Appendix E. 1998 Baseline for Habitat Standards

I. Introduction

The 1998 baseline refers to the measurements of habitat conditions on public lands inside the Primary Conservation Area (PCA) as they existed in 1998. Habitat standards identified in the *Conservation Strategy for Grizzly Bears in the Greater Yellowstone Ecosystem* pertain to 3 factors known to affect grizzly bear mortality: 1) secure habitat, 2) developed sites, and 3) livestock grazing allotments. The standards require that all three factors be maintained at, or improved upon, conditions that existed in 1998. The rationale for 1998 as a baseline is predicated on evidence that habitat conditions at the time contributed to the vigorous 4–7 % annual growth rate of the grizzly bear population in the Greater Yellowstone Ecosystem (GYE) that was observed from the mid-to-late 1980s and throughout the 1990s (Harris *et al*., 2006, 2007; IGBST 2012). The 1998 baseline represents the most reliable estimate of habitat conditions at the time and establishes a benchmark against which future improvements and impacts can be assessed. It also provides a clear standard for agency managers to follow when considering potential impacts of local projects. This appendix documents estimates for baseline habitat values so that current and future conditions throughout the PCA can be evaluated for compliance with the standards as formalized in the Conservation Strategy.

In theory, the 1998 baseline should consist of static measurements bound to a single point in time. In reality, this baseline continues to evolve as more reliable information is acquired; errors in the baseline are identified and corrected; and as new geoprocessing tools and methodologies are developed that more accurately compute habitat parameters. Since the release of the initial 2007 Conservation Strategy (USFWS 2007), new information has become available and some errors in the 1998 baseline have been identified. Consequently, baseline values have been corrected when necessary to more accurately reflect 1998 ground conditions. The 1998 baseline database will continue to be improved when and if errors are identified and when more accurate habitat monitoring measures are implemented. All corrections to the baseline are documented, tracked, and reported in the Interagency Grizzly Bear Study Team (IGBST) annual reports, *Yellowstone Grizzly Bear Investigations*. Baseline values presented in this appendix represent the best available information at the time and will serve as a basis for monitoring and evaluating future changes in habitat conditions.

II. Recent change to Baseline: Footprint approach

A recent change in the method for measuring and tracking developed sites on public lands inside the PCA led to the development of a “footprint” approach. This new approach has the following two ramifications: 1) it changes how developed sites are delineated and categorized; and 2) accounts for measurable impacts on secure grizzly bear habitat associated with areas of concentrated human use. As a result of this new approach, values for the 1998 habitat baseline have changed to more accurately reflect conditions on the ground. The habitat baseline values in this current document supersede those documented in the 2007 Conservation Strategy and comprise the current benchmark against which all future change is to be measured.

A) ***Why the footprint approach?***

The Developed Sites Standard in all versions of the Conservation Strategy requires that the number and capacity for human use of developed sites on public lands inside the PCA be maintained at or below 1998 levels, with special exemptions for expansion (in capacity and acreage) at existing administrative sites. However, in previous versions of the Strategy, developed sites, ranging from simple trailheads to complex major developments such as Grant Village in Yellowstone National Park, were represented and counted equally as mere points on the landscape and did not detract from calculated secure habitat. New language in Chapter 3 of the Strategy applies a spatial “footprint” approach to qualified developed sites based on polygons, rather than points, to delineate areas of concentrated human use associated with developed sites. With this method, footprint areas are buffered by 500 meters and the entire buffered areas are subtracted from measured secure habitat. The rationale for using the footprint approach is that it: 1) uses a more reliable, consistent, and accurate method for representing and tracking human development; 2) more accurately accounts for the reduction in secure habitat due to human development; 3) delineates prescribed areas within which managers may authorize new or enhanced infrastructure without mitigation per application rules in Chapter 3; 4) limits new infrastructure to those areas already developed and considered non-secure areas incompatible with grizzly bear occupation; and 5) remains consistent with and true to the intent of the original 1998 developed sites baseline.

The impetus for revisions to the measurement and tracking of developed sites is in direct response to significant changes in the GYE. Since 2007, when habitat standards were first implemented, the number of visitors on public lands throughout the GYE has increased significantly. In Yellowstone National Park alone, annual visitation increased by more than 40% during the period 2008–2018, surpassing 4 million visitors per year since 2016 (National Park Service website). In 2016, the Conservation Strategy was revised as part of the effort to delist grizzly bears in the GYE. In the revised Strategy, land managers identified a need for more flexibility to address insufficient staffing levels, overspill at designated campgrounds, traffic congestion, and aging infrastructure in a manner that stays true to the original intent of the 1998 habitat standards.

Consequently, a placeholder was added to the 2016 Strategy that called for the establishment of an interagency technical team (referred to as the Developed Sites Technical Team). The team was tasked with revaluating habitat standards for developed sites and recommending changes to the standards and application rules that would provide managers the needed flexibility for authorizing new infrastructure. Imposed constraints required that the recommendations strike a balance between management needs and grizzly bear habitat protection with minimal deviation from the 1998 baseline.

The footprint approach allows managers to authorize new infrastructure deemed critical to the management of public lands (e.g., employee housing, administrative offices, maintenance facilities, public restrooms, parking areas) within the prescribed area, or footprint, of an existing developed site. Restricting infrastructure expansion to within prescribed footprints reduces the need for human development incursions into areas that serve as secure or “core” grizzly bear habitat. Instead, new infrastructure is limited to those areas that bears naturally tend to avoid because of high levels of human presence. Although expansion is categorically restricted to *administrative* infrastructure and spatially limited to within prescribed footprints, special exceptions are identified in the applications rules (Chapter 3).

B) *Methods*

A number of steps, many of which were preparatory measures, were identified and undertaken by the Developed Sites Technical Team to ensure the efficacy of the footprint approach. The transition to a new method presented a timely opportunity to reevaluate the accuracy of the database for developed sites comprising the 1998 baseline. Spatial data on human infrastructure associated with developed sites (e.g., buildings, maintenance facilities, motorized access) needed to be compiled to more accurately demarcate areas of human use. To bring consistency to the process, definitions and classifications of developed sites had to be clearly established. Likewise, a consistent and repeatable method for delineating footprint polygons had to be generated, reviewed and implemented. And finally, any consequential effects on secure habitat measurements had to be calculated and documented. Some of the more significant of these efforts are briefly chronicled as follows:

Definitions and new classification of developed sites

During 1999–2002 when the inventory of developed sites was initially compiled for public lands inside the PCA, there was no guiding language defining what constitutes a qualified developed site within the context of grizzly bear conservation. This lack of definition often led to confusion and resulted in inconsistencies between data sets compiled by the 5 National Forest and 2 National Park units that comprise approximately 98% of the PCA. Definitions were formalized by the technical team and new categories were constructed for parsing developed sites. The objective was to construct a set of mutually exclusive categories that distinguish between *day-use* and *overnight-use* and between *administrative* versus *visitor* use. This new categorization of developed sites (Table 2) is better suited to apply the current set of application rules (Chapter 3) that differentiate between the various types of use. In some cases, multiple distinct sites were merged into a single developed site. The merging of multiple smaller sites into a single larger site applied primarily to major developments like the Madison area in Yellowstone National Park (Figure 7).

Reassessment of developed sites

The inventory of developed sites on public lands inside the PCA was initially assembled and incorporated into the 2003 draft Conservation Strategy. At that time, digital records of administrative and recreational sites often were lacking and paper records were not always readily available. Over time, more accurate and complete digital records have been developed and maintained. Early in the recent review process, the Technical Team initiated a thorough accuracy assessment of the seminal database that serves as an inventory of developed sites comprising the 1998 baseline. Furnished with newly established definitions of developed sites, each administrative unit was tasked with reviewing the list of developed sites located on lands inside the PCA under their jurisdiction. Agency staff were asked to identify and correct errors of omission and commission and to correct spatial inaccuracies of site locations. Sites that were verified as existent in 1998, but which had not been previously accounted for in the database, were documented and officially appended to the developed sites database. Likewise, baseline sites that did not meet the criteria for a developed site specific to the purpose of grizzly bear conservation (e.g., radio repeater towers, interpretive signs at road pullouts), were documented and removed from the database. This process resulted in a more complete, consistent and accurate representation of qualified developed sites known to exist in 1998.

Inventory of associated infrastructure

Developed sites on public lands refer to those sites that have been enhanced with human infrastructure intended to accommodate public recreational use and administrative needs. Reliable spatial locations and descriptive information accounting for a site's infrastructure was determined essential to ensure that the intended objectives of prescribed footprints were met. A database accounting for all known infrastructure associated with developed sites was compiled and recorded in the newly refurbished inventory of the 1998 baseline. This spatial and descriptive information was obtained by local data stewards and supplemented via national databases such as the USDA Enterprise Data Warehouse (EDW) hosted by the Forest Service and the Wildland Fire Decision Support System (WFDSS) database maintained by the U.S. Geological Survey. When digital infrastructure data were lacking, spatial locations of structures were digitized directly from high resolution photo imagery. The 1998 status of infrastructure was verified against vintage imagery. Descriptive building information was identified with assistance from local administrative staff so that capacity of visitor overnight use could be documented as the number of individual units accommodating visitor overnight use (e.g., guest cabins, lodges, campsites).

Enhancement of motorized access database

To more accurately elucidate areas of human use associated with developed sites, it was imperative that spatially explicit information pertaining to motorized access to site infrastructure was accurate. The grizzly bear Motorized Access GIS database, which contains spatial data for motorized routes throughout the ecosystem, was crucial to the delineation of footprint polygons. However, in certain areas, the database often lacked the necessary level of detail for motorized access to individual structures at a given site. In order to guarantee the efficacy of the footprint approach, it was necessary to enhance the accuracy of the Motorized Access database. When available, more spatially accurate corporate data for motorized routes were integrated into the Motorized Access database. The accuracy of linear features in the database was also verified against current and historic photo imagery, with special effort focused near developed areas. Digital route features were spatially aligned to more accurately represent ground conditions. Roads that were not originally accounted for in the database were digitized directly from georeferenced photo imagery and appended to the Motorized Access database. Each feature that was appended to the current motorized route database was also compared against *Google Earth* historic imagery to determine if the motorized route existed in 1998. Routes determined to exist at that time were also appended to the baseline database representing 1998 baseline conditions. All corrections to the original baseline database were tracked and documented. To illustrate this process, Figure 6 provides a visual comparison of motorized access for the Old Faithful area in Yellowstone National Park before and after photo imagery correction.

Criteria for assignment of footprints

In the footprint approach, not all developed sites are equal. Although special provisions allow for critically needed infrastructure, the degree and nature of authorized construction depends on the type of developed site and differentiates between those sites with and without prescribed footprints. Developed sites that warrant footprints primarily include: 1) areas with permanent infrastructure and invested management capital accommodating relatively high levels of administrative and/or recreational use, and 2) those areas identified by land managers as having the greatest need for infrastructure growth to meet administrative challenges imposed by increased visitation to public lands. Specific development categories that warrant prescribed footprints include: a) ***Administrative*** facilities constructed for use primarily by government and concessionaire employees that facilitate the administrations and management of public lands; b) ***Visitor Overnight*** sites on National Forest lands comprised of multiple building units accommodating overnight visitor use via special use permits (i.e., visitor lodges and guest ranches); c) ***Developed Campgrounds*** on National Forest lands; and d) ***Major Developments*** characterized as expansive areas with concentrated human use on National Park lands that typically host a complex combination of administrative and visitor uses. Developed sites with no prescribed spatial footprint are best characterized as isolated point sources of human activity supporting minimal infrastructure and demonstrating little need for enhancement. Such sites include day use picnic areas, boat ramps, backcountry patrol/rental cabins, and trailheads.

Method for footprint delineation

The method for generating footprint polygons was designed to be consistent and easily repeatable. The *Convex Hull* geoprocessing algorithm (*XTools Pro v.17.2* extension inside *ArcGIS v.10.5.1 software*) was used to generate polygons of minimum perimeter that enclose all selected motorized road features providing immediate access to a developed site's buildings and other infrastructure. An additional buffer distance of 60 meters was specified in the algorithm to force the external footprint boundary outward an additional 60 meters from the selected motorized route features. The reason for this additional 60 meters was to ensure that structures on both sides of motorized access routes were captured in the footprint. A *level of detail* parameter in the *Convex Hull* algorithm allows one to manage how precisely the outer hull follows a site's unique configuration of motorized access route features. By specifying a value ranging from 0 to 100, polygons of various degrees of complexity can be generated. Lower values yield a polygon hull of minimal complexity and maximum area. Higher values yield a tighter and more detailed polygon of minimal size that more precisely follows the selected route configuration. The *level of detail* parameter has no effect on footprint size or shape when the motorized access to a site exhibits a very simple configuration (i.e., a single strait access road). However, for more complex road configurations, such as in major developments like Old Faithful (Figure 6), the *level of detail* parameter has a greater effect on the final shape and size of the footprint polygon. There are no empirical data to support one level of detail over another. Instead, a trial-and-error process was conducted to determine which levels of complexity resulted in footprint polygons that consistently included all of the relevant infrastructure associated with various sites of varying complexity. The intent was to generate polygons that best capture the area of concentrated human activity at a given site.

Outlying infrastructure that is sufficiently offset from a site's core area (i.e., a campground water spigot located a quarter mile down the road), or infrastructure that lacks immediate motorized access (i.e., expansive livestock pastures, fence lines, or corrals), may not be entirely captured within a site footprint. The reason for this allowance is that forcing footprint polygons to enclose all outlying structures, including those structures with little or no associated human presence, would yield larger footprint areas, which, in turn, could potentially be developed in the future and thus further reduce secure habitat. Table 1 summarizes the *level of detail* parameters assigned to different categories of developed sites. Figures 2–5 provide visual examples of rendered footprints with different levels of detail.

Impacts on secure habitat

One of the objectives of the footprint approach was to more accurately account for loss of secure habitat due to human development. In all previous versions of the Conservation Strategy, secure habitat was based solely on proximity to motorized routes. The habitat standards in chapter 3 of the current Strategy identifies a revised definition for secure habitat. Secure grizzly bear habitat is currently defined as any contiguous area ≥10 acres in size and >500 meters from an open or gated motorized route, recurring low-level helicopter line, or *perimeter of a prescribed developed site footprint*. To account for this enhanced definition of secure habitat, prescribed footprints are buffered by an additional 500 meters and the entire footprint and buffered area is stamped non-secure. This method for measuring loss of habitat due to human development has been integrated into the algorithms that calculate secure habitat. Updated values for secure habitat and motorized route density incorporating the footprint approach are shown in Table 4.

The collective result of the footprint approach has not led to significant changes in measured values for secure habitat. Decreases in secure habitat measurements for all 40 bear management subunits range from 0 to 1.1% with respect to original baseline values. The reason for such minor changes is because detraction in secure habitat is mostly accounted for by measuring direct effects of motorized access.

Table 1. Summary of convex hull parameters assigned to categories of developed sites with prescribed footprints

Developed site category	**Detail parameter**	**Buffer distance**	**Summary**
Campground	0	60-meters	Campgrounds on National Forest lands were identified by land managers as a high priority for infrastructure growth to meet increasing visitation demands and to accommodate the overflow of campers displaced from National Parks. National Forests under proprietary jurisdiction have unique environmental challenges with dispersed camping. Therefore, the intent is to concentrate human activity in developed campgrounds, where grizzly bear use is already discouraged, rather than adding new visitor dispersed sites or constructing new campgrounds. Rather than increasing camping opportunities in National Parks where grizzly bear densities are generally higher, increasing capacity at National Forest campgrounds on the perimeter of the GYE is an effective approach. Additional campsites may be authorized within the prescribed footprint. Campground footprints are assigned using a minimum *level of detail* value of 0 to generate footprints of minimal complexity and maximum area.
Administrative	50	60-meters	Federal agencies require managerial flexibility to expand administrative sites in response to increased visitor use. Specifically, this requires more staff and facilities related to law enforcement, emergency response, visitor education, and maintenance. Increased infrastructure may be required to meet these needs, including housing for additional agency staff, new office space, utility and maintenance facilities, and storage of equipment and supplies. New infrastructure may be authorized within the prescribed footprint. Administrative footprints are prescribed using a moderate value of 50 for the *level of detail* parameter.
Visitor overnight	70	60-meters	Visitor overnight sites refer to areas with visitor overnight accommodations managed by private entities under special-use permits on National Forest lands. Increased visitor overnight use may be authorized within prescribed footprints to offset the overflow of campers displaced from National Parks (refer to application rules, chapter 3). A *level of detail* value of 70 is used for a relatively detailed shape hull of minimal area that follows motorized access with a moderately high level of precision.
Major Development	75	60-meters	Major developments are relatively large expansive areas with interstitial spaces separating distinct areas of concentrated human activity. These sites typically have one or more administrative/maintenance hubs offset from or intermingling with the main visitor activity. Major developments are the focal point of National Park efforts to accommodate visitor needs and are not managed as suitable grizzly bear habitat. A relatively high *level of detail* value of 75 is used to yield tighter polygons of more complex shape. The intent is to delineate footprints that envelop the multiple distinct areas of human use and restrict future expansion of the development to interstitial undeveloped spaces that grizzly bears already tend to avoid.

Table 2. Current and previous categories of developed sites. Categories to which the footprint approach is applied are indicated.

Developed Site Categories		
Previous	**Current [a]**	**Footprint**
Administrative or maintenance	Administrative	Yes
Developed campground	Developed campground	Yes
Trailhead	Trailhead	No
Summer homes	Summer homes	No
Major development	Major development	Yes
Plans of operation	Plans of operation	No
Other	Visitor day site	No
	Visitor overnight site	Yes
	Backcountry cabin	No

[a] *See Table 3 for definitions for developed site categories.*

Table 3. Definitions applicable to developed sites

Developed Site Definition	
Developed sites refer to those sites or facilities on public land that have been enhanced with human infrastructure intended to accommodate public recreational use and agency administrative needs. Such sites typically are identified or advertised via visitor maps, information displays, or agency personnel as discernable destination sites promoted by the host agency. Developed sites are often associated with human activities that may disrupt grizzly bear use of habitat or have attractants that potentially lead to increased human-grizzly bear conflicts. Examples of developed sites include, but are not limited to campgrounds, picnic areas, trailheads, boat launches, rental and patrol cabins, summer homes, guest lodges, major visitor complexes, maintenance facilities, employee housing, ranger stations, and other recreational and administrative sites.	
Developed Site Category Definitions	
Administrative	Administrative sites are those sites or facilities constructed for use primarily by government or concessionaire employees to facilitate the administrations and management of public lands. Examples include: administrative headquarters, ranger stations, park entrance stations, employee housing, maintenance utilities, and other facilities supporting government operations.
Developed campground	Developed campgrounds are front-country camping areas with multiple clearly designated campsites. Developed campgrounds are managed to accommodate overnight use by individuals, families, and groups, and range from fully developed sites with paved access and numerous visitor amenities, to minimal development and few amenities.
Major development	Major Developed sites are large expansive destination complexes of highly concentrated human use on National Park lands that typically host a multitude of intermingled day-use and overnight-use infrastructure, supporting a combination of visitor recreational and administrative management needs.
Trailheads	Trailheads are marked sites located along motorized access routes designed to provide staging for back-country or front-country trail use. Trailheads range from fully developed parking areas with restrooms to a simple turn-out along a road corridor.
Plans of operation	Plans of operation are groups of site-specific mining claims or oil and gas leases protected under statutory rights under the 1872 General Mining Law. Mining claims or oil and gas leases, in and of themselves, do not necessarily constitute a site development, but have the potential to be developed sometime in the future.
Summer homes	Summer home sites consist of one or more privately built and owned recreation residence authorized on Forest Service lands under special use permits. Summer home sites can range from a single isolated home to a residential complex comprised of multiple residences.
Visitor day	Visitor day use sites are recreational sites that do not accommodate overnight visitor use. These sites include, but are not limited to, picnic areas, boat launches, target ranges, and fishing access sites.
Visitor overnight	Visitor overnight sites are recreational sites under special-use permits on National Forest lands that host multiple structures designed to accommodate overnight visitor use. These sites include, but are not limited to lodges, guest ranches, and resorts.
Backcountry cabins	Patrol and rental cabins that are spatially isolated with minimal infrastructure that provides backcountry overnight accommodations for administrative or recreational purposes. Most of these solitary cabins have no direct motorized access.

Figure 1. Primary transportation corridors inside the grizzly bear Primary Conservation Area with special provisions for roadside development.

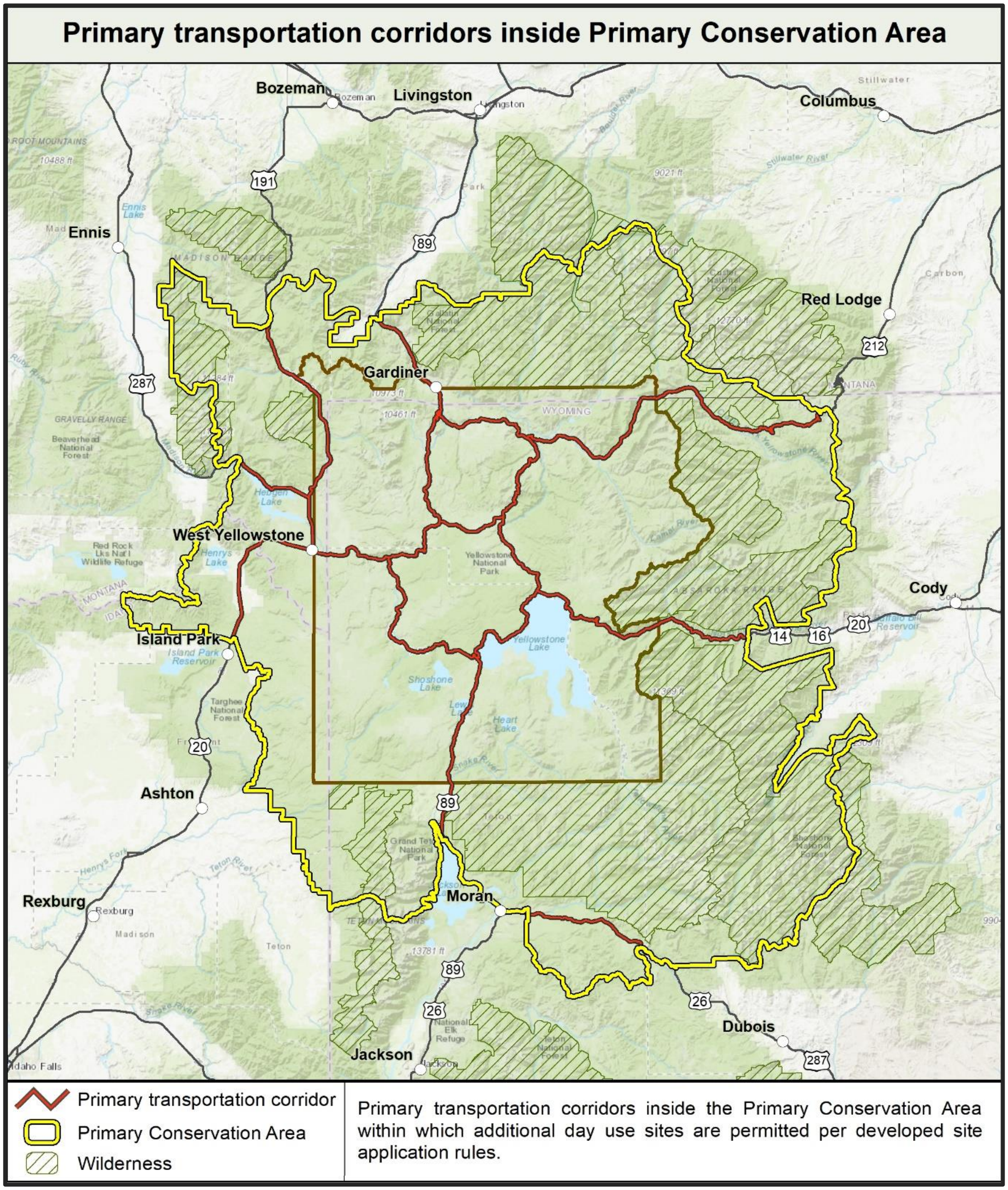


Figure 2. Example of a Campground footprint with level of detail = 0; Beaverhead Campground, Custer-Gallatin National Forest, Montana.

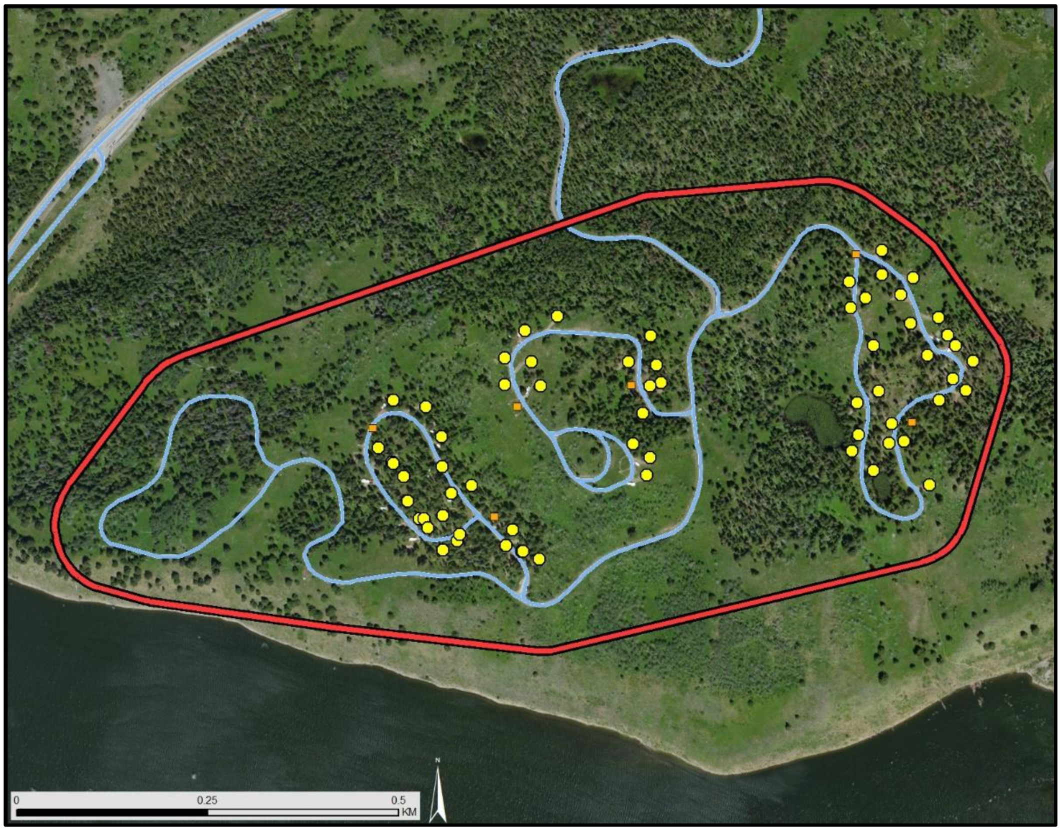


Figure 3. Example of an Administrative Site footprint with level of detail = 50; Porcupine Guard Station, Caribou-Targhee National Forest, Idaho.

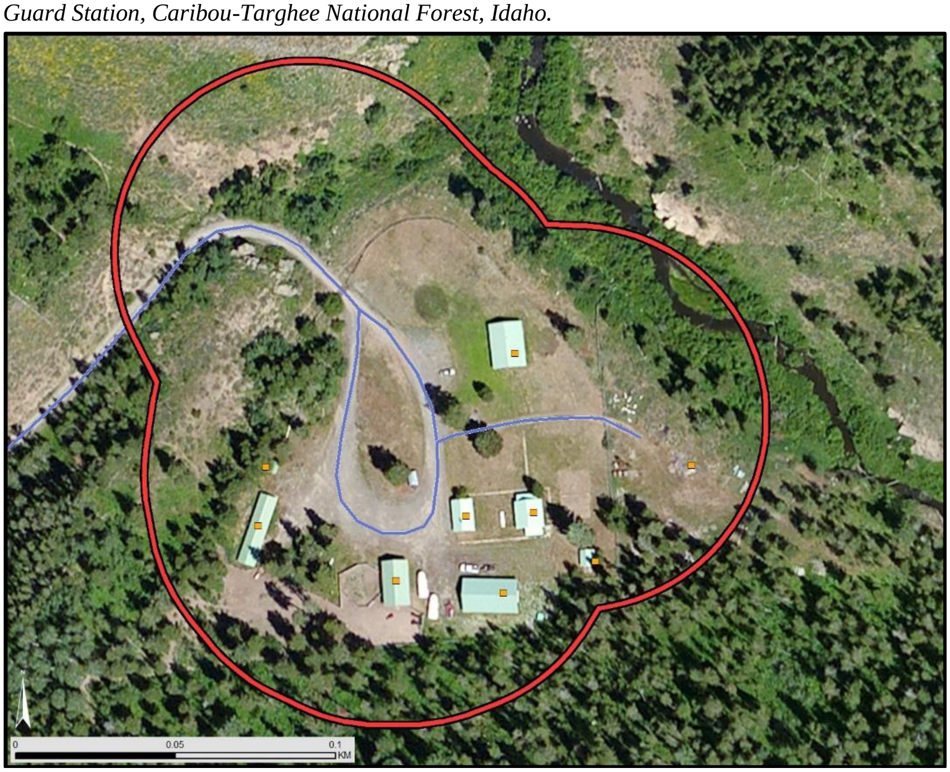


Figure 4. Visitor Overnight Site footprint with level of detail = 70; Togwotee Guest Lodge, Bridger-Teton National Forest, Wyoming.

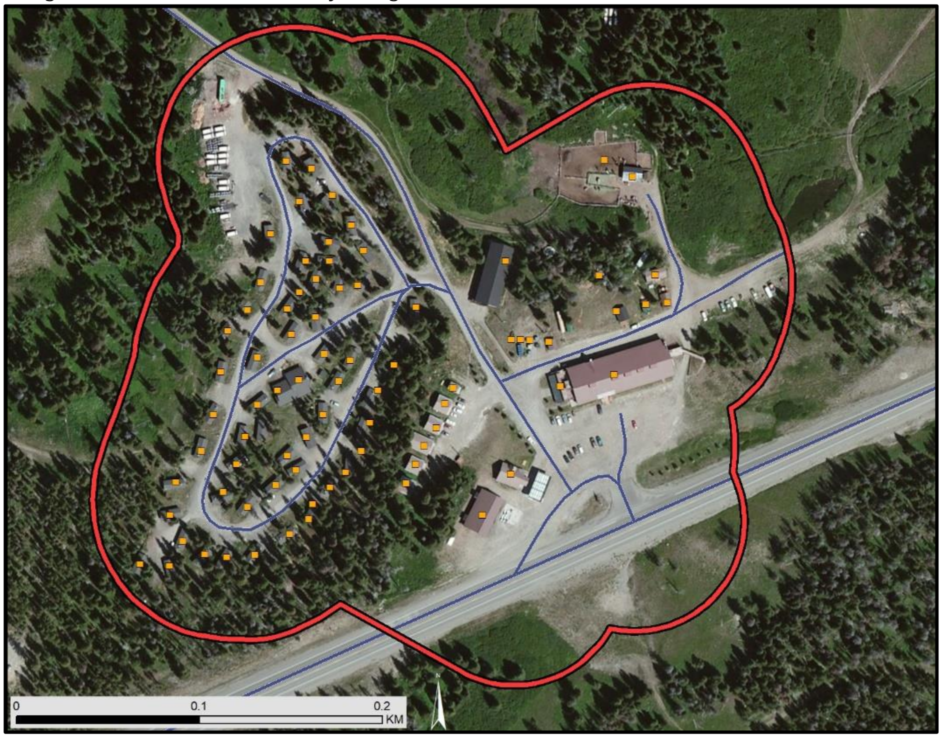


Figure 5. Example of a Major Development footprint with level of detail = 75; Grant Village, Yellowstone National Park, Wyoming.

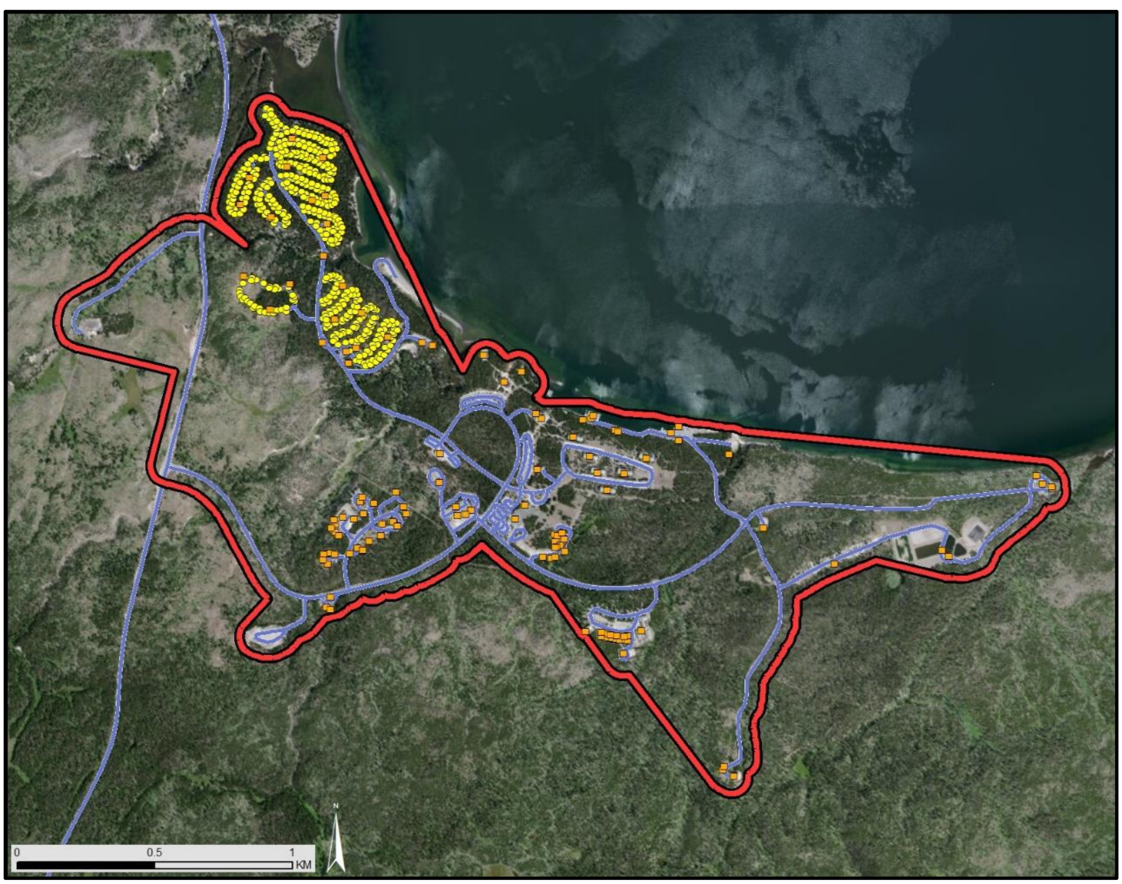


Figure 6. Example of corrections to the motorized access database, Old Faithful area, Yellowstone National Park. Motorized road configuration (a) pre-correction and (b) post-correction.

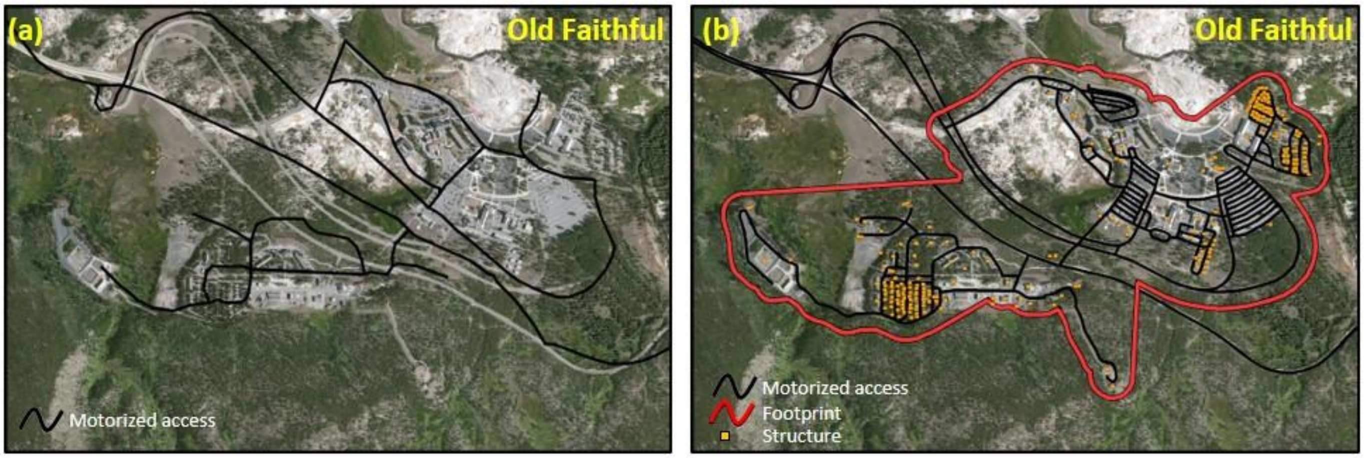
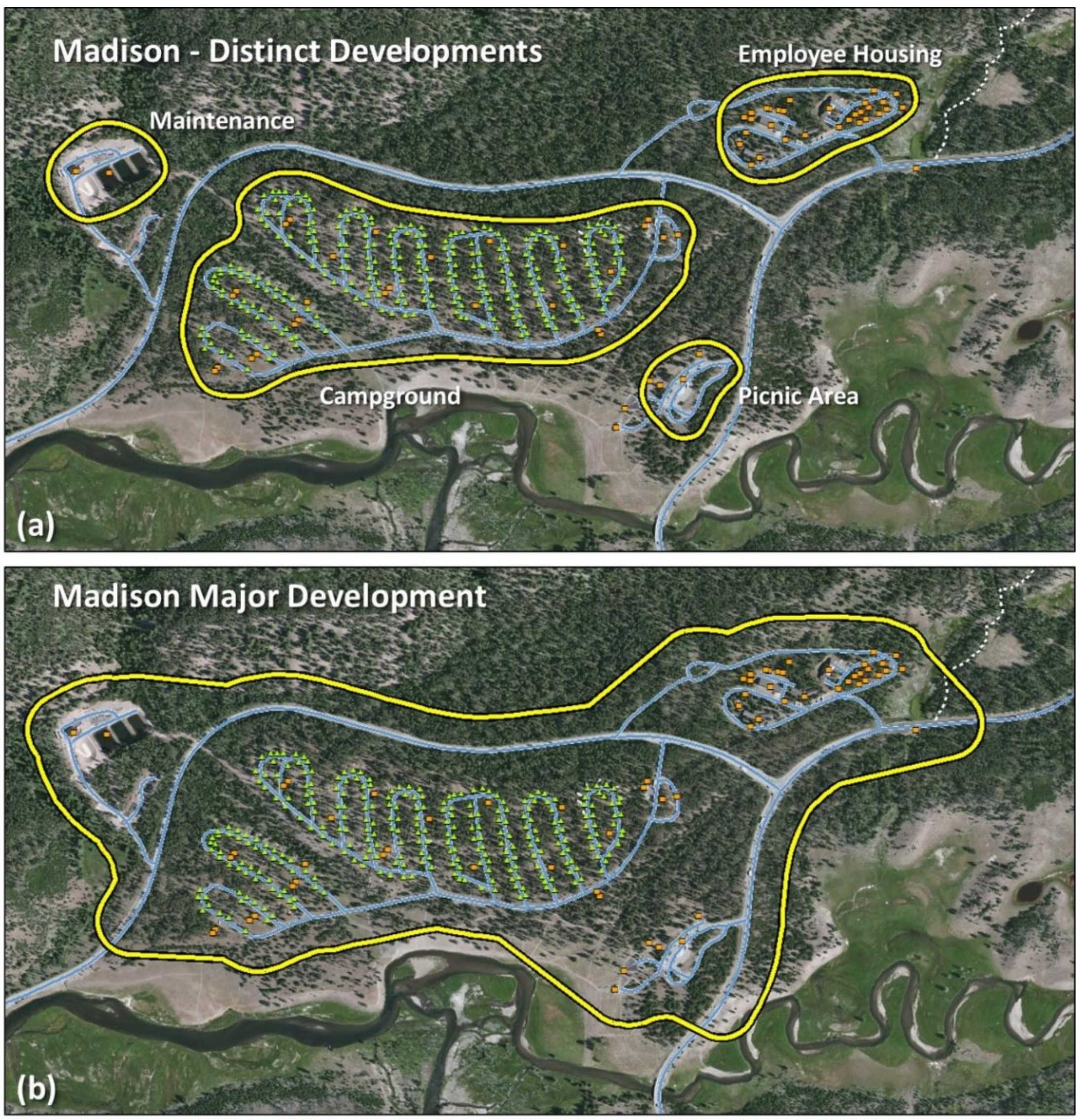


Figure 7. Example of difference in delineation of developed sites using the footprint approach, Madison area, Yellowstone National Park. (a) original distinct baseline sites (b) merged into a single major development.



III. Secure Habitat

The 1998 baseline for secure habitat is comprised of the best available estimates of secure habitat levels known to exist in 1998 (Table 4). Secure habitat is defined as any contiguous area greater than 10 acres in size and more than 500 meters from an open or gated motorized route, prescribed footprint of a developed site, or recurring low-level helicopter line. Values for percent secure habitat are measured per bear management subunit and reported annually against 1998 levels. The most significant detractor of secure habitat inside the PCA is motorized routes (roads and trails) that provide access to our public lands. Routes that are open to the public at any time during the non-denning season (March 1–November 30) detract from secure habitat. Likewise, gated routes that are closed to the public but remain accessible to administrative personnel also detract from secure habitat. Decommissioned routes that effectively prohibit motorized use by both the public and administrative personnel do not detract from secure habitat.

<u>Exceptions to the 1998 baseline for secure habitat</u>

Three subunits, Gallatin #3, Henrys Lake #2, and Madison #2, were targeted in the 2007 Conservation Strategy as needing improvement in secure habitat with respect to 1998 levels. The specific areas identified with potential for improvement in these three subunits fall within the Custer Gallatin National Forest boundary and hence, the quantity and timing of improvements was to be determined by the Gallatin National Forest Travel Management Plan (TMP; USDA Forest Service 2006*c*). A primary factor contributing to impoverished secure habitat levels in these three subunits was motorized access on private land inholdings. Since 1998, the Gallatin National Forest conducted several land exchanges under the *Gallatin Range Consolidation and Protection Act* in areas inside and outside the PCA. These land exchanges resulted in the acquisition of formerly private parcels which are now administered as part of the Custer Gallatin National Forest. With implementation of the 2006 Gallatin TMP, many roads inherited from these exchanges have been permanently decommissioned. Non-system routes that are not maintained by the Forest Service have subsequently been closed, with a high priority given to road decommissions in the three subunits identified as in need of improvement. With full implementation of the Gallatin TMP very near completion, measurable increases in secure habitat with respect to 1998 baseline levels have been achieved in the three targeted subunits. Subsequently, the Custer Gallatin National Forest, via a Travel Plan Amendment, have established the improved levels of secure habitat resulting from full implementation of the TMP as new baseline levels for these 3 subunits. These new thresholds override the 1998 baseline and effectively raise the bar for baseline conditions in the 3 identified subunits. The enhanced levels of secure habitat for the 3 targeted subunits will constitute new measures against which future change will be made (refer to lower portion of Table 4).

IV. Motorized Access Route Density

Although the Conservation Strategy does not impose mandatory standards upon motorized route density, the density of motorized routes inside the PCA is monitored and reported per subunit on an annual basis. Monitoring protocol specifically requires that open motorized access route density (OMARD) and total motorized access route density (TMARD) inside the PCA be monitored and reported annually against 1998 levels.

OMARD is a measure of the density of motorized routes (roads and trails) that are open to the public for one or more days during the non-denning portion of the year when grizzly bears are active (March 1 – November 30). TMARD measures the density of motorized routes open to the public *and/or administrative personnel* for one or more days during the non-denning season. Hence, routes that are closed to the public year-round and accessible only to administrative staff contribute to TMARD but do not contribute to OMARD. Route densities are reported as the percent area of a subunit where OMARD>1 mi/mi^2 and TMARD>2 mi/mi^2. Thus, although TMARD is a measure of total route density, values are typically lower than OMARD because the threshold density for TMARD is established at a higher level. State, county, and private roads occurring on federal lands are included in these calculations; however, roads occurring on private inholdings reflect 1998 conditions and are not tracked in the motorized access database through time. Calculations for the percentages of secure habitat, OMARD, and TMARD per subunit are generated using the Motorized Access Model, a customized collection of geoprocessing tools compatible with ArcGIS mapping software.

The most current 1998 baseline estimates for secure habitat, OMARD, and TMARD are presented in Table 4. Since the initial 2007 Conservation Strategy was implemented, high resolution photo imagery and newer technologies with enhanced mapping functionality have become more readily available. Overtime, spatial transportation layers in the Motorized Access Model have been integrated with more spatially accurate data. The habitat values in this current document supersede those presented in the 2007 Conservation Strategy and comprise the current benchmark against which all future change is to be measured.

V. Developed Sites on Public Lands

Developed sites refer to those sites or facilities on public land that have been enhanced with human infrastructure intended to accommodate public recreational use and agency administrative needs. Such sites are often associated with human activities that may disrupt grizzly bear use of habitat or have attractants that potentially lead to increased human-grizzly bear conflicts. Inside the PCA, developed sites on public lands are currently inventoried and tracked in existing GIS databases. Table 5 provides the number of developed sites known to exist per bear management unit (BMU) subunit as of 1998.

Activities based in statutory rights, such as oil and gas leases and mining plans of operation under the 1872 General Mining Law are also tracked as part of the developed site monitoring effort. Mining claims and or oil and gas leases do not in and of themselves necessarily constitute a site development, but have the potential to be developed sometime in the future. It is also important to note that a single operating plan may apply to numerous mining claims. In 1998, approximately 1,354 mining claims associated with 28 plans of operation had been filed throughout nine BMU subunits; however, no oil and gas leases existed inside the PCA at that time. Claims are often staked around known mineral deposits to protect the original claim and a single operating plan can sometimes encompass hundreds of claims. However, many filed claims, upon detailed exploration, often do not have enough mineralization to be economically developed and consequently are never acted upon. Approved operating plans associated with mining claims or claim groups are included as a separate category in the developed site baseline (Table 5). A detailed itemized list of all developed sites (names and types) compromising the 1998 baseline is documented in Table 6.

New provisions in the developed site application rules (Chapter 3) allow for an increase in the capacity of overnight visitors at lodges, guest ranches, and organizational camps that operate under special-use permits on National Forest lands inside the PCA. The new provision allows for a net increase of 10% in the capacity of visitor overnight use with no required mitigation. Any new infrastructure needed to accommodate this increased capacity, must be constructed within the prescribed footprint of the special-use site. Tables 7 lists the best available estimates for the baseline values of visitor overnight use at these special-use sites on National Forest lands.

<u>Historic OTO Ranch – An exception</u>

The management plan for the historic OTO Ranch on the Custer Gallatin National Forest constitutes an exception to the restrictions for increased visitor overnight use established per the

Developed Sites Application Rules in Chapter 3. The following summary of the OTO management plan for this highly unique piece of property is provided in the following summary.

History

The Forest Service acquired the OTO Tract in 1991 as part of the Northern Yellowstone Winter Range Acquisition Project. The project was a cooperative effort between Yellowstone National Park, Montana Fish, Wildlife, and Parks, the Rocky Mountain Elk Foundation, and the US Forest Service. When the OTO Ranch was fully functioning, it was complete with a 6,000 square foot lodge, guest cabins, a powerhouse, ice house, commissary, post office, and several other outbuildings which still stand today. The OTO Ranch was listed on the National Register of Historic Places in 2004.

The OTO Tract (3,265 acres) was one of the primary areas targeted for acquisition because of its excellent habitat qualities, particularly winter range for big game and habitat for grizzly bear. Situated along Cedar Creek in the Absaroka Mountains on the Custer Gallatin National Forest, the unique combination of quality wildlife habitat and a historic ranch provides the Forest Service a great opportunity to conserve these unique features while educating the public and preserving the character of the ranch through well managed use.

Existing and Changed Conditions

During the late 1990's and early 2000's, ranch activities focused on historic preservation. Efforts to maintain the historic character and structures of the ranch involved approximately three weeks of overnight use and four weeks of day by volunteers involved in preservation projects during the summer months. In adherence to the 1998 baseline, the Custer Gallatin National Forest is currently operating under comparable activity levels. Under current management of the site, there may be three weeks of overnight use and 4 weeks of day use between June 15 and October 1.

Over the decades there has been increased interest from the public to utilize the OTO Ranch for other purposes, most notably youth/environmental education. For several years now, the forest has welcomed youth education groups to the OTO, within the temporal management sideboards noted. Limiting ourselves to three weeks overnight and four weeks of additional day use has forced us to turn down educational groups that request use of the ranch.

Nationally, the Forest Service is emphasizing youth education with the intent to expose the future generation to the natural world and build future advocates for the forests. The OTO Ranch provides a perfect setting to do just that. Future use of the OTO Ranch is no longer just historic preservation, but tied to the mission of the Forest Service in fulfilling our goal of providing youth/environmental education opportunities.

Proposed Management

Future management is primarily focused on the currently developed portion of the OTO Ranch itself (22 acres), with no existing plans or need for further development. However, any unforeseen infrastructure enhancement will be reviewed for consistency with resource management on the National Forest at that time and limited to within the developed portion of the ranch as delineated by site's prescribed footprint. The surrounding National Forest areas will still be managed for big game and grizzly bear habitat.

Currently, the demand for use of OTO is strictly during the summer season. However, Custer Gallatin land managers have addressed future demands and needs and are leaving some flexibility for long term options through the fall/winter/spring. Use proposals would be carefully vetted with staff prior to authorizing use in the fall/winter/spring months. Seasonality differences in management will reflect the more sensitive seasons for wildlife by limiting impacts during those times and ensuring a reduced risk of human/bear conflict.

Recreation/Activities:

- The Forest Service does not plan to open the cabins or facility to public rental. Public rentals may result in further undesired dispersal of use at the OTO into surrounding habitat. It could also create easier access to the forest during hunting seasons, increasing pressure on wildlife habitat.
- Authorized or sponsored overnight and day use (under special use permits) may occur year-round, with the vast majority occurring during the summer months between June 15 and September 30, when human use is less likely to compete with wildlife needs, and access conditions are good.
- Use between October 1 and December 1 would be limited to one week of overnight use and three weeks of day use. This restriction reflects concerns for bear security during the fall. The December 1 date aligns with the Custer Gallatin Food Storage Order dates.
- Use between December 2 and February 28/29 will be open to overnight or day use.
- Use between March 1 and June 15 would be limited to two weeks of overnight and two weeks of day use. March 1 aligns with the Custer Gallatin Food Storage Order dates.
- Overnight use would be limited to those groups that meet our Forest Service goal of enhancing youth/environmental education. Weddings, and other non-educational groups would be limited to day use.
- Maximum number of users per authorized event would be 75 for overnight use and 100 for day use. This would allow people to fully use the facilities provided, while not over-burdening the facility and impairing the historic and wildlife characteristics of the ranch. These numbers are based on previous use of the facility. Past weddings have included approximately 100 people on average, while overnight use has been around 75 people on rare occasions.
- Restroom facilities would need to be provided prior to this level of use.

<u>Additional Management</u>:

- Proper food storage; bear boxes, or other means necessary to reduce human-bear conflict will be installed.
- The Forest Service is currently in the process of developing an interpretive plan for the OTO Ranch historic site. This plan will include a walking tour brochure, and the potential for several interpretive panels on wildlife management techniques and OTO Ranch history.
- Management is considering volunteer hosts that would stay at the OTO and educate visitors on wildlife management, OTO history, and bear awareness during high use seasons.

The OTO Ranch, its history, and surrounding national forest gives us a wonderful opportunity to showcase wildlife conservation through a balance of habitat conservation and managed use while simultaneously preserving the location's historical and cultural value. Through managed use by education, interpretation, and administration, we can turn full circle in creating future stewards in wildlife conversation and historical preservation.

VI. Livestock Grazing

The livestock allotment standard established in the Conservation Strategy requires that there be no net increase in the number or acreage of active commercial livestock grazing allotments or in permitted sheep animal months (AMs) inside the PCA from that which existed in 1998. Existing sheep allotments will be monitored, evaluated, and phased out as the opportunity arises with willing permittees. Sheep animal months (AMs) are calculated by multiplying the permitted number of sheep times the months of permitted use.

In 1998 there were 101 active or vacant commercial livestock grazing allotments and 23,900 permitted sheep animal months (AMs) inside the PCA (Table 8). Of these, 83 were cattle and/or horse allotments and the remaining 18 were for sheep. Operational status of allotments is categorized as active, vacant, or closed. An active allotment is one with a current grazing permit, although a “no-use” permit can be granted on a year-by-year basis when a permittee chooses not to graze livestock. Vacant allotments are those without an active permit but may be used periodically by other permittees at the discretion of the land management agency to resolve resource issues or other concerns. Reissuance of permits for vacant cattle allotments may result in an increase in the number of permitted cattle but the number and acreage of active allotments inside the PCA must remain at or below 1998 baseline levels. Combining or dividing existing allotments is allowed as long as net acreage in active allotments does not increase above 1998 levels. Any such use of vacant cattle allotments resulting in an increase in cattle numbers will only be allowed after an analysis to evaluate impacts on grizzly bears. Where chronic conflicts occur on cattle allotments inside the PCA, and an opportunity exists with a willing permittee, one alternative for resolving the conflict may be to phase out cattle grazing or to move the cattle to a currently vacant allotment where there is less likelihood of conflict.

Table 4. 1998 Baseline values (and exceptions) for percentage of open motorized access route density (OMARD), total motorized access route density (TMARD), and secure habitat for all 40 bear management unit (BMU) subunits in the Primary Conservation Area.

BMU subunit name	1998 % OMARD (> 1 mi / mi^2)	1998 % TMARD (> 2 mi / mi^2)	% 1998 Secure Habitat	Subunit area (mi^2) (excluding lakes)
Bechler/Teton	17.1	6.0	78.0	534.3
Boulder/Slough #1	3.2	0.4	96.5	281.9
Boulder/Slough #2	2.2	0.0	97.6	232.4
Buffalo/Spread Creek #1	10.6	3.9	89.3	219.9
Buffalo/Spread Creek #2	16.9	11.8	73.3	507.6
Crandall/Sunlight #1	19.3	7.1	81.0	129.8
Crandall/Sunlight #2	16.5	10.1	82.3	316.2
Crandall/Sunlight #3	19.2	9.8	80.4	221.8
Firehole/Hayden #1	10.5	3.1	87.5	339.2
Firehole/Hayden #2	9.7	2.6	87.9	172.2
Gallatin #1	3.5	0.3	96.3	127.7
Gallatin #2	9.8	5.6	89.4	155.2
Gallatin #3*	45.8	23.1	**55.1**	217.6
Hellroaring/Bear #1	23.3	16.1	76.6	184.7
Hellroaring/Bear #2	0.1	0.1	99.5	228.9
Henry’s Lake #1	49.2	31.9	45.3	191.2
Henry’s Lake #2*	48.1	35.3	**45.6**	140.2
Hilgard #1	29.7	15.5	69.5	201.2
Hilgard #2	20.9	13.4	71.5	140.5
Lamar #1	10.1	4.3	89.2	299.9
Lamar #2	0.0	0.0	100.0	180.8
Madison #1	30.0	13.2	71.5	227.9
Madison #2*	34.3	25.8	**66.3**	149.4
Pelican/Clear #1	2.2	0.5	97.7	108.4
Pelican/Clear #2	5.8	0.7	93.8	251.6
Plateau #1	22.3	13.2	68.6	286.3
Plateau #2	8.5	3.5	88.7	419.9
Shoshone #1	1.5	1.2	98.5	122.2
Shoshone #2	1.3	0.7	98.8	132.4
Shoshone #3	3.9	2.1	96.9	140.7
Shoshone #4	5.4	3.0	94.8	188.8
South Absaroka #1	0.6	0.1	99.2	163.2
South Absaroka #2	0.0	0.0	99.9	190.6
South Absaroka #3	2.4	1.8	96.8	348.3
Thorofare #1	0.0	0.0	100.0	273.4
Thorofare #2	0.0	0.0	100.0	180.1
Two Ocean/Lake #1	3.9	1.4	96.0	371.9

BMU subunit name	1998 % OMARD (> 1 mi / mi^2)	1998 % TMARD (> 2 mi / mi^2)	% 1998 Secure Habitat	Subunit area (mi^2) (excluding lakes)
Two Ocean/Lake #2	0.0	0.0	100.0	124.9
Washburn #1	16.7	6.1	81.9	178.3
Washburn #2	7.6	1.6	91.8	144.1
Mean % / Total area for PCA	**12.8**	**6.9**	**85.4**	**9025**
***** *Baseline values for the three subunits identified as in need of improvement (Gallatin #3, Henrys Lake #2, and Madison #2) are no longer based on 1998 levels, but rather on improved levels achieved with full implementation of 2006 Gallatin National Forest Travel Management Plan. See appended table below.*				
Exceptions to 1998 Baseline (New baseline values based on 2006 Gallatin National Forest Travel Management Plan levels)				
BMU subunit name	**% OMARD (> 1 mi / mi^2)**	**% TMARD (> 2 mi / mi^2)**	**% Secure Habitat**	**Subunit area (mi^2) (excluding lakes)**
Gallatin #3	28.7	12.9	71.1	217.6
Henrys Lake #2	40.5	29.0	52.0	140.2
Madison #2	32.5	22.6	67.4	149.4

Table 5. The 1998 baseline for numbers of developed sites on public lands in each bear management subunit in the GYE.

Subunit	Admin Unit	Administrative	Backcountry Cabin	Developed Campground	Major Development	Plan of Operation	Summer Homes	Trailhead	Visitor Day	Visitor Overnight	Total Count
Bechler-Teton #1	CTNF	3	0	2	0	0	0	8	4	2	44
	GTNP	0	3	8	1	0	0	2	3	0	
	YNP	2	1	0	0	0	0	3	2	0	
Boulder-Slough #1	CGNF	0	1	1	0	8	3	8	1	0	22
Boulder-Slough #2	CGNF	0	2	0	0	0	0	1	0	0	9
	YNP	0	2	1	0	0	0	2	1	0	
Buffalo-Spread Creek #1	BTNF	0	1	1	0	0	0	2	1	0	18
	GTNP	3	0	1	0	0	0	8	1	0	
Buffalo-Spread Creek #2	BTNF	3	2	4	0	1	1	7	4	3	25
Crandall-Sunlight #1	CGNF	0	2	2	0	0	0	3	2	0	21
	SNF	2	0	2	0	0	0	5	2	1	
Crandall-Sunlight #2	SNF	3	0	5	0	0	0	6	3	1	19
	WG&F	1	0	0	0	0	0	0	0	0	
Crandall-Sunlight #3	SNF	1	0	2	0	0	0	4	2	0	12
	WG&F	1	0	2	0	0	0	0	0	0	
Firehole-Hayden #1	YNP	5	2	0	2	0	0	22	12	0	43
Firehole-Hayden #2	YNP	0	0	0	2	0	0	4	9	0	15
Gallatin #1	YNP	0	1	0	0	0	0	4	0	0	5
Gallatin #2	CGNF	1	0	0	0	0	0	0	0	0	20
	YNP	4	4	1	1	0	0	7	2	0	
Gallatin #3	CGNF	1	2	2	0	0	2	6	3	0	17
	YNP	0	1	0	0	0	0	0	0	0	
Hellroaring-Bear #1	CGNF	4	0	4	0	7	0	11	3	0	30
	YNP	0	1	0	0	0	0	0	0	0	
Hellroaring-Bear #2	CGNF	0	1	0	0	0	0	1	0	0	4
	YNP	0	2	0	0	0	0	0	0	0	
Henrys Lake #1	CTNF	5	2	3	0	1	2	0	5	0	20
	IBLM	0	0	1	0	0	0	0	1	0	
Henrys Lake #2	CGNF	0	1	3	0	0	5	8	2	0	23
	CTNF	0	1	0	0	1	0	1	1	0	
Hilgard #1	BDNF	1	1	1	0	0	0	0	0	0	16
	CGNF	1	3	0	0	0	1	6	1	1	

Table 5. The 1998 baseline for numbers of developed sites on public lands in each bear management subunit in the GYE.

Subunit	Admin Unit (1)	Administrative	Backcountry Cabin	Developed Campground	Major Development	Plan of Operation	Summer Homes	Trailhead	Visitor Day	Visitor Overnight	Total Count
Hilgard #2	CGNF	0	2	0	0	0	0	2	0	0	6
	YNP	0	0	0	0	0	0	2	0	0	
Lamar #1	CGNF	4	0	1	0	9	0	6	0	0	35
	YNP	2	1	1	0	0	0	8	3	0	
Lamar #2	YNP	0	4	0	0	0	0	0	0	0	4
Madison #1	CGNF	2	2	1	0	0	0	10	4	0	19
Madison #2	CGNF	6	0	2	0	0	8	1	3	1	27
	YNP	2	1	0	0	0	0	3	0	0	
Pelican-Clear #1	YNP	0	0	0	0	0	0	3	1	0	4
Pelican-Clear #2	YNP	1	4	0	1	0	0	6	4	0	16
Plateau #1	CTNF	0	1	0	0	0	1	0	0	0	4
	YNP	0	2	0	0	0	0	0	0	0	
Plateau #2	CTNF	1	0	2	0	0	0	1	0	0	7
	YNP	0	3	0	0	0	0	0	0	0	
Shoshone #1	SNF	0	1	2	0	0	2	0	2	0	7
Shoshone #2	SNF	0	0	0	0	0	0	1	0	1	2
Shoshone #3	SNF	0	0	0	0	0	2	1	0	1	4
Shoshone #4	SNF	0	0	3	0	0	6	4	2	6	22
	WG&F	1	0	0	0	0	0	0	0	0	
South Absaroka #1	SNF	0	0	0	0	0	0	0	0	0	0
South Absaroka #2	SNF	0	2	0	0	0	0	0	0	0	2
South Absaroka #3	SNF	2	2	2	0	0	1	4	1	1	13
Thorofare #1	BTNF	0	1	0	0	0	0	0	0	0	5
	YNP	0	4	0	0	0	0	0	0	0	
Thorofare #2	BTNF	0	1	0	0	0	0	0	0	0	1
Two Ocean-Lake #1	BTNF	0	0	1	0	0	0	1	0	0	15
	GTNP	1	0	0	0	0	0	0	1	0	
	YNP	0	3	1	1	0	0	4	2	0	
Two Ocean-Lake #2	BTNF	0	1	0	0	0	0	0	0	0	3
	YNP	0	2	0	0	0	0	0	0	0	
Washburn #1	YNP	3	4	1	2	0	0	17	6	0	33
Washburn #2	YNP	1	0	1	0	0	0	8	6	0	16
Total count in PCA		**67**	**77**	**64**	**10**	**27**	**34**	**211**	**100**	**18**	**608**

(1) Administrative Units: Beaverhead-Deerlodge National Forest (BDNF), Bridger-Teton National Forest (BTNF), Custer Gallatin National Forest (CGNF), Caribou-Targhee National Forest (CTNF), Grand Teton National Park (GTNP), Idaho Bureau of Land Management (IBLM), Wyoming Game and Fish (WG&F), Yellowstone National Park (YNP)

Table 6. Developed sites (type and name) comprising the 1998 baseline per Bear Management Subunit inside the Primary Conservation Area.

Bear Management subunit	Admin Unit [i]	Name and type of developed sites
Bechler/Teton #1	CTNF	**Administrative (3):** Granite Creek cow camp, Squirrel Meadows guard station, Porcupine guard station. **Campgrounds (2):** Cave Falls, Porcupine Creek. **Trailheads (8):** Cascade Creek, Coyote Meadows, Fish Lake, Hominy Peak, Indian Meadows, McRenolds Reservoir, Poacher's, South Boone Creek. **Visitor Day (4):** Bergman Reservoir dam, Grassy Lake dam, Gravel pit/target range, Tillery Lake dam. **Visitor Overnight (2):** Idaho Youth Services Camp and Loll Scout Camp.
	GTNP	**Backcountry Cabins (3):** Lower Berry, Moose Basin and Upper Berry patrol cabins. **Campgrounds (8):** Grassy Lake Road front country campsites (8 distinct sites). **Major Developments (1):** Flagg Ranch. **Trailheads (2)**: Glade Creek and Huckleberry Hot Springs. **Visitor Day (3):** Flagg Ranch and South Gate boat launches, South Gate picnic area.
	YNP	**Administrative (2)**: Bechler and South Entrance ranger stations. **Backcountry Cabin (1):** Union Falls patrol cabin. **Trailheads (3):** Bechler Ranger Station, Cave Falls, and Phantom/Pitchstone. **Visitor Day (2):** Cave Falls and Snake River picnic areas.
Boulder/Slough #1	CGNF	**Backcountry Cabins (1):** Box Canyon patrol cabin. **Campgrounds (1):** Hicks Park. **Plans of Operation (8):** Carolyn Sluice Box, Crescent Creek Beartooth Platinum, Crescent Creek Chromium Corp America, Crescent Creek Pan Palladium, East Iron Mountain Beartooth Plateau 1, East Iron Mountain Beartooth Plateau 2, Independence mine, and Iron Mountain Idaho Construction Metal. **Summer Homes (3):** Johnson, Mandeville, and Rooney (2 lots). **Trailheads (8)**: Box Canyon, Bridge Creek, Buffalo Divide, Copper Creek, Goose Lake, Independence, Sheep Creek, and Upside-down Creek. **Visitor Day (1):** Rasnick Historic Home.
Boulder/Slough #2	CGNF	**Backcountry Cabins (2):** Buffalo Fork and Slough Creek patrol cabins. **Trailheads (1):** Upper Stillwater/Lake Abundance.
	YNP	**Backcountry Cabins (2):** Elk Tongue and Lower Slough patrol cabins. **Campgrounds (1):** Slough Creek. **Trailheads (2):** Slough Creek and Specimen Ridge. **Visitor Day (1):** Yellowstone River picnic area/trailhead.
Buffalo/Spread Creek #1	BTNF	**Backcountry Cabins (1):** Huckleberry fire lookout. **Campgrounds (1):** Pacific Creek**. Trailheads (2):** Colter Dump and Pacific Creek. **Visitor Day (1):** Teton Horseback Adventures.
	GTNP	**Administrative (3):** Colter Bay staging area, Moran administrative site, Willow Flats employee housing. **Campgrounds (1)**: Lizard Creek. **Trailheads (8):** Arizona Creek #1, Arizona Creek #2, Arizona Lake, Christian Pond #1, Christian Pond #2, Grand View Point #1, Grand View Point #2, Pilgrim Creek, **Visitor Day (1):** Two Ocean Lake picnic area/trailhead.
Buffalo/Spread Creek #2	BTNF	**Administrative (3):** Blackrock administrative site, Blackrock District Ranger Station, Hatchet administrative compound. **Backcountry Cabins (2):** Enos Lake and Nowlin Meadows patrol cabins. **Campgrounds (4):** Angles, Box Creek, Hatchet, Turpin Meadows Outfitter. **Plans of Operation (1):** WYDOT gravel quarry. **Summer Homes (1):** Turpin Meadows (19 lots). **Trailheads (7):** Angles, Box Creek, Clear Creek, Hatchet Snowmobile, Lava Creek, Togwotee Snowmobile, Turpin Meadows. **Visitor Day (4):** Four Mile picnic area, Togwotee Interpretive Site, UW Forestry Walk VIS, Vista View interpretive site. **Visitor Overnight (3):** Heart 6 Guest Ranch, Togwotee Mountain Lodge, Turpin Meadows Guest Ranch.
Crandall/Sunlight #1	CGNF	**Backcountry Cabins (2):** Kersey Lake and Round Lake rental cabins. **Campgrounds (2):** Chief Joseph and Colter. **Trailheads (3):** Broadwater, Clarks Fork, Round Lake. **Visitor Day (2):** Arbor Day interpretive site/trailhead, Clarks Fork picnic area/fishing site.
	SNF	**Administrative (2):** Clay Butte interpretive site, YNP highway maintenance site. **Campgrounds (2):** Beartooth Lake. Island Lake. **Trailheads (5):** Beartooth Lake, Clay Butte, Island Lake, Morrison Jeep, Muddy Creek. **Visitor Day (2):** Island Lake boat ramp, Pilot/Index overlook. **Visitor Overnight (1):** Top of the World Store.

Table 6. Developed sites (type and name) comprising the 1998 baseline per Bear Management Subunit inside the Primary Conservation Area.

Bear Management subunit	Admin Unit [i]	Name and type of developed sites
Crandall/Sunlight #2	CGNF	**No Developed Sites**
	SNF	**Administrative (3):** Beartooth Highway gravel pit, Crandall Ranger Station Work Center, Crandall waste transfer site. **Campgrounds (5):** Crazy Creek, Fox Creek, Hunter Peak, Lake Creek, Lily Lake. **Trailheads (6):** Clarks Fork, Crazy Creek, Lodgepole, North Crandall, Pilot Creek, Squaw Creek. **Visitor Day (3):**, Clarks Fork overlook, Reef Creek picnic area, Swamp Lake boat ramp. **Visitor Overnight (1):** K-Z Lodge complex.
	WGF	**Administrative (1):** Crandall WGF cabin.
Crandall/Sunlight #3	SNF	**Administrative (1):** Sunlight Ranger Station. **Campgrounds (2):** Dead Indian and Little Sunlight. **Trailheads (4):** Cooper Lakes, Dead Indian, Hoodoo Basin, Little Sunlight. **Visitor Day (2):** Sunlight Bridge overlook, Sunlight picnic area.
	WGF	**Administrative (1):** WGF Sunlight Work Center. **Campgrounds (2):** WGF Sunlight Unit #1 and WGF Sunlight Unit #2.
Firehole/Hayden #1	YNP	**Administrative (5):** Firehole Boneyard, Mesa gravel pit north, Mesa gravel pit south, Norris employee housing /museum, Norris hot mix plant. **Backcountry Cabin (2):** Mary Lake and Nez Perce patrol cabins. **Major Developed Sites (2):** Madison, Old Faithful. **Trailheads (22):** Artists' Paintpots, Biscuit Basin, Black Sand Basin Boardwalk, Fairy Falls, Fountain Flats/Freight Road, Fountain Paint Pots Boardwalk, Harlequin Lake, Howard Eaton, Lone Star, Lower Geyser Basin Boardwalk, Madison River Boardwalk, Mallard Creek, Mary Mountain, Midway Geyser Basin Boardwalk, Monument Geyser Basin, Mud Volcano Boardwalk, Nez Perce, Norris Geyser Basin, Norris Geyser Basin Boardwalk, Purple Mountain, Seven Mile Bridge, Terrace Springs. **Visitor Day (12):** 11 picnic areas (Caldera Rim, Cascade, Firehole River, Gibbon Falls, Gibbon Meadows, Iron Springs, LeHardy Rapids, Nez Perce, Nez Perce Ford, Tuft Cliffs, and Whiskey Flats picnic areas); and Madison River picnic area/boat ramp.
Firehole/Hayden #2	YNP	**Major Developed Sites (2):** Bridge Bay, Lake Village. **Trailheads (4):** De Lacy Creek, Divide, Duck Lake, Natural Bridge. **Visitor Day (9):** DeLacy Creek, East Divide, Fisherman's Access, Gull Point, Hard Road to Travel, Pumice Point, Sand Point, Spring Creek and Spruce-Fir Exhibit picnic areas.
Gallatin #1	YNP	**Backcountry Cabins (1):** Daly Creek patrol cabin. **Trailheads (4):** Bighorn Pass, Black Butte, Daily Creek, Specimen Creek.
Gallatin #2	CGNF	**Administrative (1):** Gardiner District Compound.
	YNP	**Administrative (4):** Gardiner gravel crusher/asphalt plant, Indian Creek gravel pit, North Entrance Administrative Compound, Stephens Creek Bison Facility. **Backcountry Cabins (4):** Deaf Jim, Fawn Pass, Mt Holmes Lookout, and Winter Creek patrol cabins. **Campgrounds (1):** Indian Creek. **Major Developed Sites (1):** Mammoth. **Trailheads (7):** Boiling River, Bunsen Peak, Fawn Pass, Golden Gate, Mammoth Terraces Boardwalk, Rescue Creek, Snow Pass. **Visitor Day (2):** 45th Parallel and Sheepeater Cliff picnic areas.
Gallatin #3	CGNF	**Administrative (1):** Porcupine Guard Station. **Backcountry Cabins (2):** Buffalo Horn patrol cabin, Windy Pass rental cabin. **Campgrounds (2):** Red Cliff, Tom Miner. **Summer Homes (2):** Buffalo (4 lots), Porcupine Creek (1 lot). **Trailheads (6):** Beattie Gulch, Buffalo Horn, Sunlight, Tepee Creek, Twin Cabin, Wilson Draw. **Visitor Day (3):** Cinnabar fishing /boat ramp, Red Cliff and Yankee Jim picnic areas.
	YNP	**Backcountry Cabins (1):** Sportsman Lake patrol cabin.

Table 6. Developed sites (type and name) comprising the 1998 baseline per Bear Management Subunit inside the Primary Conservation Area.

Bear Management subunit	Admin Unit [i]	Name and type of developed sites
Hellroaring/Bear #1	CGNF	**Administrative (4):** Blanding Station Horse Facility, Chicken Ranch, Hayes/McPherson Administrative Site, OTO Ranch. **Campgrounds (4):** Bear Creek, Canyon, Eagle Creek, Timber Group Camp. **Plans of Operation (7):** Counts mine, Livingston marble and granite mine, Mineral Hill mines #1–#5 (5 distinct Mineral Hill plans). **Trailheads (11):** Bear Creek, Cedar Creek, Crevice Creek, Joe Brown, La Duke, Little Trail Creek, Lower Palmer, North Fork Bear Creek, Palmer Mountain, Pine Creek, Sixmile. **Visitor Day (3):** La Duke picnic area, McConnell fishing and boat access, Yankee Jim boat ramp.
	YNP	**Backcountry Cabins (1):** Crevice Mountain patrol cabin.
Hellroaring/Bear #2	CGNF	**Backcountry Cabins (1):** Hellroaring patrol cabin. **Trailheads (1):** West Fork Mill Creek.
	YNP	**Administrative (2):** Buffalo Plateau and Hellroaring patrol cabins.
Henrys Lake #1	CTNF	**Administrative (5):** Fremont County State administrative site, Fremont County water treatment plant, Macks Inn Substation, Sawtelle FAA site, Sawtelle Peak Electronics site. **Backcountry Cabins (2):** Big Springs fire tower, Big Springs Snow Park warming hut. **Campgrounds (3):** Big Springs, Flat Rock, Upper Coffee Pot. **Plans of Operations (1):** Willow Creek mine. **Summer Homes (2):** Big Springs North (7 lots), Big Springs South (7 lots). **Visitor Day (5):** Big Springs boat ramp, Big Springs boat takeout, Viewing Big Springs interpretive trail, Johnny Sack interpretive cabin.
	IBLM	**Campground (1):** Frome Park. **Visitor Day (1):** South Shore boat ramp.
Henrys Lake #2	CGNF	**Backcountry Cabins (1):** Basin Station rental cabin. **Campgrounds (3):** Cherry Creek, Lonesomehurst, Spring Creek. **Summer Homes (5):** Clark Springs (8 lots), Lonesomehurst A (10 lots), Lonesomehurst B (3 lots), Romsett (9 lots), Rumbaugh Ridge (5 lots). **Trailheads (8):** Basin, Buttermilk Creek, Mile Creek, Reas Pass, Targhee Pass, Watkins Creek, West Denny, West Fork Denny. **Visitor Day (2):** Fisherman's Point picnic area, Lonesomehurst boat ramp.
	CTNF	**Backcountry (1):** Defosses cabin. **Plans of Operation (1):** Turquoise Mountain mine. **Trailheads (1):** Targhee Creek. **Visitor Day (1):** Howard Springs picnic area.
Hilgard #1	BDNF	**Administrative (1):** Bear Creek administrative site. **Backcountry Cabins (1):** McAtee patrol cabin. **Campgrounds (1):** Bear Creek.
	CGNF	**Administrative (1):** Elkhorn River Ford horse access. **Backcountry Cabins (3):** Cinnamon Guard Station, Cinnamon Mountain, and Yellow Mule rental cabins. **Summer Homes (1):** Buck Creek. **Trailheads (6):** Cache Creek, Cinnamon Creek, Eldridge, Lower Wapiti/Albino Lake, Meadow Creek Cutoff, Taylor Falls/Lightning Creek (moved to Hilgard #2 in 2005). **Visitor Day (1):** Red Cliff target range. **Visitor Overnight (1):** Covered Wagon Guest Ranch.
Hilgard #2	CGNF	**Backcountry Cabins (2):** Eldridge and Wapiti rental cabins. **Trailheads (2):** Sage Creek, Upper Wapiti.
	YNP	**Trailheads (2):** Bacon Rind, Fawn Pass.

Table 6. Developed sites (type and name) comprising the 1998 baseline per Bear Management Subunit inside the Primary Conservation Area.

Bear Management subunit	Admin Unit [i]	Name and type of developed sites
Lamar #1	CGNF	**Administrative (4):** Cooke City burn pile, Cooke City compacting facility, Cooke City Guard Station, Cooke City Highway borrow pit. **Campgrounds (1):** Soda Butte. **Plans of Operation (9)**: Cray Placer, Mine tailings repository, New World mines #1–#7 (7 distinct New World mine POOs). **Trailheads (6)**: Daisy Pass, Lady of Lake, Lower Lady of the Lake, Republic Creek, Wolverine Pass, Woody Creek.
	SNF	**No Developed Sites**
	YNP	**Administrative (2):** Lamar Buffalo Ranch Institute, Northeast Entrance Ranger Station. **Backcountry Cabins (1):** Cache Creek patrol cabin**. Campgrounds (1):** Pebble Creek. **Trailheads (8):** Bannock Ski Trail, Barronette Ski Trail, Lamar Stock Cutoff, Pebble Creek, Soda Butte, Thunderer, Trout Lake, Warm Creek. **Visitor Day (3):** Buffalo Ranch/Lamar River, Soda Butte, and Warm Creek picnic areas.
Lamar #2	YNP	**Administrative (4):** Calfee Creek, Cold Creek, Lamar Mountain, and Upper Miller Creek patrol cabins.
Madison #1	CGNF	**Administrative (2):** Grayling gravel pit, Tilted Lake Interpretive Site. **Backcountry Cabins (2):** Beaver Creek and Cabin Creek rental cabins. **Campgrounds (1):** Beaver Creek. **Trailheads (10)**: Cub Creek, Fir Ridge, Johnson Lake, Kirkwood, Mount Hebgen, Potamogeton, Red Canyon, Tepee Creek, West Fork Beaver Creek, Whits Lakes. **Visitor Day (4):** Hebgen Dam fishing access, North Shore picnic area, Tepee Creek snowmobile parking area, Yellowstone Holiday picnic area.
	YNP	**No Developed Sites**
Madison #2	CGNF	**Administrative (6):** Hebgen Game Warden Residence, Hebgen Lake Ranger Station, Hebgen solid waste transfer station (SUP), Horse Butte administrative site/picnic site, Horse Butte bison capture facility (SUP), Interagency Fire Center. **Campgrounds (2):** Bakers Hole, Rainbow Point. **Summer Homes (8):** Baker's Hole (3 lots), California (2 lots), Horse Butte (2 lots), Lakeshore A (6 lots), Lakeshore B (8 lots), Lakeshore C (3 lots), Lakeshore E (19 lots), Railroad (3 lots). **Trailheads (1):** Rendezvous Ski Trail complex. **Visitor Day (3):** Madison and Rainbow Point picnic area/boat ramps; West Yellowstone target- range. **Visitor Overnight (1):** Madison Arm Resort & Marina.
	YNP	**Administrative (2):** Soldiers Gravel Pit, West Entrance Ranger Station. **Backcountry Cabins (1):** Cougar Creek patrol cabin. **Trailhead (1):** Cable Car, Riverside Ski, Two Ribbons.
Pelican/Clear #1	YNP	**Trailheads (3):** Artists Point, Lower Falls, Wapiti Lake. **Visitor Day (1):** Chittenden Bridge picnic area.
Pelican/Clear #2	YNP	**Administrative (1):** East Entrance Ranger Station. **Backcountry Cabins (4):** Clear Creek, Fern Lake, Pelican Cone, and Pelican Springs patrol cabins. **Major Developed Sites (1):** Fishing Bridge. **Trailheads (6):** Avalanche Peak, Clear Creek, Nine Mile, Pelican Valley, Storm Point. **Visitor Day (4):** Eleanor Lake, Sedge Bay, Steamboat Point, and Sylvan Lake picnic areas.
Plateau #1	CGNF	**No Developed Sites.**
	CTNF	**Backcountry Cabin (1):** Lucky Dog Lodge (SUP). **Summer Home Complexes (1):** Moose Creek (12 lots)**.**
	YNP	**Administrative (2):** Buffalo Lake and South Riverside patrol cabins.

Table 6. Developed sites (type and name) comprising the 1998 baseline per Bear Management Subunit inside the Primary Conservation Area.

Bear Management subunit	Admin Unit [i]	Name and type of developed sites
Plateau #2	CTNF	**Administrative (1):** Warm River Guard Station. **Campgrounds (2):** Pole Bridge, Warm River. **Trailheads (1):** Moose Creek/Trail Canyon.
	YNP	**Administrative (3):** Cove, Outlet, and 3 Rivers patrol cabins**.**
Shoshone #1	SNF	**Backcountry Cabins (1):** Robbers Roost cabin/cow camp. **Campgrounds (2):** Newton Creek and Rex Hale. **Summer Homes (2):** Moss Creek (7 lots), Newton Creek (1 lot). **Visitor Day (2):** Blackwater Pond picnic/fishing area, Newton Springs picnic area**.**
Shoshone #2	SNF	**Trailheads (1):** Blackwater. **Visitor Overnight (1):** Blackwater Guest Lodge.
Shoshone #3	SNF	**Summer Home Complexes (2):** Eagle Creek (8 lots), Kitty Creek (14 lots). **Trailheads (1):** Kitty Creek**. Visitor Overnight (1):** Buffalo Bill Boy Scout Camp.
Shoshone #4	SNF	**Campgrounds (3):** Eagle Creek, Sleeping Giant, Three Mile. **Summer Home Complexes (6):** Bluher (1 lot), Family Trust (1 lot), Grinnell Creek (2 lots), Mormon Creek (13 lots), Pahaska (2 lots), Wilkerson (1 lot). **Trailheads (4):** Eagle Creek, Fishhawk, Mormon Creek, Pahaska. **Visitor Day (2):** Sleeping Giant ski area, Wayfarers Chapel. **Visitor Overnight (6):** Absaroka Mountain, Creekside, Crossed Sabres, Elephant Head, Pahaska Tepee, and Shoshone Guest Lodges.
	WGF	**Administrative (1):** WGF North Fork cabin
South Absaroka #1	SNF	**No Developed Sites.**
South Absaroka #2	SNF	**Backcountry Cabins (2):** Needle Creek and Venus Creek patrol cabins.
South Absaroka #3	SNF	**Administrative (3):** Gilroy transfer corral, Pinnacles transfer corral/Bridger-Teton Outfitters. **Backcountry Cabin (2):** West Dunoir patrol cabin, Winter cabin/warming hut. **Campgrounds (2):** Brooks Lake, Pinnacles. **Summer Homes (1):** Pinnacles (20 lots). **Trailheads (4):** Bonneville, Brooks Lake, Pinnacles, Wolf Creek/Dunoir. **Visitor Day (1):** Brooks Lake picnic area/boat ramp. **Visitor Overnight (1):** Brooks Lake Guest Lodge.
Thorofare #1	BTNF	**Backcountry Cabins (1):** WGF patrol cabin.
	YNP	**Backcountry Cabins (4):** Cabin Creek, Howell Creek, Thorofare, and Trail Creek patrol cabins.
Thorofare #2	BTNF	**Administrative (1):** Hawk's Rest patrol cabin.
	YNP	**No Developed Sites.**
Two Ocean/Lake #1	BTNF	**Campgrounds (1):** Sheffield. **Trailheads (1):** Sheffield.
	GTNP	**Administrative (1):** Snake River gravel pit. **Other (1):** Snake River picnic area.
	YNP	**Backcountry Cabins (3):** Harebell, Heart Lake and Mount Sheridan Lookout patrol cabins. **Campgrounds (1):** Lewis Lake. **Major Developed Sites (1):** Grant Village. **Trailheads (4):** Heart Lake, Lake Overlook, Riddle Lake Shoshone/Dogshead. **Visitor Day (2):** Frank Island picnic area, West Thumb Information Station/boardwalk.
Two Ocean/Lake #2	BTNF	**Backcountry Cabins (1):** Fox Park patrol cabin.
	YNP	**Backcountry Cabins (2):** Fox Creek and Peale Island patrol cabins.

Table 6. Developed sites (type and name) comprising the 1998 baseline per Bear Management Subunit inside the Primary Conservation Area.

Bear Management subunit	Admin Unit [i]	Name and type of developed sites
Washburn #1	YNP	**Administrative (3):** Frog Rock and Grebe Lake gravel pits, Tower employee housing. **Backcountry Cabins (4):** Lower Blacktail, Mount Washburn Lookout; Observation Peak and Upper Blacktail patrol cabins. **Campgrounds (1):** Tower. **Major Developed Sites (2):** Canyon Village, Roosevelt Lodge. **Trailheads (17):** Blacktail Creek, Blacktail Self-Guided, Blacktail Stock, Brink of the Lower Falls, Calcite Springs Boardwalk, Cascade Creek, Cascade Lake, Children's Fire Boardwalk, Dunraven Pass, Glacial Boulder, Hellroaring, Mount Washburn, North Rim, South Rim, Tower Creek, Tower Falls Overlook, Wraith Falls, . **Visitor Day (6):** Antelope Creek, Cascade Lake, and Dunraven picnic areas; Lava Creek picnic area/trailhead, Tower Falls general store, Yanceys Hole cookout site.
Washburn #2	YNP	**Administrative (1):** Ice Lake gravel pit. **Campgrounds (1):** Norris (and Ranger Station). **Trailheads (8):** Cygnet Lakes, Grebe Lake, Grizzly Lake, Ice Lake, Indian Creek, Solfatara Creek, Winter Creek, Wolf Lake Cutoff. **Visitor Day (6):** Apollinaris Springs and Beaver Lake picnic areas; Museum of the National Park Ranger, Norris Meadows, Otter Creek, and Virginia Meadows picnic areas.

[i] Administrative unit abbreviations: BDNF = Beaverhead-Deerlodge National Forest, CGNF = Custer Gallatin National Forest, CTNF = Caribou-Targhee National Forest, GTNP = Grand Teton National Park, SNF = Shoshone National Forest, WGF = Wyoming Game and Fish, YNP = Yellowstone National Park.

Table 7. Baseline values for visitor overnight capacity at lodges under special-use permits on Forest Service lands inside the PCA.

Baseline values for Visitor Overnight Capacity at USFS Special Use Guest Lodges[1]			
National Forest	**Lodge/Ranch/Resort**	**Overnight Infrastructure**	**Overnight Capacity (individual visitors)**
Bridger-Teton	Heart Six Guest Ranch	5 cabins, 2 teepees, 1 employee dorm	42
	Togwotee Mountain Lodge	1 lodge, 54 guest cabins, and 7 employee cabins	461
	Turpin Meadows-Ranch	1 lodge, 2 chalets, 8 guest cabins, 3 employee housing buildings, 1 manager's residence	52
Caribou-Targhee	Idaho Youth Services Camp	3 guest cabins (sleeps total of 20)	20
	Loll Scout Camp	1 lodge, 3 guest cabins, 26 campsites (sleeps total of 500)	500
Custer Gallatin	Covered Wagon Guest Ranch	10 guest cabins, 5 crew cabins (sleeps 24 guests and 17 employees)	24
	Madison Arm Resort & Marina	8 guest cabins, 3 mobile homes, approximately 83 RV / Tent campsites (sleeps 300 guests and 10 employees)	300
Shoshone	Absaroka Mountain Lodge	15 guest cabins	67
	Blackwater Lodge	15 guest cabins	50
	Brooks Lake Guest Lodge	8 guest cabins, 1 motel with 7 rooms	47
	Buffalo Bill Scout Camp	6 guest cabins, 11 campsites	311
	Creekside (Goff Creek) Lodge	10 guest cabins	47
	Crossed Sabres Ranch	19 guest cabins	60
	Elephant Head Lodge	15 guest cabins	68
	K-Bar Z Guest Ranch	6 guest cabins	35
	Pahaska Tepee Lodge	15 guest cabins	147
	Shoshone Lodge	18 guest cabins	76
	Top of the World Store	1 motel with 4 rooms, 10 campsites	48

Table 8. Number and acreage of commercial livestock grazing allotments and number of sheep animal months inside the Yellowstone Primary Conservation Area (PCA) in 1998.

Administrative unit	Cattle Allotments		Sheep Allotments		Sheep AMs
	Active	Vacant	Active	Vacant	
Beaverhead-Deerlodge NF	3	2	0	0	0
Bridger-Teton NF	9	0	0	0	0
Caribou-Targhee NF	11	1	7	4	14,163
Custer-Gallatin NF	23	10	2	4	3,540
Shoshone NF	25	0	2	2	5,387
Grand Teton NP	1	0	0	0	0
Total number in PCA	72	13	11	10	23,090
Total area in PCA (acres)	**660,845**	**67,893**	**148,368**	**77,665**	**NA**
Total area in PCA (km^2)	**2,674**	**275**	**600**	**312**	**NA**

Table 9. 1998 Baseline values (and exceptions) for percentage of open motorized access route density (OMARD), total motorized access route density (TMARD), and secure habitat for all 40 Bear Management Subunits in the Primary Conservation Area. Current (post-revision) values are compared against values established before revisions resulting from implementation of the footprint protocol.

BMU subunit name	1998 % OMARD (> 1 mi / mi^2)			1998 % TMARD (> 2 mi / mi^2)			1998 % Secure Habitat			Subunit area (mi^2)
	Pre-revision	Post-revision	% change	Pre-revision	Post-revision	% change	Pre-Revision	Post-Revision	% change	
Bechler/Teton	17.0	17.1	0.1	5.8	6.0	0.2	78.1	78.0	-0.1	534.3
Boulder/Slough #1	3.2	3.2	0.0	0.3	0.4	0.1	96.6	96.5	0.0	281.9
Boulder/Slough #2	2.1	2.2	0.2	0.0	0.0	0.0	97.7	97.6	-0.1	232.4
Buffalo/Spread Creek #1	11.5	10.6	-0.9	5.3	3.9	-1.4	88.3	89.3	1.0	219.9
Buffalo/Spread Creek #2	15.6	16.9	1.3	12.7	11.8	-0.9	74.3	73.3	-1.0	507.6
Crandall/Sunlight #1	19.3	19.3	0.0	7.2	7.1	0.0	81.1	81.0	-0.1	129.8
Crandall/Sunlight #2	16.6	16.5	-0.1	11.7	10.1	-1.5	82.3	82.3	0.0	316.2
Crandall/Sunlight #3	19.2	19.2	0.0	10.6	9.8	-0.9	80.4	80.4	0.0	221.8
Firehole/Hayden #1	10.4	10.5	0.2	1.7	3.1	1.4	88.3	87.5	-0.8	339.2
Firehole/Hayden #2	9.0	9.7	0.6	1.5	2.6	1.1	88.4	87.9	-0.6	172.2
Gallatin #1	3.6	3.5	-0.1	0.5	0.3	-0.2	96.3	96.3	0.0	127.7
Gallatin #2	9.5	9.8	0.3	4.5	5.6	1.1	90.2	89.1	-1.1	155.2
Gallatin #3*	46.0	45.8	-0.1	22.9	23.1	0.2	**55.3**	**55.1**	-0.1	217.6
Hellroaring/Bear #1	23.1	23.3	0.2	15.8	16.1	0.3	77.0	76.6	-0.3	184.7
Hellroaring/Bear #2	0.1	0.1	0.0	0.0	0.1	0.0	99.5	99.5	0.0	228.9
Henry’s Lake #1	49.0	49.2	0.2	31.2	31.9	0.7	45.4	45.3	-0.1	191.2
Henry’s Lake #2*	49.9	48.1	-1.8	35.2	35.3	0.1	**45.7**	**45.6**	-0.1	140.2
Hilgard #1	29.0	29.7	0.7	15.3	15.5	0.2	69.8	69.5	-0.3	201.2
Hilgard #2	21.0	20.9	-0.2	13.6	13.4	-0.2	71.4	71.5	0.1	140.5
Lamar #1	9.9	10.2	0.4	3.8	4.5	0.7	89.4	89.0	-0.4	299.9
Lamar #2	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	180.8
Madison #1	29.5	30.0	0.6	12.5	13.2	0.7	71.5	71.5	0.0	227.9
Madison #2*	33.7	34.3	0.5	24.0	25.8	1.8	**66.5**	**66.3**	-0.2	149.4
Pelican/Clear #1	2.0	2.2	0.2	0.5	0.5	0.0	97.8	97.7	-0.1	108.4
Pelican/Clear #2	5.4	5.8	0.3	0.4	0.7	0.3	94.1	93.8	-0.2	251.6

Table 9. 1998 Baseline values (and exceptions) for percentage of open motorized access route density (OMARD), total motorized access route density (TMARD), and secure habitat for all 40 bear management (BMU) subunits in the Primary Conservation Area. Current (post-revision) values are compared against values established before revisions resulting from implementation of the footprint protocol.

BMU subunit name	1998 % OMARD (> 1 mi / mi^2)			1998 % TMARD (> 2 mi / mi^2)			1998 % Secure Habitat			Subunit area (mi^2)
	Pre-revision	Post-revision	% change	Pre-revision	Post-revision	% change	Pre-revision	Post-revision	% change	
Plateau #1	22.2	22.3	0.1	12.9	13.2	0.3	68.8	68.6	-0.2	286.3
Plateau #2	8.5	8.5	0.0	3.5	3.5	0.0	88.7	88.7	0.0	419.9
Shoshone #1	1.5	1.5	0.0	1.1	1.2	0.0	98.5	98.5	0.0	122.2
Shoshone #2	1.3	1.3	0.0	0.7	0.7	0.0	98.8	98.8	0.0	132.4
Shoshone #3	3.9	3.9	0.0	2.1	2.1	0.0	97.0	96.9	0.0	140.7
Shoshone #4	5.3	5.4	0.1	2.9	3.0	0.0	94.9	94.8	-0.1	188.8
South Absaroka #1	0.6	0.6	0.0	0.1	0.1	0.0	99.2	99.2	0.0	163.2
South Absaroka #2	0.0	0.0	0.0	0.0	0.0	0.0	99.9	99.9	0.0	190.6
South Absaroka #3	2.4	2.4	0.0	2.7	1.8	-1.0	96.8	96.8	0.0	348.3
Thorofare #1	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	273.4
Thorofare #2	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	180.1
Two Ocean/Lake #1	3.5	3.9	0.4	0.3	1.4	1.1	96.3	96.0	-0.4	371.9
Two Ocean/Lake #2	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	124.9
Washburn #1	16.1	16.7	0.6	4.2	6.1	1.9	83.0	81.9	-1.0	178.3
Washburn #2	7.4	7.6	0.2	1.1	1.6	0.6	92.0	91.8	-0.2	144.1
Primary Conservation Area	**12.7**	**12.8**	**0.1**	**6.7**	**6.9**	**0.2**	**85.6**	**85.4**	**-0.2**	**9,025**

** Baseline values for the three subunits identified as in need of improvement (Gallatin #3, Henrys Lake #2, and Madison #2) will no longer be established at 1998 levels, but rather at improved levels based on full implementation of Travel Management Plan. See appended table below.*

Exceptions to 1998 Baseline

As of 2016, three subunits (Gallatin #3, Henrys Lake #2, and Madison #2) have new threshold for secure habitat baselines established at values to be achieved with full implementation of the 2006 Gallatin National Forest Travel Management Plan. These 3 subunits were identified in the 2007 Conservation Strategy as needing improved secure habitat levels above 1998 conditions. New baseline thresholds raise the bar for these 3 subunits and supersede 1998 thresholds for secure habitat.

Gallatin NF Travel Plan Baselines (supersede 1998 thresholds)

Subunit	% Secure Habitat	Area (mi^2) Secure Habitat
Gallatin #3	71.1	154.8
Henrys Lake #2	52.0	72.9
Madison #2	67.4	100.7

Note: Tables in this appendix represent the most current baseline information available and supersede comparable tables in the appendices of all previous versions of the Conservation Strategy; Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests, Final Environmental Impact Statement (USDA Forest Service 2006a); and the 2006 Forest Plan Amendment Record of Decision (USDA Forest Service 2006b).

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