

2009 Wildlife Monitoring: Grizzly Bears

BACKGROUND

Grizzly bear (*Ursus arctos*) status in Grand Teton National Park (GRTE) is evaluated as part of the larger Yellowstone ecosystem population. The USGS Inter-agency Grizzly Bear Study Team (IGBST) is charged with monitoring this population of grizzly bears and evaluating its status annually. GRTE contributes to the monitoring program each year by gathering and submitting a variety of demographic information from park grizzly bears. Data included in this report are courtesy of the IGBST. Their full 2009 and earlier year annual reports can be found at <http://www.nrm-sc.usgs.gov/research/igbst-home.htm>.

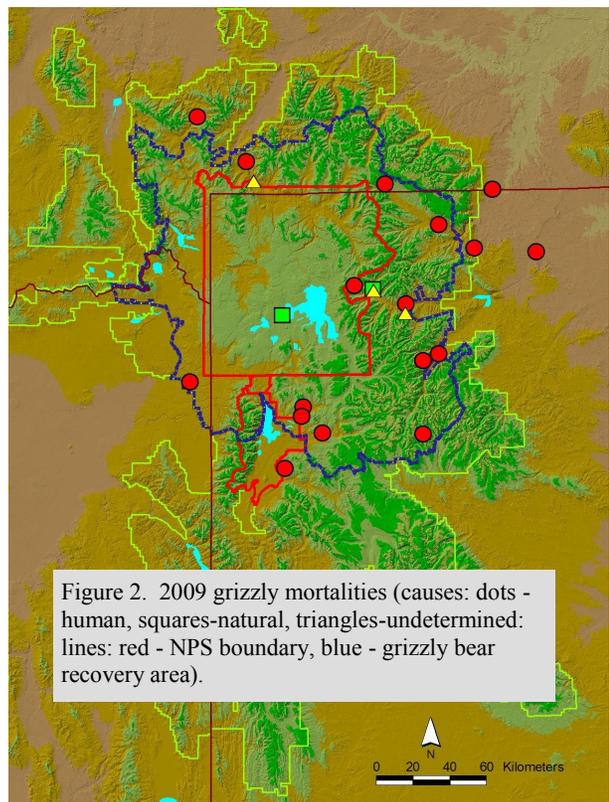
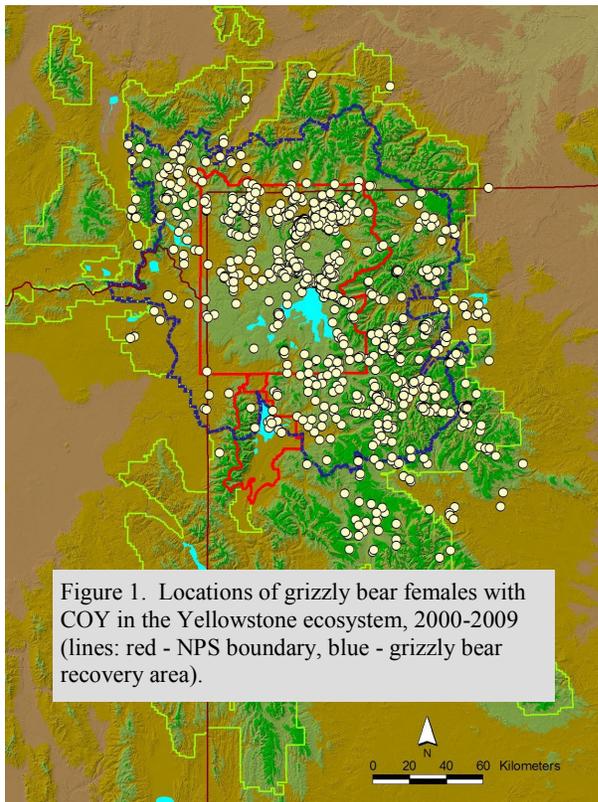
POPULATION ESTIMATE

The annual population estimate is derived from the number of unduplicated females with cubs of the year (COY) observed (Fig. 1). Observation data come from a variety of sources, including a standard array of aerial

observation flights from fixed-wing aircraft and ground observations. In 2009, 42 unduplicated sows with COY were observed, resulting in a point estimate of 582 bears (95% CI 523-641) for the ecosystem – more than twice the number estimated 20 years ago.

MORTALITY

Grizzly bear mortality was slightly lower in 2009 than 2008 and within limits established in the Final Conservation Strategy for Grizzly Bears in the Greater Yellowstone Area. Thirty-one (48 in 2008) known and probable bear deaths were documented, including 24 human-caused, 2 natural, and 3 of undetermined causes (Fig. 2). No grizzly bear deaths were recorded in Grand Teton National Park in 2009. Overall, human-caused mortalities related to conflicts between bears and ungulate-hunters topped the list of deaths in the ecosystem.

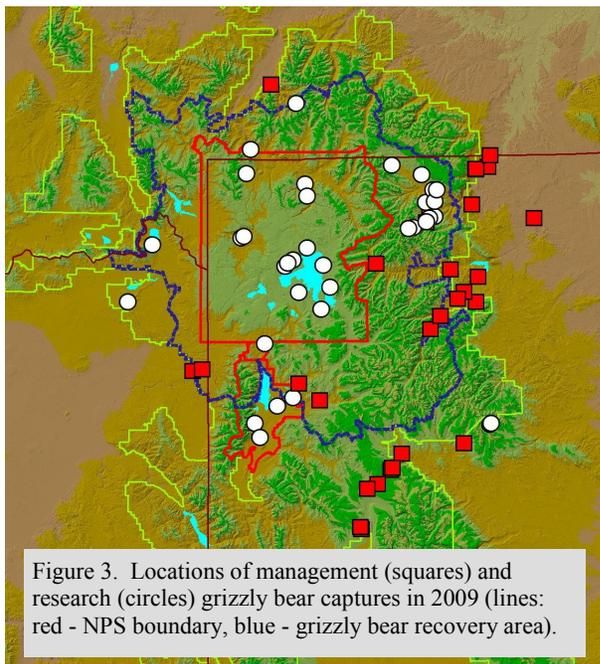


CAPTURES

A total of 97 grizzly bear captures of 79 individuals occurred in the ecosystem in 2009: 62 captures of 49 bears for research and 35 captures of 33 bears for management (Fig. 3). Of the 79 individuals captured, 20 were female, 57 were male, 2 of unknown sex were released without handling, and 53 were new bears with no previous capture history. The IGBST conducts research trapping each year to maintain 25 or more radio-collared adult females, the minimum number necessary for long-term demographic monitoring. Males are also monitored for tracking sex-specific attributes of the population.

This year the study team monitored 93 individual bears for all or part of the year, including 28 adult females. Forty four bears entered winter dens wearing active radio collars. Both VHF and GPS collars are used, which address different objectives. VHF collars, which have a longer battery life, are often used on adult females for long-term demographic monitoring. GPS collars are used when objectives call for more intensive sampling and high spatial accuracy, such as in studies of habitat use.

Twenty-three bears (8 females, 15 males) were relocated after being trapped in conflict situations. No grizzly bears were trapped in conflict situations in the park in 2009. However, we did transport one subadult male grizzly bear (# G133) after capturing it in a black bear research trap near Moose. This bear had a long history of nuisance behavior when part of a family group comprised of its mother and sibling. Its mother had been destroyed in an agency removal the previous fall near Cody. Its transport to the northwest portion of



the John D. Rockefeller, Jr. Memorial Parkway was a preemptive move to help this bear establish independence away from human developments.

Two other grizzly bears were caught in black bear research traps in the south end of the park in 2009. Grizzly bears 610 and 615, both 3-year old females, were radio-collared and released on site in July. Based on radio-collar data, each appeared to be establishing home ranges in the south end of the park. However, 615 was shot and killed by a hunter east of the park boundary in the Ditch Creek drainage in September. Two additional grizzly bears were radio-collared in the park by IGBST in September (#627) and October (#526).

WHITEBARK PINE

Because of the importance of whitebark pine (WBP) nuts to bears, the IGBST monitors cone production on a series of 23 transects spread throughout the ecosystem. Whitebark pine cone production was well above average in 2009 ecosystem-wide, with 46 (8.6 in 2008) cones/tree observed. In high production years, 20 or more cones per tree is not uncommon. Cone production in GRTE was also high, as was the berry crop, which provided ample food resources for bears in late summer and fall.

The study team also monitors tree mortality along these transects, which were established non-randomly in mature WBP stands. Since 2002, 69.5% (132 of 190 transect trees) of the trees monitored have died, primarily from mountain pine beetle infestation. In another study designed for ecosystem-level inference, about 10.0% percent of trees > 1.4m tall that were marked from 2004-2007 had died by 2009, and 62% of those showed signs of mountain pine beetle attack (Jean et al. 2010). Mountain pine beetles have been prolific for several years in a row, possibly exacerbated by climate change, and have caused widespread mortality in trees throughout the ecosystem. Yellowstone grizzly cub production and fall nuisance bear management actions have been tied to low whitebark pine cone years in the past.

LITERATURE CITED

Jean, C., E. Shanahan, R. Daley, S. Podruzny, J. Canfield, S. Cherry, G. DeNitto, K. McCloskey, D. Reinhart, C. Schwartz. 2010. Monitoring white pine blister rust and mortality in whitebark pine in the Greater Yellowstone Ecosystem. Abstract. NPS Greater Yellowstone Network, Bozeman, MT

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