

PROJECTING IMPACTS OF RESOURCE EXTRACTION ON WILDLIFE HABITAT IN THE GREATER CHILKAT WATERSHED, ALASKA

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ENVIRONMENTAL PROBLEM

The Greater Chilkat Watershed (GCW) of Southeast Alaska is one of the few working landscapes linking the coastal and interior ecosystems of Alaska. Its location results in a unique climate that contributes to the region's high amount of biodiversity, which has long supported the Indigenous Chilkat and Chilkoot Tlingit tribes. Local residents continue to depend on the watershed's natural resources for subsistence. Despite its significance, only 2% of land in the watershed is set aside for conservation, with critical habitats at risk of fragmentation and degradation by large-scale, extractive mining and logging. The threats posed by these extractive forces on Pacific salmon (*Oncorhynchus spp.*), brown bears (*Ursus arctos*), mountain goats (*Oreamnos americanus*), and their habitat will have cascading effects across the entire ecosystem.

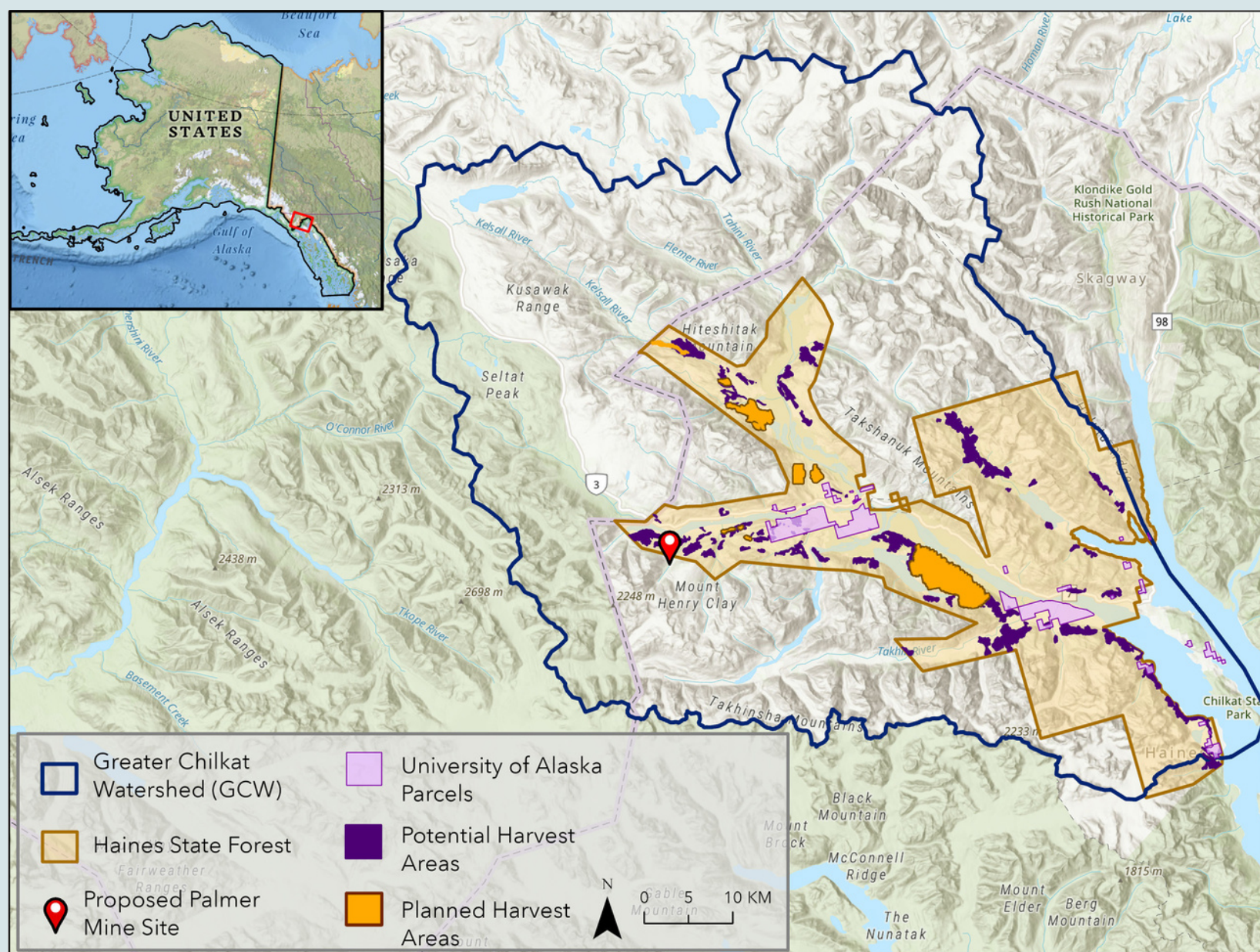


Figure 1. Extractive threats in the Greater Chilkat Watershed. Forest stands planned for clear-cutting by HSF management before the end of 2026 are highlighted in orange. Highly-stocked stands, "potential harvest areas," are in purple. Parcels owned by the University of Alaska and historically harvested for timber are in pink. The red icon in the northwest portion of the watershed indicates the location of the proposed Palmer Project mine.

RESULTS



We identified 444 parcels to be prioritized for salmon habitat conservation.

These parcels overlap with salmon hotspots - areas of high cumulative threat and biological value. 82% of all salmon hotspots are along the Klehini River and downstream from the proposed Palmer Project mine.



Habitat connectivity models & spatial overlays revealed critical areas of brown bear and mountain goat habitat that overlap with logging activities in the Haines State Forest.

Planned harvests in the Kelsall and Chilkat Ridge areas interfere with significant portions of key habitat and movement corridors for both species.



INVEST estimates of carbon sequestration rates in the watershed demonstrate the economic potential of carbon markets as an alternative to timber harvest.

A carbon credit program proposed by the University of Alaska promises significant revenue potential.

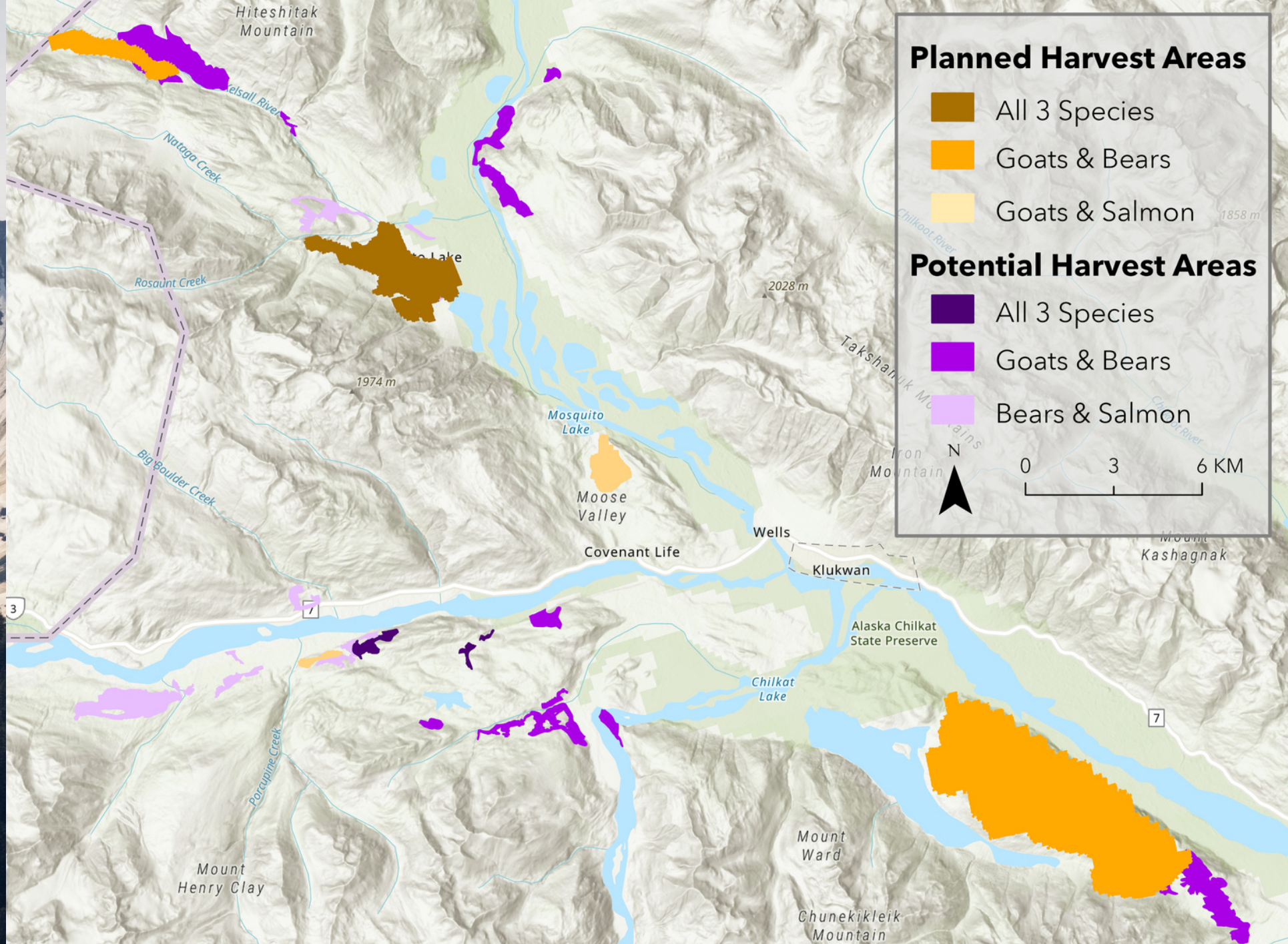


Figure 2. Planned and potential harvest areas of significance for 2 or more of our species of interest. Darkest colors indicate parcels of importance for salmon, brown bears, and mountain goats, while lighter colors show areas of utility for the listed subset of species.

PROJECT IMPACT

Lynn Canal Conservation (LCC) has advocated for environmental protection in the Greater Chilkat Watershed for over 50 years. Preserving this region as a functional, working landscape is critical – 90% of GCW residents rely on healthy populations of subsistence resources like wild game, fish, berries, and medicinal plants. These essential resources are threatened by regional mining and logging projects. Our results demonstrate the potential negative impacts of these activities on salmon, brown bear, and mountain goat habitat and will inform LCC’s future advocacy efforts. Additionally, our recommendations to Haines State Forest and University of Alaska land managers will reduce disturbance to wildlife and support a regional shift away from large-scale extraction to conservation easements and participation in carbon markets. An economy based on sustainable and non-consumptive uses of resources will provide financial stability for this region for years to come. Next steps include further data collection, species and habitat monitoring, incorporating climate models in analyses, and community education and advocacy through an ArcGIS StoryMap.

LIMITATIONS & FUTURE RESEARCH

Significant data gaps exist throughout the Greater Chilkat Watershed and Southeast Alaska, presenting challenges to regional analyses and conservation efforts.

To guide future management strategies, our work identifies areas and topics for ongoing research while also providing guidance on how to address data gaps. Ultimately, our project’s deliverables will increase awareness of this landscape and attract the attention of researchers and policymakers who can advocate for its protection.



Katie Pietrucha