

A Denning Brown Bear, *Ursus arctos*, Sow and Two Cubs Killed in an Avalanche on the Kenai Peninsula, Alaska

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A denning adult female Brown Bear and her two cubs were killed by an avalanche during the winter of 1997–1998 on the Kenai Peninsula, Alaska. Denning bears may be vulnerable to human-caused avalanches resulting from popular winter recreation activities such as skiing, snowboarding, and snowmobile travel on steep slopes. The current popularity of helicopter assisted skiing and snowboarding means that even bears denning in remote sites may be at risk and small bear populations could be adversely affected.

Key Words: Alaska, avalanche, brown bear, mortality, *Ursus arctos*

We document the avalanche-caused mortality of a denning brown bear (*Ursus arctos*) sow and her two cubs. Avalanche-caused mortality has been documented in Caucasian goats, Chamois, deer, Tur, wolves, Ibex, and brown bear (Formozov 1946, Boyd et al. 1992, Kudaktin and Clustin 1993, Haller 1996).

In the fall of 1997, a radio-collared 9-year-old female Brown Bear and her two cubs (age 9 months) entered a den ~3775 m east of Skilak Glacier Lake in the Chugach Mountains (elevation ~930 m) on the Kenai Peninsula, Alaska. Multiple telemetry locations collected the following spring centered very close to the den site. After snow melt, the site was visited by helicopter in July and the carcass of the sow was found in an avalanche chute mixed with rocks and debris. Much of the carcass had been scavenged by the time of our visit. We followed a trail of hair and den bedding materials ~50 m up slope (~11°) and found the remains of her two cubs. The cubs were buried in ~1.5 m of snow and scavengers had tunneled down to the carcasses. The den, which was identified previously during radio-tracking flights, was no longer present as the surrounding rock and earth had been collapsed.

Avalanches can contribute to natural mortalities in wild Brown Bear populations. Human activities including snowmobile use on steep slopes and skiing and snowboarding in remote areas accessed by helicopter may cause avalanches that could kill denning bears. Thus, when Brown Bear conservation is a management objective (e. g., small and/or isolated

populations), control of human access and activities may be an important management issue because the loss of a few individual bears may have strong negative effects on population viability.

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