2020

BC Conservation Status Rank Review and Changes

Animals Summary

Conservation status ranks for 184 butterflies were reviewed this year resulting in 32 rank changes. Fisher (*Pekania pennanti*) was reviewed this year and the status rank remained S3 at the species level. Recent genetic data, based on Weir et al. (in prep), indicates that there are two distinct populations within the province, which the CDC has also assessed separately. The Boreal population, which occurs in Northeastern BC, is ranked S3 and is on the blue list. The Columbian population, which occurs in the central interior of BC, is ranked S2 and is on the red list. There have been several sightings of Northern Pacific Right Whale in the past few years, resulting in change from SH (historical) to S1. Interestingly, three "accidental" birds showed up in BC (Red-footed Booby, Yellow-browned Warbler and Brown Shrike) and Whimbrel was confirmed breeding in the northwest of BC.

New groups and species added from the General Status program included 101 fleas, 22 earthworms, 9 snakeflies, 19 moths and 51 bees and wasps.

More details below:

Birds

Three B.C. avifauna accidentals were reported - Red-footed Booby, Yellow-browned Warbler and Brown Shrike.

Whimbrel was confirmed to be breeding in the northwest of BC. The rank moved from SUN (rank unknown, non breeding) to S1S2B (breeding) and is now on the red list.

Purple Martin colonies and range extent have increased which changed the rank from S3B to S3S4B; it remains on the blue list.

Mammals

Northern Pacific Right Whale changed from SH (historical) to S1, as there have been several sightings over the past few years; it remains on the red list.

Fisher (Pekania pennanti) was reviewed and remains on the blue list (S3). This year, we added and assessed two distinct populations* for the province (Weir et al. in prep):

- **Pekania pennanti, pop 4, Boreal population**: ranked S3, blue list.
  This population occurs in northeastern BC. Numbers are low and threats are high, with energy development and forest harvesting being the most significant. There have been declines of 10-30%, likely due to forest cover loss, which the animal is strongly associated with.

- **Pekania pennanti, pop 5, Columbian population**: ranked S2, red list.
  This population occurs in the central interior of BC. Numbers are low and threats are high, with forest harvesting being the most significant. There have been declines of 30-50% due to loss of

forest habitat and has been extirpated from most of the Shuswap, Okanagan, Columbia and Kootenay regions.

Butterflies:

184 species were reviewed as part of the Canadian General Status assessment. This resulted in 32 provincial rank changes (note: subspecies were not reviewed). For many species, this was the first time the rank calculator had been implemented, which refined many of the ranks.

Lepidoptera taxonomic changes follow Pohl et al. (2018).

List changes:

- **Hecla Sulphur** (*Colias hecla*): moved from the red list (S1S3) to the blue list (S2S3). This is an example of a rank that was refined by implementing the rank calculator.
- **Monarch** (*Danaus plexippus*): moved from the blue list (S3B) to the red list (S1?B), as there has been a decline in numbers and habitat.
- **Magdalena Alpine** (*Erebia magdalena*) moved from the red list (S1S3) to the blue list (S2S3) as a result of using the rank calculator.
- **Gillette's Checkerspot** (*Euphydryas gillettii*) moved from the red list (S2) to the blue list (S2S3), as a result of the detection of new occurrences and use of the rank calculator
- **Dun Skipper** (Euphyes vestris) moved from the red list (S2) to the blue list (S2S3) as there has been a significant range expansion east to the Pend d'Orielle.
- **Sonora Skipper** (*Polites Sonora*) moved from the red list (S1S2) to the blue list (S3) as a result of the detection of new occurrences and use of the rank calculator.

Taxonomic Lists added to B.C.

The federal General Status program steadily provides species lists for many taxonomic groups within B.C. These have provisional conservation status ranks that were provided by people working in the field. The CDC zoologists are reviewing these ranks as they are able and exporting them to BC Species and Ecosystems Explorer. For many of these groups or species there is little known and have been assessed "SU" (unknown) for now. On the ground inventory as well as thorough review of collections and the literature is needed to get a better handle on factors used to determine a conservation status rank including range extent, habitats, number of occurrences and threats.

We feel that it is important to get the lists out even without ranks as these updated taxonomic lists can be used as a reference for further inventory, biodiversity studies and a motivation to find out more. It is also important to include the exotic species.

Fleas

101 species were ranked and added to red/blue list (Holland 1985; Bergman et al. 2019; Galloway 2019).

Snakeflies

9 species were added to BC's list (Scudder and Cannings 2008; Blades 2019)

Bees and Wasps

51 species were added to the existing lists this year.

Moths

19 species were added to the existing list this year.

References

Bergman, C.M, T. D. Galloway and P. Sinkins. 2019. Collections of fleas (Siphonaptera) from Pacific marten, *Martes caurina* (Carnivora: Mustelidae), reveal unique host–parasite relationships in the Haida Gwaii archipelago. J. Entolmol. Soc. Brit. Columbia. 116, December 2019.

Blades, D. 2019. Raphidioptera of Canada. ZooKeys 819: 383-386
https://zookeys.pensoft.net/article/26626/

Galloway, T. 2019. Siphonaptera of Canada. ZooKeys. 819: 455-462
https://zookeys.pensoft.net/article/25458/

Holland, G.P. 1985. The fleas of Canada, Alaska and Greenland (Siphonaptera). Memoirs of the Entomological Society of Canada, No. 130.

Pohl et al. 2018. Annotated checklist of the moths and butterflies (Lepidoptera) of Canada and Alaska. Pensoft Publishers. Bulgaria. 583 pp.

Scudder, G. and R. Cannings. Checklist of the Raphidioptera (Snakeflies) of British Columbia. In: Klinkenberg, Brian. (Editor) 2018. E-Fauna BC: Electronic Atlas of the Fauna of British Columbia [www.efauna.bc.ca]. Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia, Vancouver.
https://ibis.geog.ubc.ca/biodiversity/efauna/documents/SnakefliesRaphidiopteraofBC2008.pdf

Weir et al. in prep (2019):

> *"*We used information from mitochondrial (mtDNA) and nuclear DNA of 553 fishers collected from throughout British Columbia from 1995 to 2017 to examine genetic structure and diversity throughout the province. We used assignment tests to evaluate the extent of population structure, identify population clusters and delineate functional populations. We detected substantial population subdivision and separation in both long-term (i.e., mtDNA haplotype) and near-term (nuclear DNA microsatellite) characteristics between fishers in the boreal forest region northeast of the Rocky Mountains and fishers in the Central Interior of the province, with evidence of very little genetic exchange occurring between these 2 populations."*