

# Greater Yellowstone Coordinating Committee

## Project Completion Report

FY 2007

**Unit: Yellowstone National Park**

**Project Name: Develop Techniques to Test the Effectiveness of Yellowstone Bear Management Areas**

**Project Description:**

Special Bear Management Areas (BMAs) were designated in Yellowstone National Park (YNP) in 1983 in an effort to provide security for the threatened grizzly bear (*Ursus arctos*). Sixteen BMAs were identified and have been in place since that time (NPS 1983). These BMAs comprise 464,638 acres or approximately 21% of YNP, and are closed to human access and recreational activity for part or all of the spring, summer, and fall seasons when bears are active. The goals behind these restrictions were to: 1) minimize bear-human interactions that may lead to habituation of bears to people, 2) prevent human-caused displacement of bears from prime food sources, and 3) decrease the risk of bear-cause human injuries in areas with high levels of bear activity. Our objective is to determine if Yellowstone BMAs are functioning as designed and are meeting these three primary goals.

Since their development, only one attempt has been made to evaluate the role and significance of BMAs in grizzly bear conservation. Results from that study clearly indicated a lack of adequate empirical data to conduct such analysis. The study recommended that additional data on the spatial and temporal distribution of bears in BMAs be collected. In this study, we are obtaining this additional data by the use of new GPS radio collars.

We are developing and testing a protocol that might be useful in evaluating the security and foraging opportunity afforded to bears utilizing four Yellowstone BMAs. These four BMAs are designated to prevent human-caused displacement of bears from cutthroat trout spawning tributaries of Yellowstone Lake. We are evaluating the four cutthroat trout BMAs because we have the potential to couple this research with a much larger funded project that will evaluate bear numbers, temporal and spatial patterns of use, and sex and age of bears utilizing the fish resources of Yellowstone Lake and its tributaries.

This research is currently being accomplished two ways. First, we are deploying GPS radio collars on grizzly bears in the Lake area of YNP. GPS radio collars are set to collect waypoints at a rate of every 30 minutes to every 90 minutes depending on the individual bear. These GPS radio collars are giving us excellent spatial and temporal data in the four BMAs. Second, we are currently sampling recreation users in the same area. We have been giving out approx. 20 GPS units per week to individual hiking, backpacking and boating parties. These two methods, combined, are giving us excellent spatial data of both bears and people. We will continue to collect bear and human data in the same manner during 2008.

*Note: You may expand and reduce size of blocks.*

**GYCC Funding Received: \$5,000**

**Partner Funding/In-Kind Received: ~\$38,000**

**Status of the Project:** During the summer of 2007 we were successful in collecting bear and human spatial data. We have been able to deploy 11 bear GPS radio collars. This includes a sample of 10 grizzly bears and one black bear. As of Nov. 1 2007 we have collected approx. 20,000 individual grizzly bear locations.

Additionally we have collected a tremendous amount of human spatial data in the four BMAs. We have sampled 136 recreational parties, recorded over 300 tracking days and over 10,000 waypoints.

**Products that can be shared across the GYA: (GIS data layers, maps, new protocols and methods)** At this time our GIS layers and completion reports are not ready to share. We will be collecting data in the same manner during the 2008 season. During the winter of 2008/2009 we will complete our analysis and send out a completion report with all the adequate GIS layers.

**Project results: (Information worth sharing on methods, results, partnerships, etc)**

We can suggest that, up to this point, the method we have attempted works. The grizzly bear spread spectrum collars have been reliable and accurate. The amount of spatial data collected has met our expectation both in the reliability of the radio collars and the amount of spatial data collected. In addition, we have been taking a random sample of recreational users. We have designed a method to sample recreation users by using YNP's reservation records from the Yellowstone Central Backcountry Office. Sampled recreational users were given GPS units to track their hiking routes on backcountry tips and day hikes. This method proved largely successful and most parties were able to collect very accurate spatial data. GPS units were always returned on time and in good condition. I do not anticipate a change in the sampling protocol for this upcoming season. We anticipate that we will collect the same amount if not more spatial data on grizzly bears and humans.

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**Submit to** Virginia Kelly: [vkelly@fs.fed.us](mailto:vkelly@fs.fed.us) 406-587-6704. Contact Virginia with questions.