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## **Distribution of Polar Bear Dens in the Canadian Arctic**

Mapping polar bear dens in the coastal regions of Canada has allowed populations to become more actively monitored and facilitated in conservation management.

SOURCE: Polar Biology

*By Brice Schrenkel 08 October 2020*

The accelerating loss of sea ice due to climate change is the current key threat that is negatively impacting many species such as the polar bear, *Ursus maritimus*, in the Arctic regions. The reduction in sea ice is allowing an increase in human access and industrial development in the Arctic which is unequivocally affecting polar bear populations. Female polar bears and their cubs are the most susceptible to anthropogenic disturbance during denning season which takes place over the fall and winter months. Typically, maternity dens are dug into snowbanks by female polar bears on south-facing slopes near the coast. Due to the insulating properties of snow, the air inside the dens can be as warm as 40 degrees Fahrenheit even when the outside temperature is far below freezing.

These dens create an exemplar and secure space for polar bear cubs to reside while they are still in the vulnerable periods of their lifetime. Distribution data of polar bear denning is available for Alaska and Svalbard but not yet in Canada. A better understanding of the denning habitat distribution in Canada will allow polar bears in this region to be more actively monitored for protection and conservation of this progressively vulnerable Arctic species.

In a recent study, Florko et al., polar bear den distribution figures were sourced consisting of traditional ecological knowledge studies, peer-reviewed literature, government reports, and unpublished data from specific jurisdictions. The information collected was pulled for metadata which included the publication, regional management unit, type of data as a point or polygon, and publication category. The communal data ranged from broad areas to individual den locations and were digitalized into an interactive detailed map of the polar bear dens and their respective populated areas.

1,593 den location points and 430 denning area polygons were obtained from denning location records within Canada. It was discovered that polar bear dens are not uniformly distributed and while most dens occurred on land-fast ice, which is ice that is attached to coastline, throughout the Canadian Arctic Archipelago, there were reports of denning on pack-ice, ice that drifts with the wind and currents unattached to land, which exclusively occurred in the Beaufort seas.

Most of the coastal regions were found to have dens consisting of landscape features such as snow, peat banks, tree cover, and land-fast ice as the preferred habitat for female polar bears. The results were illustrated into the uniquely constructed map of the denning areas, individual dens, and the overall outline of the polar bear subpopulations throughout the Canadian coastline.

High density polar bear denning areas are considered critical habitat and the creation of the map can now provide conservation insights to combat threats such as climate change and increased human disturbance. As anthropogenic impacts increase, the acquired distribution data of polar bears in the Canadian Arctic will help scientists protect and conserve polar bear population numbers in this environmentally diverse icy ecosystem.

**Citation:** Florko, K., A. Derocher, C. Breiter, and M. Ghazal. (2020). Polar bear denning distribution in the Canadian Arctic. *Polar Biology* 43: 617-621. <https://doi.org/10.1007/s00300-020-02657-8>. Published on 02 April 2020.