

A COMPARISON OF NON-INVASIVE SAMPLE COLLECTION TECHNIQUES FOR USE IN GENETIC ANALYSIS^{TWS}

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No reliable information currently exists on the status of the grizzly bear (*Ursus arctos horribilis*) population within Glacier National Park (GNP) or for the Northern Continental Divide Ecosystem in northwest Montana. Recently developed genetic techniques allow us to determine the species, sex, and individual identity of bears using DNA extracted from hair and scat samples. We utilized two non-invasive sample techniques to study grizzly bear population status. Hair corrals were established in a systematic grid in the Greater Glacier area to estimate population density. To assess the power of sign surveys to monitor population trends, bear hair and scat were collected along trails in GNP. Different segments of the population appear to be sampled by the two methods. Only 16 percent of the 200 individual grizzly bears were identified in both sign surveys and hair traps. The female:male ratio of bears identified from hair trap samples was 1.2:1, whereas the ratio sampled in sign surveys was 1:3. To assist future project planning, we compare uses, biases, and costs of estimating population density using genetic techniques to those of traditional telemetry studies.