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## **USING GPS/IRIDIUM RADIO COLLARS WITH GEOFENCE TECHNOLOGY TO MONITOR MANAGEMENT GRIZZLY BEARS IN NORTHWEST MONTANA**

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Grizzly bears that come into conflict with humans may be captured, fitted with a radio transmitter, and released. The Interagency Grizzly Bear Guidelines require these management bears be radio-collared and monitored monthly. Radio collars typically used are VHF and bears can only be located by ground or aerial tracking. Locating these translocated bears is challenging, unproductive, expensive, and results in few locations. Global Positioning System (GPS) technology has greatly improved the ability to monitor bears. Advancements in

technology have resulted in radio collars such as the GPS/Iridium with Geofence technology and auxiliary schedules. In 2016, we captured and radio-collared eleven grizzly bears. Ten were fitted with Telonics TGW-4577-4 Iridium collars with a CR-5 release mechanism. These collars provided 13,864 GPS locations. One bear was fitted with a Telonics VHF collar which only provided two locations. The Iridium collars had geofencing, which was a polygon created in Google Earth that included all the private land. The collar was programmed so when a bear was outside the geofence, a GPS location was acquired every six hours. When a bear was in the geofence, a GPS location was acquired every 30 minutes. This provided more locations when a bear was on private land and near residences. The Iridium platform also provided two-way communication with the collar which allowed changing GPS acquisition rates, downloading all of the data every other day, detecting mortality, monitoring battery level, and triggering the collar to release. The advantages of this new technology to monitor grizzly bears are presented.