# Documenting Grizzly Bear Movement Patterns with GPS Technology[TWS]

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Grizzly bears *(Ursus arctos horribilis)* currently occur in only five isolated populations: the Yellowstone Ecosystem of Idaho, Montana, and Wyoming; the Northern Continental Divide Ecosystem (NCDE) of Montana; the Cabinet/Yaak Ecosystem of Montana; the Selkirks Ecosystem on northern Idaho; and the Northern Cascades Ecosystem of Washington. The extent of grizzly bear movement between these ecosystems is unknown, but may be nonexistent; no movement between ecosystems has been documented. Linkage between these populations is important to maintain genetic diversity within each population and to lesson the impacts of demographic and environmental stochasticity. Linear human development that occurs within or between grizzly bear habitats can fragment resident grizzly bear populations. Previous research concerning grizzly bear movements through human development corridors or use of "linkage zones" has been hampered by the difficulties inherent to radio telemetry in mountainous terrain. These difficulties include poor accuracy of ground telemetry and limited opportunity for aerial telemetry due to expense, weather conditions, and restriction to daylight hours. Recent advancements in GPS technology may allow us to overcome these difficulties, allowing accurate 24 hour tracking of grizzly bears. In 1998, we initiated a 3-year study of grizzly bear habitat and movement patterns along the US Highway 2 corridor in northwest Montana. This corridor lies between Glacier ational Park to the north, and the Bob Marshall Wilderness complex to the south. We captured nine grizzly bears within the corridor and subsequent aerial telemetry established that five of the nine were resident to the corridor and crossed US Highway 2 frequently. In 1999, we attempted to recapture these five individuals and fit them with GPS collars. We did not succeed in recapturing these five individuals, but three GPS collars were deployed on adult females not previously captured in the corridor.

One of the three collars did not function due to internal failure. However, the other two functioned admirably, collecting over 3200 locations over a 114 day period. Here I present some preliminary results from this state-of-the-art positioning system and our plans for continuing research.