

Alpine Song Birds: The secrets to life on high

In mountain habitats, temperatures approach freezing almost nightly, and it can snow or hail on any summer day. In such conditions, humans need a winter-rated sleeping bag for a comfortable rest, but small 20 to 40g songbirds can survive and maintain their eggs at almost 40° C sitting on their ground nests above the permafrost for about 19 hours/day. Although little is known about how well songbirds live at high elevation, over 90 bird species and many mammals and herptiles breed successfully in the often inhospitable mountain habitats.



Fig 1. Alpine in summer on Hudson Bay Mountain (HBM), Smithers, British Columbia; Inset shows HBM after snow storm on 4 July 2002.

The main hypothesis being tested is that as elevation increases, mountain birds adopt a slower lifestyle where they produce fewer offspring each year compared to birds at low elevations, but they live longer and thus have more years to breed.

Kathy Martin (UBC) conducts Discovery Grant-sponsored research aimed at understanding the ecological secrets and conservation status of animal life on high. Some alpine populations differ genetically and may thus represent new sub-species or new species. For many songbirds, such as horned larks, with rapid population declines at low elevation across North America, mountains may represent critical refuge habitats. Since alpine habitats are experiencing globally significant warming, it is critical to determine the vulnerability of alpine birds to climate change.

Research on songbirds in western Canada has revealed some secrets to alpine living. High elevation songbirds are larger and have up to 20% higher annual survival than the same species living in lower elevation habitats. Their offspring also have high survival and a strong tendency to return to their birth sites. Thus, most birds living in alpine habitats are not inferior individuals but have developed a slow lifestyle and live and breed successfully. With a slow life style, alpine birds may be reasonably buffered against extreme weather events that cause breeding failure every few years. Nevertheless, climate change impacts that reduce the survival of adults could be catastrophic for alpine birds. More information is available at the Centre for Alpine Studies Website: <http://www.forestry.ubc.ca/alpine>



Fig 2. Hungry horned lark nestlings in the alpine.