

WRANGELL SAINT ELIAS NATIONAL PARK AND PRESERVE CAVE INVENTORY PROJECT 2009

Allred, Kevin¹; Lewis, Steve¹; Allred, Carlene¹; and Connor, Cathy^{2*}

¹Tongass Cave Project; ²UAS Department of Natural Sciences, Environmental Science Program, *Corresponding author: cathy.connor@uas.alaska.edu

The caves and karst lands of the Wrangell-St Elias National Park and Preserve (WSENPP) belong to citizens of the U.S., yet the NPS does not presently have a complete inventory of these resources, despite an annual increase in cavers traveling into the park to explore its karst-land resources. The Federal Cave Resources Protection Act (FCRPA) requires protection of significant caves on Federal lands. The intent of this act is to protect cave resources, not necessarily karst resources, although the caves and associated dissolution features, primarily developed in carbonate rocks (limestones and marbles), are an integral part of karst landscapes.

To begin addressing this knowledge deficiency, the WSENPP provided funds to Connor at the University of Alaska Southeast (UAS) through the Cooperative Ecosystem Studies Units (CESU) National Network. Allred and Lewis (Tongass Cave Project of the National Speleological Society) next organized a team of experienced Alaskan and international cavers to carry out ground surveys of areas identified as having potential cave and karst resources in two areas near McCarthy, AK. Here extensive outcrops of the Triassic Nizina and Chitistone limestone formations occur where they overlie the Nikolai Greenstone in the Wrangellia terrane. Between Aug 27-Sept 6, 2008 the 13 speleologists traveled to the park and surveyed three areas 1) The Nizina River and its West Fork 2) The upper western Kennecott watershed, and 3) Hidden Valley, a Kennecott river tributary.

Preliminary results indicate greater dissolution and a richer cave resource area in the Hidden Valley region relative to the heavily glacierized areas of the Nizina and its West Fork rivers. Most of the karst was poorly developed. Numerous frost pockets formed by mechanical weathering were common in all areas. Few enterable and active underground water conduits were found during these surveys. Doline and grike intake areas at high elevation are now covered by glaciers. At lower elevations these karst intake features were common in some areas but mostly unenterable. One moderately developed cave system was inventoried within the Kennecott watershed. Most of limestone areas in the western Kennecott watershed had no surface drainage indicating the presence of subterranean conduits. Ancient structures likely formed by upwelling phreatic waters and later exposed by glacial erosion are now incidental caves unrelated to present karst processes. Small caves with wall solution features are relict features formed by ancient karst or hydrothermal systems that are no longer active. A bone recovered from one of the Hidden Valley caves was submitted for AMS radiocarbon dating and stable isotope analysis.