is a poorly known and seldom collected species found in northern latitudes as well as some high elevation sites (Hatfield et al. 2014). As it currently stands, *Alpinobombus* Skorikov 1914 includes 9 valid species, 6 of which are found in western North America (Table 1). Of these, only *Bombus kirbiellus* (often referred to as *B. balteatus* Dahlbom, 1832) is regularly found in the United States outside of Alaska, with populations known from the both the Rocky Mountains and central California (Koch et al. 2015).

Table 1.
North American species of *Bombus (Alpinobombus)*

| <i>Species</i> | Present in the OSAC |
|---|---------------------|
| <i>B. kirbiellus</i> Curtis 1835 | 32 |
| <i>B. neoboreus</i> Sladen, 1919 | 4 |
| <i>B. polaris</i> Curtis 1835 | 10 |
| <i>B. natvigi</i> Richards 1931 | - |
| <i>B. hyperboreus</i> Schönherr, 1809 | 22 |
| <i>B. kluanensis</i> Williams, Canning & Corey 2016 | - |

This dataset is part of a larger effort to generate digital label data for the entire bumblebee collection at Oregon State University and is part of several ongoing collaborations related to pollinators and pollinator health in the Pacific Northwest, such as the Oregon Bee Project (<https://www.oregonbeeproject.org>).

Methods/Metadata

Each specimen is given a unique serial number (catalog number) that is printed as a machine-readable barcode, as well as a human readable numeral, on an acid-free, card-stock label that is placed as the bottom-most label.

Data standards: All label data is transcribed into fields that are consistent with Darwincore standards for occurrence data (<http://rs.tdwg.org/dwc/terms/Occurrence>).

Taxonomic treatment: the taxonomic identity for all specimens is based on the historical determination labels associated with those specimens. Specimens were not re-determined as part of this project. Metadata about the determination is provided using Darwincore Identification fields (<http://rs.tdwg.org/dwc/terms/Identification>). Many specimens do not bear individual determination labels but are present in labeled unit trays. In these cases, the *Identifiedby* field is left blank although the collection was originally curated by William P. Stephen who studied bumblebees for many years at Oregon State University. Nomenclature follows that of Williams et al. (2015).

Locality and georeference data. Locality data was transcribed into the DublinCore location fields (<http://purl.org/dc/terms/Location>); namely: *country*, *stateProvince*, *county* and *locality*. Missing information (e.g., no county printed on actual specimen label) was added to a record only if it could be determined without ambiguity based on gazetteers, maps or in reference to other label data. Elevational data on labels were converted to *minimumElevationInMeters*. Elevational ranges (e.g, 500-1200m) were recorded as the lower of the two. Georeferencing for locality data was conducted by searching GoogleEarth for the most appropriate placenames and recording the decimal degree latitude and longitude associated with that point. Because of the ambiguity in this approach it is recorded at a tenth of a degree

Metadata: Record *type* is considered *physicalObject* and *basisofRecord* is entered as *preservedSpecimen*. The collector(s) of the specimen are entered in the *recordedBy* field. The *OccurrenceID* is a URI for the specimen record itself, and includes the catalog number: “http://osac.oregonstate.edu/SP/OSAC_XXXXXXXXXX” where “XXXXXXXXXX” is the 10-digit unique catalog number for the specimen.

Results

One hundred and eight specimens of *Alpinobombus* were found in the holdings of the OSAC, belonging to 6 species, with 4 of the 6 North American species being represented (*Table 1*). Nineteen specimens were not identified to species level. Label data for 20 specimens were not included in the supplemental dataset, as their labels lacked appropriate locality information or could not be interpreted reliably at this time.

Discussion

These data are presented for use by researchers and conservationists interested in *Bombus* (*Alpinobombus*) historical records. They are available for use either via download from the supplemental file associated with this publication (.csv text format) or will be shared online via an IPT server, accessible through GBIF (www.gbif.org). Access via GBIF is recommended, as that dataset will include the most recent version of these records in the case that they are modified/updated at a later date. Use of any of these records, in print or in online datasets and websites, should cite the dataset appropriately. Comments, edits or corrections to particular data records should be sent to osac@science.oregonstate.edu or the current curatorial staff of the Oregon State Arthropod Collection so they may be updated.

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