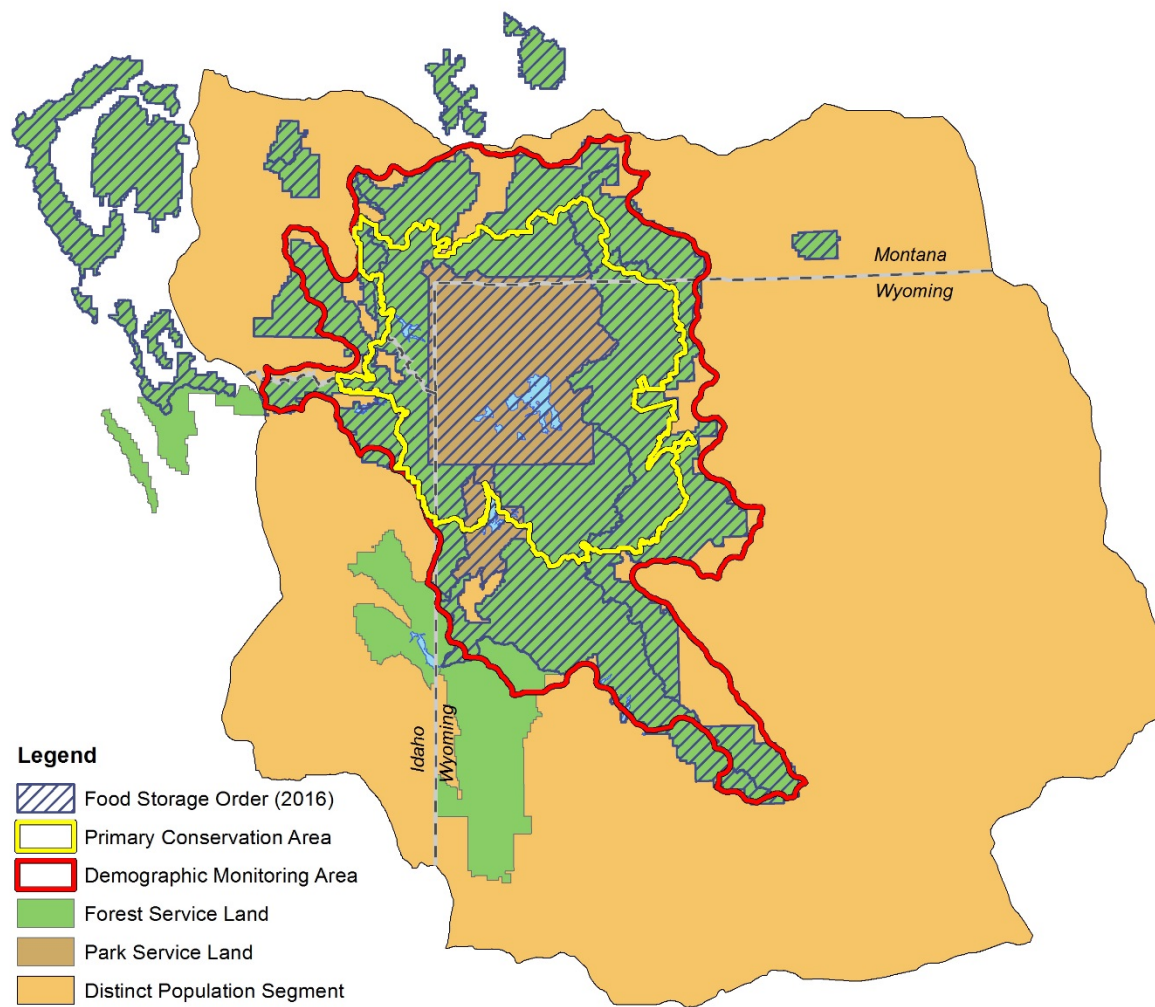


Transportation Planning and Managing for Habitat Connectivity

Background

Habitat connectivity is the degree to which the landscape promotes natural movement of wildlife as they seek important resources for survival and successful procreation. To improve prospects for grizzly bear movement between the Greater Yellowstone Ecosystem and the Northern Continental Divide Ecosystem (NCDE) to the north, it is important to minimize anthropogenic barriers that inhibit natural movement of wildlife. Food storage orders prescribed by land managers on federal lands throughout the GYE help facilitate connectivity by minimizing adverse interactions between grizzly bears and humans. Food storage orders, which require that all unattended food, refuge, and attractants be effectively stored, have been imposed on 98% of all Forest and Park Service land inside the Demographic Monitoring area. The area of application for food storage restrictions inside the GYE include virtually all Forest Service lands in the northern portion of the Distinct Population Segment boundary where movement from the GYE would most likely take place (Fig ??). Consistent with this objective, food storage orders also apply to 87% of the NCDE Primary Conservation Area. To further promote connectivity, a management objective identified in the NCDE Grizzly Bear Conservation Strategy is to maintain genetic linkage opportunities between the NCDE south toward the GYE with consistent grizzly bear presence in the intervening areas.

In addition to food storage orders, transportation planning is another important factor affecting natural linkage zones between the two grizzly bear populations. Potential effects of highway ~~corridors-improvements~~, such as increased motorized access, higher traffic volume, and higher speed limits, are known to increase grizzly bear mortality, reduce habitat connectivity, and potentially inhibit gene flow among nearby populations (Mace 2004, Summerfield *et al.* 2004, Proctor *et al.* 2012; refer to *Genetic Management* section in Chapter 2). Certain road designs and ~~road-improvements~~ cause habitat fragmentation by imposing barriers that potentially discourage bear crossings, ~~may and~~ lead to increased mortality from vehicle collisions, ~~and may cause habitat fragmentation.~~ The potential impact of highways on demographic and genetic connectivity of grizzly bears in the GYE is a key consideration in the transportation planning process.



Monitoring Protocol

To prevent habitat fragmentation and loss of connectivity within the GYE, existing road survey information will be compiled and evaluated by the appropriate land management agency as an integral part of the planning stage of any proposed road improvement and/or construction project in suitable grizzly bear habitat within the GYE (both inside and outside the PCA). During the NEPA analysis stage of such projects, analyses of road survey information will be conducted to evaluate potential impacts of the project on grizzly bear habitat connectivity. More specifically, federal agencies land management agencies working in concert with federal and state highway departments will identify important crossing areas by collecting and/or assessing existing

information about known grizzly bear sightings, ungulate road mortalities, locations of game trails, and bear home ranges and habitat use within and near the road corridor. By identifying crossing areas used by grizzly bears, federal officials can recommend mitigation measures to reduce potential impacts from road construction both during and after a project. For example, during construction, work camps should be placed in areas with lower risk of displacing grizzly bears and use of bear-proof food and garbage storage containers should be implemented. Highway planners are encouraged to place warning signs at points of high mortality risk and implement wildlife crossing infrastructure such as culverts or underpasses to enhance safe passage. Road construction in areas of relatively high value for potential grizzly bear habitat linkage should be designed to mitigate potential negative impacts on habitat connectivity, including the consideration of installing crossing structures.