Grizzly Bear Density in Glacier National Park

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We present the first rigorous estimate of grizzly bear (*Ursus arctos*) population density and distribution in and around Glacier National Park (GNP), Montana. We used genetic analysis to identify individual bears from hair samples collected via two concurrent sampling methods: systematically distributed, baited, barbed–wire hair traps and unbaited bear rub trees along trails. This study is the first to use detections from rub tree sampling to improve the precision of population estimates made with data from hair traps. We used the Huggins closed mixture model in program MARK to estimate total population size and developed a method to account for heterogeneity caused by unequal access to rub trees. We also developed a new method to correct our estimate for lack of geographic closure based on radio–collared bear locations weighted by mean distance from the study area edge to account for uneven distribution of bears on the sampling grid. Adjusted for closure, the average number of grizzly

bears in our study area was 240.7 ($CI_{95\%}$: 202–303) in 1998 and 240.6 bear ($CI_{95\%}$: 205 304) in 2000. Mean grizzly bear density was 30 bears/1000 km^2 with 2.4 times more bears detected per hair trap inside than outside GNP. We provide ba eline information important for managing one of the few remaining populations of grizzlies in the contiguous United tates