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## GRIZZLY BEAR ABUNDANCE AND DENSITY IN THE CABINET-YAAK ECOSYSTEM

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Cabinet-Yaak Grizzly Bear DNA Project Study Team<sup>1</sup>

We use genetic detection data from concurrent hair corral and bear rub sampling to provide abundance and density estimates for the threatened grizzly bear (*Ursus arctos*) populations in the Cabinet Mountain and Yaak regions in northwestern Montana and northern Idaho collectively known as the Cabinet-Yaak Ecosystem (CYE). We used Huggins models in Program MARK and model averaging to generate region- and sex-specific abundance estimates. To estimate the average number of bears present, we estimated mean bear residency on our sampling grid from telemetry data and used it to correct our super population estimates for lack of geographic closure. Total grizzly bear abundance in the CYE in 2012 was 49 (95% CI: 44-62) with an average of 45 (95% CI: 42-65) present at any one time. Population size in the Cabinet and Yaak regions was equal: Cabinet: 22 (95% CI: 20-36); Yaak: 22 (95% CI: 22-39). Grizzly bear density in the CYE was 4.5 (95% CI: 3.7-5.3) grizzly bears/1000 km<sup>2</sup>. With parentage analysis, we document the first natural migrants to the critically low and interbred Cabinet population and the Yaak population by bears born to parents in neighboring populations. These events support data from other sources suggesting that the expansion of neighboring populations may eventually help sustain the CYE populations.

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