Alaska Department of Fish and Game's (ADF&G) Recommendations for the Wildlife Habitat Evaluation Study and Vegetation and Wildlife Habitat Change Study for the proposed Dixon Diversion of the Bradley Lake Hydroelectric Project (P-8221)

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Leah Ellis, ADF&G FERC Hydropower Coordinator, Anchorage, AK
Jason Herreman, ADF&G Wildlife Biologist, Homer, AK
Kyle Smith, ADF&G Wildlife Biologist, Anchorage, AK

Wildlife Habitat Evaluation Study

ADF&G recommends the following species to be added (+) or removed (-) from the impacted species list for analysis:

+Brown bear: Kenai Peninsula brown bears are a genetically isolated population (Talbot 2009) and have previously been listed as a species of concern by the state of Alaska. Brown bears have been documented to den in similar habitat as that found in this study area (Miller 1990, Goldstein et al. 2010) and may be sensitive to drilling activity (Linnell et al. 2000).

+Black bear: Black bears are an important food resource to the communities of Kachemak Bay (ADFG unpublished data from sealing reports). Black bears are sensitive to disturbance during denning and have been documented to den in similar habitat as that found in this study area (Miller 1990) and may be sensitive to drilling activity (Linnell et al. 2000).

+Wolverine: Wolverines are an important furbearer species for the communities of Kachemak Bay (ADFG unpublished data fur sealing reports). Wolverines form both natal and maternal dens in the elevations at which the proposed activity will take place and are known to be sensitive to disturbance during these critical life stages (Magoun and Copeland 1998).

+Hoary marmot: Hoary marmots are a common species in the alpine area of Kachemak Bay. They are true hibernators that could be negatively impacted due to den disturbance during the hibernation period. No clear information is available on how and up to what distance drill activity will affect this wildlife species.

-Alaskan marmot: This species is not known to be present in the defined project area and should be removed from the impacted species list.

+Keen's myotis: Very little is known about this species in Alaska, but it has been found in the Kachemak Bay area (ADFG unpublished data). Like little brown bats, this species is susceptible to White-nose syndrome and has similar conservation concerns. Current hibernaculum for this species in the Kachemak Bay area are unknown but may be present in the area surrounding the proposed work area. Bats are documented to be sensitive to disturbance during hibernation (Boyles and Brack 2009). No clear information is available on how and up to what distance drill activity will affect this wildlife species.

Vegetation and Wildlife Habitat Change Study

The extent of the overall study area should be expanded to encompass the entire area that will be affected by disturbance due to project activity. This includes drilling activity, blasting activity, temporary workforce housing, transiting to work sites, and any other associated activities. If disturbances cause wildlife to abandon an area, this is a change in wildlife habitat as that habitat is no longer available for use. Changing wildlife habitat studies must include soundscape and visual disturbances as well as physical changes to the vegetation and landscape. Bears and other hibernators are sensitive to human activities during this critical life stage and have been documented to abandon den sites when activity is up to 2-km away, depending on the extent and intensity of the activity (Boyles and Brack 2009, Linnel et al. 2000). The study area should include all areas over which human activity such as drilling, blasting, or other work would be detectable by hibernators. Mountain goats are highly sensitive to helicopter traffic, mining activity, and other human disturbance particularly during critical life stages such as winter and kidding (Foster and Rahs 1983, Côté 1996, Goldstein et al. 2010, Cadsand 2012, Côté et al. 2013, Richard and Côté 2016, White and Gregorvich 2017, Northern Wild Sheep and Goat Council 2020). Mountain goats require a 2-km buffer area in regions of elevated human activity to completely avoid harassment (Foster and Rahs 1983). Displacement from important wintering and kidding habitat could lead to population level effects that would take years to recover from due to low reproductive rates (Fiesta-Bianchet and Côté 2008). Wildlife habitat change studies must include the entire area from which animals could be displaced due to development activities.

For these reasons and based upon recommendations from relevant literature, ADF&G proposes a study area buffer zone of:

- 2-km around Project design elements and primary flight paths for mountain goat, black bear, brown bear, moose, and wolverine; and,
- 250-m around Project design elements and primary flight paths for all other wildlife species on the list.

Citations:

Boyles J. G. and V. Brack Jr. 2009. Modeling survival rates of hibernating mammals with individual-based models of energy expenditure Journal of Mammalogy 90-9–16.

Cadsand B. A. 2012. Responses of mountain goats to heliskiing activity: movements and resource selection. University of Northern British Columbia.

Côté S. D., S. Hamel, A. St-Louis, and J. Mainguy. 2013. Do mountain goats habituate to helicopter disturbance? The Journal of Wildlife Management 77(6):1344-1248.

Fiesta-Bianchet M. and S.D. Côté. 2008. Mountain Goats: ecology, behavior and conservation of an alpine ungulate. Island Press. Washington D.C.

Foster, B. R. and E. Y. Rahs 1983. A study of canyon-dwelling mountain goats in relation to proposed hydroelectric development in northwestern British Coolumbia, Canada. Biological Conservation 33(3) 209-228

Goldstein M. I., A. J. Poe, E. Cooper, D. Youkey, B. A. Brown, T. L. McDonald 2010. Mountain goat response to helicopter overflights in Alaska. Wildlife Society Bulletin 33(2) 688-699.

Goldstein, M. I., A. J. Poe, L. H. Suring, R. M. Nielson, T. L. McDonald. 2010. Brown bear den habitat and winter recreation in South-Central Alaska. Journal of Wildlife Management 74(1):35-42.

Linnel, J. D. C, J. E. Swenson, R. Andersen, and B. Barnes. 2000. How vulnerable are denning bears to disturbance? Wildlife Society Bulletin 28(2):400-413.

Magoun, A. J. and J. P. Copeland. 1998. Characteristics of Wolverine Reproductive Den Sites. The Journal of Wildlife Management, Vol. 62, No. 4: 1313-1320.

Miller, S. D. 1990. Denning ecology of brown bears in Southcentral Alaska and comparisons with a sympatric black bear population. Bears: Their Biology and Management 8: 279-287.

Northern Wild Sheep and Goat Council. 2020. Northern Wild Sheep and Goat Council position statement on commercial and recreational disturbance of mountain goats: recommendations for management. Proceedings of the Biennial Symposium of the Northern Wild Sheep and Goat Council 22:1-15.

Reynolds-Hogland, M. J., M. S. Mitchell, R. A. Powell, and D. C. Brown. 2007. Selection of den sites by black bears in the southern Appalachians. Journal of Mammalogy 88:1062–1073.

Richard J. H. and S. D. Côté 2016. Space use analyses suggest avoidance of a ski area by mountain goats. The Journal of Wildlife Management. 80(3): 387-395.

Tietje W. D. Ruff R. L. 1980. Denning behavior of black bears in boreal forest of Alberta. Journal of Wildlife Management 44:858–870.

Talbot, S. L., G. K. Sage, and S. D. Farley. 2009. Brown bears of the Kenai Peninsula are genetically isolated from mainland south central and southwestern Alaskan populations (abstract only). U.S. Geological Survey, Alaska Science Center, Anchorage, AK. 2 pp.

White, K. S., D. P. Gregovich. 2017. Mountain goat resource selection in relation to mining-related disturbance. Wildlife Biology. https://doi.gor/10.2981/wlb.00277.