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Fish and Wildlife Service
Montana Ecological Services Office
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In Reply Refer To:
File: M19 Beaverhead-Deerlodge National Forest
06E11000-2021-F-0550 Livestock Grazing in Yellowstone Analysis Area

July 8, 2021

Cheri A. Ford, Forest Supervisor
Beaverhead-Deerlodge National Forest
420 Barrett Street
Dillon, Montana 59725

Dear Ms. Ford:

The U.S. Fish and Wildlife Service (Service) has reviewed your October 13, 2020 amended biological assessment requesting reinitiation of formal consultation regarding the effects of continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area of the Beaverhead-Deerlodge National Forest (Forest). The amended biological assessment described the need for reinitiation related to the effect to grizzly bears (*Ursus arctos horribilis*) within the Yellowstone analysis area due to exceeding incidental take as described in the 2010 incidental take statement associated with the consultation on the 2009 Revised Forest Plan (U.S. Fish and Wildlife Service 2013). Incidental take has only been exceeded associated with livestock grazing in the Yellowstone analysis area. No additional effects to grizzly bears related livestock grazing are expected on the Forest outside of the Yellowstone analysis area. No other additional effects to grizzly bears related to other activities under the 2009 Revised Forest Plan are expected. The Forest made a determination of *may affect, likely to adversely affect* for grizzly bears as a result of livestock grazing in the Yellowstone analysis area. Additional information was received through June 25, 2021.

The attached biological opinion addresses the effects of livestock grazing in the Yellowstone analysis area on the listed grizzly bear and is based on information provided in the 2020 amended biological assessment (U.S. Forest Service 2020), the 2009 biological assessment and 2010 biological opinion on the 2009 Revised Forest Plan (U.S. Forest Service 2010, U.S. Fish and Wildlife Service 2010), the 2012 supplemental biological assessment (U.S. Forest Service 2012), the 2013 biological opinion on the 2009 Revised Forest Plan (U.S. Fish and Wildlife Service 2013), information in our files, and additional information received during the consultation process. The attached biological opinion was prepared in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). The attached biological opinion supersedes the portions of the 2010 and 2013 biological opinions on

the 2009 Revised Forest Plan that relate to livestock grazing in the Yellowstone analysis area and effects to grizzly bears.

Thank you for your continued assistance in the conservation of endangered, threatened, and proposed species. A complete project file of this consultation is on file at the Service's Montana Ecological Services Office. If you have questions or comments related to this consultation, please contact Katrina Dixon at (406) 430-9005.

Sincerely,

for Jodi L. Bush
Office Supervisor

ENDANGERED SPECIES ACT SECTION 7 CONSULTATION

BIOLOGICAL OPINION

on the

Effects of Livestock Grazing in the Yellowstone Analysis Area of the Beaverhead-Deerlodge National Forest on Grizzly Bears

Agency	U.S. Department of Agriculture Forest Service Beaverhead-Deerlodge National Forest Dillon, Montana
Consultation Conducted by:	U.S. Fish and Wildlife Service Montana Ecological Services Office Helena, Montana
Date Issued:	July 7, 2021

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INTRODUCTION

This biological opinion was prepared by the U.S. Fish and Wildlife Service (Service) and analyzes the effects of continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area of the Beaverhead-Deerlodge National Forest (Forest) on grizzly bears (*Ursus arctos horribilis*). Formal consultation was initiated on October 12, 2020, the date the Service received the amended biological assessment (U.S. Forest Service 2020). We continued to receive information regarding this consultation through June 25, 2021.

Section 7(b)(3)(A) of the Endangered Species Act of 1973, as amended (Act) requires that the Secretary of Interior issue biological opinions on federal agency actions that may adversely affect listed species or critical habitat. Biological opinions determine if the action proposed by the action agency is likely to jeopardize the continued existence of listed species or destroy or adversely modify critical habitat. Section 7(b)(3)(A) of the Act also requires the Secretary to suggest reasonable and prudent alternatives to any action that is found likely to result in jeopardy or adverse modification of critical habitat, if any has been designated. If the Secretary determines "no jeopardy", then regulations implementing the Act (50 C.F.R. § 402.14) further require the Director to specify "reasonable and prudent measures" and "terms and conditions" necessary or appropriate to minimize the impact of any incidental take resulting from the action(s). This biological opinion addresses only impacts to federally listed species and does not address the overall environmental acceptability of the proposed action.

This consultation represents the first tier of a tiered consultation framework. Subsequent livestock grazing projects within the Yellowstone analysis area, such as (but not limited to) allotment permit renewals, that may affect grizzly bears as analyzed within this programmatic biological opinion (as implemented under the 2009 Revised Forest Plan), would be a second tier of consultation. When applicable, some second tier consultations may reference back to this programmatic biological opinion to ensure that the effects of specific projects under consultation are commensurate with the effects anticipated in this biological opinion and incidental take statement.

Consultation History

Informal consultation on the effects of livestock grazing in the Yellowstone analysis area began between the Forest and the Service on September 12, 2019, with an email from the Forest requesting to initiate consultation on their grazing program in the Yellowstone Analysis Area. Further consultation and correspondence continued over the next year. On October 12, 2020, we received the final amended biological assessment and request for formal consultation (U.S. Forest Service 2020). Further consultation continued through email, meetings, and phone conversations with Forest staff. The paragraphs below briefly describe the past history of consultation related to livestock grazing in the Yellowstone analysis area and effects to grizzly bear.

The Forest has previously consulted on the effects of implementation of the 2009 Revised Forest Plan in two iterations. At the time the 2009 Revised Forest Plan record of decision was signed, the Yellowstone grizzly bear DPS had been delisted. Thus, consultation at that time was

unnecessary. The Yellowstone grizzly bear DPS was relisted shortly thereafter and the Forest and Service consulted on the effects of the 2009 Revised Forest Plan on grizzly bears where they may have been present at that time, which included the Yellowstone Distinct Population Segment (DPS) portion of the Forest (later termed the Yellowstone analysis area). At the time (2010), this is where grizzly bears were known to be present. The Yellowstone DPS portion of the Forest encompasses the Madison, Gravelly and Tobacco Root landscapes in their entirety and the Highland Mountains, which includes all areas are south and east of interstate highways 90 and 15. The Service issued an opinion for grizzly bears on the 2009 Revised Forest Plan on October 4, 2010 (U.S. Fish and Wildlife Service 2010). An analysis of effects of livestock grazing on the Forest was part of that consultation and an incidental take associated with livestock grazing was included in the incidental take statement associated with the 2010 biological opinion (Ibid.). The 2010 incidental take statement for grizzly bears associated with livestock grazing anticipated that no more than two grizzly bears would be removed from or killed in the Yellowstone DPS portion of the Forest during the life of the 2009 Revised Forest Plan (10 to 15 years), related to permitted grazing or associated activities authorized under the 2009 Revised Forest Plan that are reasonably believed to have contributed to the injury or death of the grizzly bear.

In 2012, a supplemental biological assessment was completed to explain and document grizzly bear presence on the north end of the Forest, outside of the Yellowstone DPS. These grizzly bears were associated with the Northern Continental Divide Ecosystem (NCDE). A biological opinion that analyzed the effects of implementation of the 2009 Revised Forest plan in the area outside of the Yellowstone DPS was issued on May 28, 2013 (U.S. Fish and Wildlife Service 2013). A new analysis area, titled the "west and north analysis area" (WNAA), was considered in the 2013 biological opinion, while the prior actions area from 2010 was termed the "Yellowstone analysis area." The Yellowstone analysis area remained the same as in the 2010 biological opinion. Since there were no changes in effects related to the Yellowstone analysis area, the baseline, effects analysis, and incidental take statement from 2010 were incorporated by reference into the 2013 biological opinion.

Subsequent to issuance of the 2010 and 2013 biological opinions, in 2019, the Forest exceeded the amount of incidental take anticipated associated with livestock grazing within the Yellowstone analysis area. The 2020 amended biological assessment amends the analysis of effects to grizzly bears from livestock management and associated activities in the Yellowstone analysis area. As the Forest has not exceeded the amount of incidental take anticipated for livestock grazing within the WNAA, this reinitiation of consultation only applies to the Yellowstone analysis area. The 2020 amended biological assessment supersedes the portions of the previous biological assessments that relate to the effects from livestock grazing in the Yellowstone analysis area. Accordingly, this biological opinion supersedes the portions of the 2010 and 2013 biological opinions on the 2009 Revised Forest Plan that relate to livestock grazing in the Yellowstone analysis area and effects to grizzly bears.

The 2020 amended biological assessment (U.S. Forest Service 2020), 2009 biological assessment and 2010 biological opinion on the 2009 Revised Forest Plan (U.S. Forest Service 2009, U.S. Fish and Wildlife Service 2010), the 2012 supplemental biological assessment and the 2013 biological opinion on the 2009 Revised Forest Plan (U.S. Forest Service 2012, U.S. Fish and

Wildlife Service 2013), information in our files, as well as additional information and discussions throughout the informal and formal consultation process were used in the preparation of this biological opinion. A complete project file of this consultation is on file at our office.

DESCRIPTION OF THE PROPOSED ACTION

The need for an amended biological assessment and reinitiation of formal consultation is the result of the Forest exceeding the incidental take anticipated in the 2010 biological opinion on the 2009 Revised Forest Plan (incorporated by reference into the 2013 biological opinion) for livestock grazing related management removal of grizzly bears in the Yellowstone analysis area. As previously mentioned, the amount of no more than two grizzly bears removed from or killed in the Yellowstone analysis area during the life of the 2009 Revised Forest Plan (10 to 15 years), related to permitted grazing or associated activities authorized under the 2009 Revised Forest Plan that are reasonably believed to have contributed to the injury or death of the grizzly bear was exceeded in 2019.

Thus, the proposed action is continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area. No significant changes have occurred to the allotments analyzed in the previous biological opinions. The most notable change is clarification of range management activities that are critical and required to manage livestock in these allotments such as salting and infrastructure maintenance (fences, corrals, rider cabins/buildings, water developments, etc.). The timeframe for this consultation is 10 years.

Sixty-four active livestock grazing allotments occur in the Yellowstone analysis area. Of those, 8 have domestic sheep grazing (7 sheep/horse, 1 cattle/sheep/horse). Sheep grazing on these allotments generally occurs from July to October. Grazing on cattle/horse allotments generally occurs from June to October annually. Rangelands in most allotments appear to have stable to upward vegetation trends.

Table 1. Allotments and Livestock within the Yellowstone Analysis Area (U.S. Forest Service 2020).

Livestock Type	Total Number of Allotments	Number of Allotments in the DMA*	Number of Allotments in the Recovery Zone
Bison	1	0	0
Cattle/Horse	51	27	3
Cattle/Sheep/Horse	1	1	0
Sheep/Horse	7	5	0
Vacant	4	1	0
Totals	**64**	**34**	**3**

***Demographic monitoring area**

Permitted livestock grazing on the Forest is contingent on the continued implementation of conservation measures that provide for protection and conservation of the grizzly bear. These conservation measures are designed to minimize grizzly bear-livestock and grizzly bear-human conflicts, reducing the overall incidence of adverse effects on grizzly bear. The conservation

measures from the 2010 consultation that are still appropriate and effective were brought forward into this consultation along with the inclusion of additional measures that have been ongoing in the Yellowstone analysis area but not previously stated. These measures are described in the amended biological assessment, which is incorporated by reference (U.S. Forest Service 2020). They are also provided in Appendix A of this biological opinion.

STATUS OF THE SPECIES

No critical habitat has been designated for grizzly bears. For information on the status of grizzly bears, including species description, life history, and status and distribution, refer to the Grizzly Bear Recovery Plan (U.S. Fish and Wildlife Service 1993), the grizzly bear 5-year status review (U.S. Fish and Wildlife Service 2021a), the species status assessment (SSA) for grizzly bears (U.S. Fish and Wildlife Service 2021b), the grizzly bear recovery program 2020 annual report (U.S. Fish and Wildlife Service 2021c), the conservation strategy for the grizzly bear in the Northern Continental Divide Ecosystem (NCDE) (NCDE subcommittee 2020), Grizzly bear demographics in the NCDE (Costello et al. 2016), NCDE grizzly bear population monitoring team 2020 annual report (Costello and Roberts 2021), the Greater Yellowstone Ecosystem conservation strategy (U.S. Fish and Wildlife Service 2016), the Yellowstone Grizzly Bear Investigations 2019 (van Manen et al. 2020), the Cabinet-Yaak Grizzly Bear Recovery Area 2019 Research and Monitoring Progress Report (Kasworm et al. 2020a), Density, distribution, and genetic structure of grizzly bears in the Cabinet-Yaak Ecosystem (Kendall et al. 2016), and the Selkirk Mountains Grizzly Bear Recovery Area 2019 Research and Monitoring Progress Report (Kasworm et al. 2020b). These documents (referenced here), include the best available science regarding the status and distribution of grizzly bears and are incorporated by reference.

Analysis of the Species Likely to be Affected

The amended biological assessment determined that continued livestock grazing in the Yellowstone analysis area would likely adversely affect individual grizzly bears. Therefore, formal consultation with the Service was initiated and this biological opinion has been written to determine whether or not activities associated with this action are likely to jeopardize the continued existence of grizzly bears. Grizzly bears are listed as threatened under the Act. Critical habitat has not been designated for this species, therefore none would be affected by the proposed action.

ENVIRONMENTAL BASELINE

Under the provisions of section 7(a)(2), when considering the "effects of the action" on listed species, the Service is required to consider the environmental baseline. Regulations implementing the Act (50 C.F.R. § 402.02) define the environmental baseline as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed

federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in progress. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Action area, as defined by the Act, is the entire area to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. For the purposes of this biological opinion, we have defined the action area to be the Yellowstone analysis area, which is defined in the 2013 supplement to the 2010 biological opinion (U.S. Fish and Wildlife Service 2013) as the portions of the Forest that have been designated as the Yellowstone grizzly bear distinct population segment (DPS). The Yellowstone analysis area is bounded by I-15 on the west, northwards to its junction with I-90. Interstate 90 forms the northern boundary of the Yellowstone grizzly bear DPS. The Forest landscapes or areas within the DPS total 897,526 acres and include the Gravelly Landscape (474,610 acres), the Madison Landscape (127,132 acres), the Tobacco Root Landscape (187,523 acres), and the Highland Mountains (108,261 acres). The Yellowstone analysis area is approximately 27 percent of the Forest. Portions of the Madison Landscape occur within the Yellowstone grizzly bear recovery zone, including portions of the Hilgard #1 subunit. All other portion of the Yellowstone analysis area occur outside of the recovery zone. A substantial portion of the Yellowstone analysis area occurs within habitat biologically suitable for grizzly bears.

Status of the Species within the Action Area

Grizzly bear numbers and distribution have consistently increased in the Yellowstone analysis area since the consultation on the 2009 Revised Forest Plan in 2010 and the supplement in 2012 (U.S. Forest Service 2020). Grizzly bears are known to occur within the Madison and Gravelly Landscapes. The Tobacco Roots and the Highlands are not considered within current grizzly bear distribution, however, observations outside the distribution line, mostly to the west, have been reported. While grizzly bears do not occur throughout the Yellowstone analysis area at this time, occurrence is possible during the duration of this consultation (10 years).

The most notable change from 2010 to the present can be shown with the distribution of the unduplicated females with cubs of the year (COY) that is conducted annually by the Interagency Grizzly Bear Study Team (IGBST). The data below is summarized from IGBST annual reports from 2010 to 2019. These females are verified unique females with COY. It is not meant to represent all the females with COY in the Yellowstone analysis area but is used in population estimates. These numbers are valuable to use in the status of the grizzly bear in the Yellowstone analysis area as a consistent number that shows unique females spatially on the landscape and it is standardized by the IGBST.

Beginning in 2010, 2 unduplicated (meaning unique) females with COY were documented on Forest lands (Haroldson 2011). One was documented in the Madison landscape but also showed movement into the Gravelly Landscape. Another was in the southern Gravelly Landscape. In 2011 and 2012, one female with COY was recorded in the Madison Landscape just outside of the Recovery Zone line (Haroldson 2012, Haroldson et al. 2013). In 2013, two were documented:

one female was in the southern end of the Madison Landscape but showed movement between the Madison and Gravelly Landscapes; and the other female was in the north end of the Madison Landscape both inside and outside of the Recovery Zone (Haroldson et al. 2014). In 2014, only one was documented in the north end of the Madison Landscape (Haroldson et al. 2015). In 2015, there were 2 documented females with COY. One was recorded in the Madison landscape and one in the southern Gravelly Landscape (Haroldson et al. 2016).

Beginning in 2017 there were 3 documented unduplicated females with COY. These observations also increased in distribution with 2 documented in the Gravelly Landscape, one in the north end and one in the southern end. The third female was within the Madison Landscape. In 2019, the IGBST documented 5 unique females with COY in the Yellowstone analysis area; 2 in the Gravelly Landscape portion of the Yellowstone analysis area and 3 in the Madison Landscape with one of those in the recovery zone (Haroldson et al. 2020). In the past 10 years (2010-2019) the numbers of detected unique females with COY within the Yellowstone analysis area that use the livestock allotments has increased from 2 to 5, thus displaying a large increase in grizzly bears using the Yellowstone analysis area (150 percent increase) over the last 10 years. While the actual number of grizzly bears using the Yellowstone analysis area is unknown, the likelihood of occurrence is expected to be high within the Madison and Gravelly Landscapes. Grizzly bear numbers are likely lower to none within the Tobacco Roots and Highlands.

Factors Affecting Species Environment within the Action Area

Key factors that affect the grizzly bears' environment in the Yellowstone analysis area include access management, food and attractant management and developed sites, livestock management, vegetation and fire management, and energy and mineral development. Existing management under the 2009 Revised Forest Plan related to these factors have been analyzed in the programmatic biological opinions on the 2009 Revised Forest Plan (U.S. Fish and Wildlife Service 2010, 2013). With the exception of livestock grazing in the Yellowstone analysis area (the proposed action of this consultation), the remaining portions of these programmatic biological opinions remain valid and the baseline conditions of those programmatic opinions are incorporated by reference. The factors described below specifically relate to livestock grazing in the Yellowstone analysis area. The biological assessment provides additional information on the existing condition and is also incorporated by reference (U.S. Forest Service 2020).

As previously mentioned, the need for an amended biological assessment and reinitiation of formal consultation is the result of the Forest exceeding the incidental take anticipated in the 2010 biological opinion on the 2009 Revised Forest Plan (incorporated by reference into the 2013 biological opinion) for livestock grazing related management removal of grizzly bears in the Yellowstone analysis area. Thus, the proposed action is continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area. No significant changes have occurred to the allotments analyzed in the previous biological opinions. As such, the baseline conditions related to livestock grazing are the same as the proposed action described above. Sixty-four active livestock grazing allotments occur in the Yellowstone analysis area. Sheep grazing generally occurs from July to October and grazing on cattle/horse allotments generally occurs from June to October annually. Rangelands in most allotments appear to have stable to upward vegetation trends. Refer to Table 1 above for allotment and livestock numbers.

The Forest summarized the data from the annual reports that the Forest submits to the Service from data received directly from Montana Fish, Wildlife and Parks Bear Management specialists. This data is presented in Table 2 below. The table displays grizzly bear-livestock conflict and mortality information associated with livestock grazing on Forest land only. While it is possible for conflicts associated with livestock grazing to occur off of Forest land, the majority of conflicts that have occurred within the timeframe displayed in Table 2 are associated with the Forest allotments in the Yellowstone analysis area.

Table 2. Grizzly Bear-Livestock Conflicts on Forest land in the Yellowstone analysis Area 2010-2020 (U.S. Forest Service 2020).

Year	Cattle Conflicts	Sheep Conflicts	Management Removals	Mortalities Self-Defense – Riders/Herders	Unsuccessful Capture Attempts (no grizzly bear mortality)
2010	0	0	0	0	0
2011	2	0	0	0	0
2012	3	0	0	0	0
2013	0	1 (4 sheep)	0	1 (sheep allotment)	1
2014	0	0	0	0	0
2015	4	0	1	0	1
2016	4	0	0	0	2
2017*	19	0	1	1 (cattle allotment)	5
2018	30	0	1 (probable)	1 (possible; cattle allotment)	2
2019	19	1 (probable; 5 sheep, 2 guard dogs)	1	0	2
2020	13	1 (2 sheep)	0	2	1
Total	94	3	4	5	14

*2017 the grizzly bear was delisted

Grizzly bear-livestock conflicts increased noticeably within the Yellowstone analysis area between 2016 and 2017, with 4 conflicts recorded in both 2015 and 2016 to 19 conflicts in 2017 and then 30 conflicts in 2018 (Table 2). Conflicts decreased in 2019 with 19 conflicts and 2020 with 13 conflicts. Each conflict generally has one depredation associated with it (one calf or cow for example) however a few incidents in 2017, 2018, and 2019 had multiple depredations associated with one conflict record. This causes the number of recorded livestock losses to be slightly higher than the conflict number in certain years. Sheep conflicts, unlike cattle conflicts, generally consist of multiple sheep losses in a single conflict record. The 2019 conflict associated with sheep grazing was deemed a probable depredation. The event was recorded that a ‘presumed bear’ caused the loss of 5 sheep and 2 guard dogs.

Grizzly bear management removals (mortalities) related to livestock conflicts on Forest land occurred in 2015, 2017, 2018, and 2019. The 2018 removal was deemed a probable mortality,

which we will assume to be a removal for analysis purposes to be conservative for the grizzly bear. In addition, 5 self-defense related grizzly bear mortalities occurred in the Yellowstone analysis area from riders or herders during surprise encounters (in 2013, 2017, 2018, and 2020). One of these, in 2018, is deemed a possible, which we will assume to be a removal for analysis purposes to be conservative for the grizzly bear. The 2017 mortalities occurred when the grizzly bear was delisted.

In addition to the grizzly bear management removals that occurred, several attempts were made to trap and capture grizzly bears associated with livestock conflicts that were unsuccessful. Had these capture attempts been successful, it is unknown as to whether relocation or management removal of the offending grizzly bear would have occurred. However, it is rational to assume that had some of these attempts been successful, the number of grizzly bear management removals could be higher in certain years.

EFFECTS OF THE ACTION

Under section 7(a)(2) of the Act, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 C.F.R. § 402.02). The effects discussed below are the result of implementing the proposed action.

General Effects of Livestock Grazing

Effects of livestock grazing on grizzly bears are generally related to depredations of livestock by grizzly bears, disposal of livestock carcasses, storage of human food and stock feed, and grizzly bear habituation, food conditioning, and mortality risk associated with these activities. Depredating bears may become food conditioned resulting in management actions that remove bears from the population.

Being an opportunistic feeder, any individual grizzly bear can learn to exploit livestock as an available food source just as easily as they habituate to other human food sources (Johnson and Griffel 1982). Livestock depredations tend to occur independent of natural grizzly bear food availability (Gunther et al. 2004, Gunther et al. 2012). Grizzly bears have demonstrated the ability to learn livestock foraging behavior. Thus, an assumption can be made that once a grizzly bear has preyed on livestock, it becomes more likely to repeat that behavior, however that is not always the case. Grizzly bears that kill livestock include a range of ages and both sexes (Johnson and Griffel 1982).

The adverse effects of domestic sheep grazing on grizzly bears are well documented (Knight and Judd 1983, Johnson and Griffel 1982). Sheep grazing in occupied grizzly bear habitat poses substantive risks to grizzly bears since in many areas grizzly bears kill sheep much more readily than other livestock and because sheep are often closely tended by herders typically armed and

protective of their flock. In one study in the Yellowstone grizzly bear ecosystem, of 24 grizzly bears known to use livestock allotments, 10 were known to kill livestock (Knight and Judd 1983). Of these bears, 7 killed sheep, 5 of which were trapped and fitted with radio transmitters. All but one radio collared grizzly bear cub that had the opportunity to kill sheep did so.

Grizzly bear depredation of domestic cattle is also well documented. Some grizzly bears coexist with livestock and never prey on them (Knight and Judd 1983). As with sheep, grizzly bear predation on cattle may result in the affected bears seeking out domestic livestock to supplement their diet. This in turn will likely cause an increased potential for bear-human conflicts. Once a bear successfully obtains a food reward at a particular location, the site is usually periodically rechecked for more food (Stokes 1970, Meagher and Phillips 1983, Wilson et al. 2005).

Knight and Judd (1983) reported several differences between cattle and sheep conflicts with grizzly bears. They found that all radio-collared grizzly bears known to have come in close contact with sheep killed sheep, but most grizzly bears that encountered cattle did not make kills. They also found that all known cattle kills were carried out by adult bears 7 years or older, while both adults and subadults from 1 year to 13 years old killed sheep. Grizzly bears that killed sheep, usually took multiple sheep over several days. However in each instance when the sheep were moved out of the area the predation ended (Johnson and Griffel 1982).

The resulting change in feeding behavior from natural foods to livestock often results in an adverse effect to individual grizzly bears because of the potential to relocate or remove the offending grizzly bear. The adverse effect of altered behavioral patterns does not, itself, cause injury to the involved grizzly bear. However, some grizzly bears become chronic depredators that actively seek livestock as prey. These grizzly bears are more likely to be the subject of grizzly bear-livestock or grizzly bear-human conflicts that may lead to its relocation or removal from the wild population through agency control actions.

In addition to livestock depredation, some grizzly bears can become food conditioned to human garbage or livestock feed if allotments are left unclean. Livestock carcasses can also attract grizzly bears similar to other animal carcasses. The presence of livestock carcasses in grizzly bear habitat may alter grizzly bears' behavior by attracting bears to these carcasses and away from other natural food sources as the opportunity allows. Grizzly bears have a strong tendency to return to a carcass for two or more feedings (Johnson and Griffel 1982). This change in habitat use and behavior has the potential to make affected grizzly bears more susceptible to conflicts with humans and particularly livestock riders/herders/permittees. Grizzly bears that become food conditioned also have a higher probability of being removed by agency personnel. Such potential effects can be minimized through implementation of food storage orders and carcass management programs. Proper food storage and treatment, movement or disposal of livestock carcasses can reduce the potential attractants for grizzly bears. Complete cattle carcass removal from allotments is not possible due to the large and remote areas grazed by livestock, the size of the carcasses in non-motorized areas, and the difficulty in locating all carcasses over such vast areas, or locating them in a timely manner. In addition, Anderson et al. (2002) noted, "While carcass removal may reduce the concentration of bears in an area, it may not prevent bears from developing depredatory tendencies or repel depredating bears from grazing areas."

Effects of Livestock Grazing in the Action Area

The Forest has a total of 64 allotments within the Yellowstone analysis area, with 51 cattle/horse allotments, 1 cattle/sheep/horse allotment, 7 sheep allotments, and 1 bison allotment. Four allotments are vacant. Three active cattle allotments occur within the recovery zone. The remaining allotments occur within the Yellowstone analysis area outside of the recovery zone. Table 1 above displays these allotments.

The types of effects to grizzly bears that may result from continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area have not changed from those analyzed in the programmatic biological opinion on the 2009 Revised Forest Plan (U.S. Fish and Wildlife Service 2010). However, the level of effects have changed (increased) over time due to the increase and expansion of grizzly bear distribution and density within the Yellowstone analysis area. The Forest is not proposing any changes to the total number of allotments and no significant changes have occurred to the allotments. The location, size, or management of grazing allotments would not be affected by the proposed action (continued livestock grazing under the 2009 Revised Forest Plan) and any changes would be addressed through site or area specific range analyses.

The 2009 Revised Forest Plan would maintain the existing number and distribution of allotments within the Yellowstone analysis area and would potentially reduce the number of sheep allotments. The 2009 Revised Forest Plan Wildlife Standard #5 states that "sheep allotments within the Gravelly Landscape which become vacant will be closed to sheep grazing or the allotment may be used by an existing Gravelly Landscape sheep permittee with no increase in permitted use." Therefore, the number of allotments and likely, the number of sheep, will not increase and may decrease under the 2009 Revised Forest Plan. However, the potential for conflicts to occur will remain, and may continue to increase on the Forest within the Yellowstone analysis area as grizzly bear numbers continue to increase and distribution continues to expand.

Grizzly bears are opportunistic omnivores that use a wide variety of plant and animal food sources. Natural foods can vary significantly within seasons and from year to year due to adverse or extreme weather conditions. However, grizzly bears consume a wide variety of vegetation, roots, tubers, and other foods not consumed by domestic ungulates, and exhibit plasticity in their ability to switch between food resources. Based on this, we expect any competition for forage between livestock and grizzly bears, and impacts from such, to be minimal. Although competition for natural forage may be minimal, adding livestock to the landscape is a habitat modification (potential food source).

Livestock grazing may indirectly result in adverse effects to grizzly bears by modifying natural feeding behavior to the point where livestock conflicts and/or depredations by grizzly bears occur. In other words, as a result of livestock grazing, grizzly bears may become food conditioned to seek out livestock as prey. Such grizzly bear conflicts and/or depredations of livestock may result in the management removal of grizzly bears. Direct mortality of grizzly bears may also occur related to self-defense. While it is the modification of natural feeding behavior that is the adverse effect, we use the number of conflicts, management removals, and self-defense mortalities as a metric to measure the effects.

Grizzly bear conflicts with, and depredations of, livestock have been well documented in the Yellowstone analysis area. The history of grizzly bear conflicts and mortalities associated with livestock grazing on Forest land in the Yellowstone analysis area since issuance of the 2010 biological opinion on the 2009 Revised Forest Plan is thoroughly described in the baseline section above. In summary, since 2010 through 2020, 94 grizzly bear conflicts with cattle and 3 conflicts with sheep have occurred within the Yellowstone analysis area. Management removal of 4 grizzly bears occurred during this time-frame and 5 grizzly bear mortalities related to self-defense by livestock riders and/or herders occurred. Additional conflicts with grizzly bears related to livestock may have occurred off the Forest but near the Forest.

Depending on geographic area, all age classes of cattle and sheep are depredated upon by grizzly bears and depredation rates fluctuate annually. With greater geographic distribution and increased grizzly bear densities, livestock depredations are increasing on public and private land inside and outside the Yellowstone grizzly bear demographic monitoring area (DMA) in Montana, especially within the Gravelly landscape portion of the Yellowstone analysis area. The southern end of the Gravelly Landscape continues to be the main area with clusters of livestock depredations by grizzly bears. Depredations are beginning to be documented further north each year down the Ruby Valley and close to the Greenhorn Mountains in the Gravelly Landscape. It is assumed that as grizzly bear densities continue to increase and grizzly bear distribution continues to spread, conflicts will also increase and be documented in new areas.

The Tobacco Root and Highland Landscapes within the Yellowstone analysis area are yet to have a confirmed grizzly bear livestock depredation. It is also uncommon for the allotments in the Madison landscape to have confirmed grizzly bear livestock conflicts.

Grizzly bear-livestock conflicts are likely to continue as long as livestock are on the landscape in those same areas where grizzly bears may be present. Conflicts may result in the relocation of problem bears inside or outside of the Yellowstone analysis area or may result in direct mortality through management removals of individuals who prey on livestock. As grizzly bears continue to increase in density and distribution in Montana, relocation of grizzly bears is less common than removal. Grizzly bear mortalities also result from defense of life situations when riders and/or herders encounter grizzly bears during their management duties (fence maintenance, riding, checking livestock, etc.).

Permitted livestock grazing on the Forest is contingent on the continued implementation of numerous conservation measures that provide for protection and conservation of the grizzly bear. These conservation measures are designed to minimize grizzly bear-livestock and grizzly bear-human conflicts, reducing the overall incidence of adverse effects on grizzly bear. For example, conservation measures required in permits addressing livestock carcass management and food storage can reduce the likelihood of a grizzly bear-human conflict. The conservation measures from the 2010 consultation that are still appropriate and effective were brought forward into this consultation along with the inclusion of additional measures that have been ongoing in the Yellowstone analysis area but not previously stated. These measures are described in the amended biological assessment, which is incorporated by reference (U.S. Forest Service 2020). They are also provided in Appendix A of this biological opinion.

Information and education requirements with permittees will also contribute to reducing circumstances that could cause a grizzly bear-human conflict with increased training on how to work in bear country. Annual meetings with permittees and cooperating agencies (MFWP and WS) also increase understanding of bear use and activity throughout the Yellowstone analysis area which contributes towards grizzly bear conservation. In addition, the Forest will follow the Conservation Strategy nuisance bear standard for nuisance bear management. These standards are embedded within the 2009 Revised Forest Plan.

While the conservation measures and information and education requirements are expected to reduce and minimize the level of grizzly bear-livestock conflicts and depredations of livestock as well as grizzly bear-human conflicts, not all situations will be avoided. For example, while the number of carcasses will be reduced, we recognize that complete carcass removal is not possible. Thus, some level of grizzly bear management removal related to livestock conflicts and depredations or mortality related to self-defense is inevitable. As the number of grizzly bears continues to increase in the Yellowstone analysis area, an increase in the number of grizzly bears subject to potential management removal or mortality as a result of grizzly bear-livestock and grizzly bear-human conflicts may occur. Consequently, livestock management on the Forest will continue to have the potential to result in adverse impacts to grizzly bears.

As described above, given the increasing number of grizzly bear-livestock conflicts and management actions in the Yellowstone analysis area since 2010 (Table 2), we expect the number of conflicts, removals, and grizzly bear mortalities associated with livestock grazing to continue to increase over the next 10 years. It is difficult, however, to accurately predict the exact number of conflicts, grizzly bear management removals, and grizzly bear mortalities, though we expect the number will increase through time as the density of grizzly bears increases in the Yellowstone analysis area. The following approach recognizes both the uncertainty and the expectation for increasing conflicts associated with livestock grazing in the Yellowstone analysis area. We are not intending to limit the activities necessary to manage grizzly bears in the Yellowstone analysis area by implementing this approach, but instead are intending to provide a reasonable estimate of what we expect could happen over the next decade.

The number of grizzly bear-livestock conflicts have increased from 0 in 2010 to a high of 30 in 2018, with numbers varying in between for the remaining years. As a result of grizzly bear-livestock conflicts, management removal of grizzly bears has occurred 4 times between 2015 and 2020 (none were removed between 2010 through 2014) and mortality of grizzly bears related to self-defense (riders/herders) has occurred 5 times between 2013 and 2020 (no self-defense mortalities related to livestock occurred prior to 2013). The increase in conflicts over time is not due to an increase in livestock numbers or allotments but mainly due to a growing and expanding grizzly bear population. We expect the population will continue to grow and expand, though the rate of growth may slow within the Yellowstone analysis area once it reaches saturation and fills all available territories. While we display the conflict data back through 2010, very few conflicts occurred and no management removals occurred until 2015. Only 1 grizzly bear management removal occurred in 2015 and no grizzly bear mortalities occurred in 2016. Thus, we have used conflict, removal, and self-defense mortality data from the 4-year period between 2017 (the year conflicts began to increase considerably) through 2020 (most current data) to forecast anticipated management removals and grizzly bear mortalities associated with livestock grazing in the

Yellowstone analysis area into the future (10 years) as that is most representative of the increasing geographic distribution of grizzly bears as well as the increasing number of grizzly bears.

On average, approximately 20 conflicts occurred per year over the 4-year period from 2017 through 2020 (noting that the number of conflicts varied from 13 to 30 in any given year). As a result of these conflicts, 3 grizzly bear management removals occurred during this same time-frame along with 4 grizzly bear mortalities related to self-defense from riders and herders for a total of 7 grizzly bear mortalities from 2017 through 2020. As grizzly bear numbers and distribution increases, these numbers may increase somewhat as well. In addition to the grizzly bear management removals that occurred, several attempts were made to trap and capture grizzly bears associated with livestock conflicts that were unsuccessful. The number of unsuccessful management capture attempts varies from 1 to 5 in any given year, with an average of 2.5 attempts per year between 2017 and 2020. Had these capture attempts been successful, it is unknown as to whether relocation or management removal of the offending grizzly bear would have occurred. However, it is reasonable to assume that had some of these attempts been successful, the number of grizzly bear management removals could be higher in some years.

We do not know exactly how many conflicts or management removals will occur in any given year in the future. Based on the 7 known grizzly bear mortalities over the 4-year period from 2017 through 2020, we would expect, on average, about 2 grizzly bear mortalities associated with livestock grazing in any given year. However, we also expect the rate of grizzly bear mortalities will continue to increase as the grizzly bear population and distribution increases in the Yellowstone analysis area and we need to account for the potential management capture attempts that were unsuccessful. As grizzly bears continue to increase in density and distribution in Montana, relocation of grizzly bears is less common than removal. To account for the potential higher number of management removals (based on unsuccessful management capture attempts) and the likelihood of an increase in conflicts as grizzly bear numbers and distribution increases, we will include 1 additional grizzly bear per year to the expected amount of management removals in the future (based on the minimum number of unsuccessful management capture attempts in any given year between 2017 and 2020).

Management removal of grizzly bears or self-defense grizzly bear mortalities may not occur every year and in some years multiple management removals and/or self-defense grizzly bear mortalities may occur. For example, no grizzly bear management removals or self-defense grizzly bear mortalities occurred in 2016 and only 1 grizzly bear management removal occurred in 2015 and 2019. However, 1 grizzly bear management removal and 1 self-defense grizzly bear mortality occurred in both 2017 and 2018 (2 total grizzly bear mortalities each year) and 2 self-defense grizzly bear mortalities occurred in 2020.

Because we expect the number of grizzly bear mortalities to be higher in some years and lower in others, it does not make sense to analyze the effects with specific annual numbers. Thus, to account for differences between years, we use a rolling window to analyze and measure the effects of livestock grazing on grizzly bears. We use the amount of grizzly bear management removals and self-defense mortalities that occurred between 2017 and 2020 to anticipate the amount of grizzly bear mortality likely to occur in the future. As described above, we will also

add 1 grizzly bear mortality to each year to account for the potential higher number of management removals (estimated from unsuccessful management capture attempts) and the likelihood of an increase in conflicts as grizzly bear numbers and distribution increases. For the 4-year period of 2017 through 2020, 3 management removals of grizzly bears and 4 self-defense grizzly bear mortalities occurred for a total of 7 grizzly bear mortalities. Using these numbers and then adding 1 additional grizzly bear per year, we would expect no more than 11 grizzly bear mortalities associated with livestock grazing in the Yellowstone analysis area over any given 4-year period. Tracking of grizzly bear mortalities would begin with the most-recent 4-year period from issuance of this biological opinion and would then be tracked on a sliding scale. For example, tracking for 2021 would reflect the most recent 4 years of mortality data associated with livestock grazing including the years 2018, 2019, 2020, and 2021, tracking for 2022 would include the years 2019, 2020, 2021, and 2022, tracking for 2023 would include the years 2020, 2021, 2022, and 2023, and so on until 2031.

Based on the grizzly bear status in the YGBE, past management removals and mortalities of a limited number of grizzly bears related to livestock grazing within the Yellowstone analysis area have not had detrimental impacts on the YGBE population. We expect that the additional management removals and mortalities of grizzly bears related to livestock grazing estimated above also will not have detrimental impacts on the YGBE population.

Effects Summary

Grizzly bears are expanding their range and increasing in numbers. As a result, the amount of grizzly bear-livestock conflicts and grizzly bear mortality associated with livestock grazing has also increased. As grizzly bear numbers continue to increase in the Yellowstone analysis area and expand their range, it is likely that the Forest will experience an increase in conflicts involving grizzly bears and livestock use. However, we conclude that continued livestock management under the 2009 Revised Forest Plan contains measures that minimize the potential for adverse impacts to grizzly bears from livestock grazing activities within the Yellowstone analysis area.

Conflicts arising from livestock grazing are recognized as a source of human-caused mortality of grizzly bears. Grizzly bears habituated to livestock as a food source are more likely to be removed from the population due to management control and/or defense of life or property actions. Several grizzly bear-livestock conflicts have occurred from 2010 through 2020 and 9 human-caused grizzly bear mortality or management removal actions as a result of conflicts with livestock grazing occurred in the Yellowstone analysis during this time. Grizzly bear mortalities as a result of conflicts with livestock may have also occurred on lands adjacent to the Forest. As the grizzly bear numbers increase in the Yellowstone analysis area, an increase in the number of grizzly bears subject to potential management removal or other mortality as a result of grizzly bear-livestock conflicts is likely to occur.

Although the Forest's management of grizzly bear habitat may result in direct and indirect adverse effects on individual grizzly bears, we do not anticipate that these effects will have appreciable negative impacts on the YGBE population. The majority of the Yellowstone analysis area is located outside of the YGBE recovery zone. The Recovery Plan stated that

grizzly bears living within the recovery zone are crucial to recovery goals and hence to delisting. Grizzly bears inside and outside of recovery zones are listed as threatened under the Act, but only lands inside the recovery zones are managed primarily for the recovery and survival of the grizzly bear as a species. In developing the YGBE recovery zone, all areas necessary for the conservation of the grizzly bear were included.

Even though much of the Yellowstone analysis area is outside of the recovery zone, the Forest has managed, and will continue to manage, the lands in such a way that has allowed grizzly bears to expand, survive, and reproduce outside of the recovery zone. Thus, although individual grizzly bears may be adversely affected associated with livestock grazing, we anticipate that grizzly bear use will continue to increase within the Yellowstone analysis area into the future.

CUMULATIVE EFFECTS

The implementing regulations for section 7 define cumulative effects as those effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Montana Fish, Wildlife and Parks (FWP) has completed a grizzly bear management plan for western Montana and southwestern Montana. These plans establish goals and strategies to manage and enhance grizzly bear populations and to minimize the potential for grizzly bear-human conflicts. A long-term goal is to allow the populations in western and southwestern Montana to reconnect through the intervening, currently unoccupied habitats. FWP is also very active in providing public information and education about conserving grizzly bears and their habitat. This includes bear management specialists, including specialists in and adjacent to the Yellowstone analysis area in Choteau, Conrad, Missoula, and Bozeman, who provide information and assistance to landowners on appropriate ways to secure food and bear attractants and respond to reports of conflicts with bears. These specialist positions have a proven record of reducing human-caused grizzly bear mortalities.

No new future non-federal activities that would contribute additional substantial negative cumulative effects to the grizzly bear are anticipated that haven't been identified in the previous 2010 and 2013 programmatic biological opinions on the 2009 Revised Forest Plan (U.S. Fish and Wildlife Service 2010, 2013). Private lands in and adjacent to the Forest are being developed for residential or business use. The human population in the area has experienced growth during the recent decade and growth is expected to continue. As more people use private land and adjoining federal land for homes, recreation, or business, the challenge to accommodate those uses in ways that continue to protect the grizzly bear population increases. In general, highways, unsecured attractants, livestock grazing, agriculture, hunting related and mistaken identify mortalities are all ongoing state and private activities that impact the grizzly bear. Overall, the YGBE population has continued to increase in number and distribution throughout the years even in the presence of these factors.

The large federal land ownership, large blocks of wilderness within which human access is restricted by regulation and topography, and highly regulated national park back country within and surrounding the Yellowstone analysis area serve to reduce the impacts of larger residential human populations on grizzly bears. Recreation, livestock grazing and sanitation issues on private land continue to create grizzly bear-human conflicts. However, despite the recent growth of the human population, the grizzly bear population in the ecosystem is increasing as well (van Manen and Haroldson 2020). Federal land management cannot entirely compensate for such impacts on private land. The 2009 Revised Forest Plan will provide habitat for grizzly bears inside and outside the recovery zone, and will contribute to grizzly bear recovery.

CONCLUSION

The effects of the action and cumulative effects are added to the environmental baseline and in light of the status of the species and critical habitat, the Service formulates an opinion as to whether the action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. Should the federal action result in a jeopardy situation and/or adverse modification conclusion, the Service may propose reasonable and prudent alternatives that the federal agency can take to avoid violation of section 7(a)(2).

After reviewing the current status of grizzly bears, the environmental baseline for the action area, the effects of the action, and the cumulative effects, it is the Service's biological opinion that the effects of continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area on grizzly bears are not likely to jeopardize the continued existence of the grizzly bear. No critical habitat has been designated for this species, therefore, none will be affected. Implementing regulations for section 7 (50 C.F.R. § 402) define "jeopardize the continued existence of" as to "engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." Our conclusion is based on, but not limited to, the information presented in the biological assessment (U.S. Forest Service 2020), correspondence during this consultation process, information in our files, and informal discussions between the Service, the Forest, and other personnel.

The continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area may occasionally result in adverse effects to individual grizzly bears over the next 10 years particularly as a consequence of the modification of natural feeding behavior associated with livestock grazing. Livestock grazing may indirectly result in adverse effects to grizzly bears by modifying natural feeding behavior to the point where livestock conflicts and/or depredation by grizzly bears occurs. In other words, as a result of livestock grazing, grizzly bears may become food conditioned to seek out livestock as prey. Such grizzly bear conflicts and/or depredations of livestock may result in the management removal of grizzly bears. Direct mortality of grizzly bears may also occur related to self-defense situations due to the inherent risk of work associated with livestock management. While it is the modification of natural feeding behavior that is the adverse effect, we use the conflicts, management removals, and self-defense mortalities as a metric to measure the effects. Based on the best available scientific information reviewed in this consultation, such adverse effects will not negatively impact the

recovery of the YGBE grizzly bear population. Further, despite the continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area, conditions that support continued grizzly bear use of the Yellowstone analysis area for dispersal or exploratory movements, as well as some home range establishment, albeit at densities lower than those in the recovery zone. Thus, it is our opinion that continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area would not appreciably reduce the likelihood of both the survival and recovery of grizzly bears. Below we summarize key factors of our rationale for our no-jeopardy conclusion as detailed and analyzed in this biological opinion. These key factors include, but are not limited to, the following.

Factors related to the continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area:

- Continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area may result in grizzly bear-human conflicts and grizzly bear mortalities or management removals. Some individual grizzly bears may become food conditioned or habituated to seek out livestock as prey, which may result in their management removal from the population. Other mortalities of grizzly bears may result related to defense of life situations with herders and/or riders.

- From 2010 through 2020, approximately 97 grizzly bear-livestock conflicts have occurred. Not all conflicts result in the management removal or mortality of a grizzly bear. As a result of these conflicts, 4 management removals of grizzly bears and 5 mortalities of grizzly bears related to defense of life have occurred in the Yellowstone analysis area.

- The types of effects to grizzly bears that may result from continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area have not changed from those analyzed in the programmatic biological opinion on the 2009 Revised Forest Plan (U.S. Fish and Wildlife Service 2010). However, the level of effects have changed (increased) over time due to the increase and expansion of grizzly bear distribution and density within the Yellowstone analysis area.

- The Forest is not proposing any changes to the total number of allotments and no significant changes have occurred to the allotments. The location, size, or management of grazing allotments would not be affected by the proposed action (continued livestock grazing under the 2009 Revised Forest Plan). Any changes would be addressed through site or area specific range analyses.

- Permitted livestock grazing on the Forest is contingent on the continued implementation of numerous conservation measures that provide for protection and conservation of the grizzly bear. These conservation measures are designed to minimize grizzly bear-livestock and grizzly bear-human conflicts, reducing the overall incidence of adverse effects on grizzly bear. The conservation measures from the 2010 consultation that are still appropriate and effective were brought forward into this consultation along with the inclusion of additional measures that have been ongoing in the Yellowstone analysis area

but not previously stated. These measures are described in the amended biological assessment, which is incorporated by reference (U.S. Forest Service 2020). They are also provided in Appendix A of this biological opinion.

- Based on the information for livestock grazing and the number of grizzly bears now and likely to inhabit the Yellowstone analysis area over the next 10 years, we expect grizzly bear-livestock conflicts and/or grizzly bear mortality within the Yellowstone analysis area to continue and increase.

- Based on the grizzly bear status in the Yellowstone ecosystem, past management removals and mortalities of a limited number of grizzly bears related to livestock grazing within the Yellowstone analysis area have not had detrimental impacts on the Yellowstone grizzly bear population. We expect that the additional management removals and mortalities of grizzly bears related to livestock grazing estimated above also will not have detrimental impacts on the Yellowstone grizzly bear population.

- The Forest has managed and will continue to manage their lands in such a way that has allowed grizzly bears to expand. Thus, although individual grizzly bears may be adversely affected at times during the continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area, we anticipate that grizzly bear use will continue to increase and expand within the Yellowstone analysis area into the future.

Although we expect some grizzly bear management removals and mortalities associated with livestock grazing in the Yellowstone analysis area, these removals and mortalities would not negatively affect the survival and recovery of the YGBE grizzly bear population.

Factors related to the YGBE grizzly bear population:

- The YGBE grizzly bear population has expanded its range into areas outside the recovery zone. Female grizzly bears with young have been observed outside of the recovery zone, indicating that a number of females are able to establish home ranges and find the resources needed to survive and reproduce outside the recovery zone despite the lack of mandatory habitat protections.

- The Interagency Grizzly Bear Study Team (IGBST) is responsible for grizzly bear population monitoring in the YGBE. In 2019, the model-averaged Chao2 estimate was 66 females with cubs within the DMA, from which a total population estimate of 737 was derived (van Manen and Haroldson 2020).

- All 18 BMUs were occupied by females with young in 4 years of the last 6-year period, with 17 of 18 BMUs occupied by females with young in all 6 years (Haroldson and Karabensh 2020).

- Long-term mortality rates for the YGBE are below mortality thresholds for independent-age (2 years or older) females, independent-age males, and dependent young.

- The mortality data, especially when considering the conservative nature of the Chao2 estimates of females with cubs, along with the additional demographic data, indicate the population status within the Yellowstone DMA remains stable to increasing (van Manen and Haroldson 2020).

- As of 2018, bears occupied 68,736 square kilometers, which includes 49,931 square kilometers inside the DMA (98 percent of the DMA) and 18,805 square kilometers outside the DMA. Distribution for the GYE is updated every 2 years (U.S. Fish and Wildlife Service 2021c). The 2020 distribution was not yet available at the time of this writing.

- Based on 2018 distributions, the YGBE and NCDE grizzly bear populations are now only 75 kilometers apart, with additional verified locations between the two distributions. This distance has steadily and significantly decreased in the last decade as they were approximately 122 kilometers apart in 2006 (U.S. Fish and Wildlife Service 2021c).

- A Food Storage Order is in effect throughout the YGBE recovery zone on National Forest lands and Yellowstone National Park. These agencies have been successful at managing attractants on federal lands under the current food storage order.

- Montana Fish, Wildlife and Parks' bear specialist program is expected to continue to work with the public to reduce risks to grizzly bears on private and public lands, both inside and outside the boundaries of the recovery zone. In cooperation with other agencies, this program has made notable strides toward an informed public and reduced the availability of attractants to grizzly bears on private and public lands.

- The YGBE encompasses about 5.9 million acres (9,209 square miles), of which 36 percent (2.1 million acres or 3,315 square miles) is comprised of National Forest designated wilderness lands and 39 percent (2.3 million acres or 3,591 square miles) is comprised of Yellowstone and Grand Teton National Parks. These areas contain the highest quality grizzly bear habitat. Considering these lands only, three-quarters of the YGBE is essentially roadless or free of motorized use (75 percent). Finally, the National Forests also provide large blocks of core area within the recovery zone. These areas likely contribute significantly to reducing the number of human bear encounters and so increase security for grizzly bears.

Recovery zones were established to identify areas necessary for the recovery of a species and are defined as the area in each grizzly bear ecosystem within which the population and habitat criteria for recovery are measured. Recovery zones are areas adequate for managing and promoting the recovery and survival of grizzly bear populations (U.S. Fish and Wildlife Service 1993). Areas within the recovery zones are managed to provide and conserve grizzly bear habitat. The recovery zones contain large portions of wilderness and national park lands, which are protected from the influence of many types of human uses occurring on lands elsewhere. Multiple use lands are managed with grizzly bear recovery as a primary factor. As anticipated in the Recovery Plan, grizzly bear populations have responded to these conditions, have stabilized,

and are increasing or at or near recovered levels in some recovery zones. In addition, the grizzly bears have been expanding and continue to expand their existing range outside of the recovery zones, as evidenced by the verified records of grizzly bears in many portions of the Yellowstone analysis area.

Grizzly bears outside the recovery zone probably experience a higher level of adverse impacts due to land management actions than do grizzly bears inside. As anticipated in the recovery plan, we expect more grizzly bears will inhabit the Forest in the future. We expect grizzly bears will occur outside of the recovery zone at lower densities than within the recovery zone as a result of suboptimal habitat conditions, which include higher road densities, fewer areas secure from motorized access, and more human presence.

Despite the growth of the human population and the increase in the number of grizzly bear-human conflicts and grizzly bear mortalities, the preponderance of evidence suggests an increasing number of grizzly bears in the YGBE recovery zone, with a total population estimate of 737 grizzly bears (van Manen and Haroldson 2020), a greater geographic distribution (Frey and Smith 2020), and increased grizzly bear densities (*Ibid*.). Based on the best available information, the Service concludes that the status of the YGBE grizzly bear population is robust and is at or near recovery.

While continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area may result in some level of adverse effects on some level of individual grizzly bears using the Yellowstone analysis area, considering the large size of the YGBE recovery zone, favorable land management within the recovery zone, and the robust status of this grizzly bear population, adverse effects on grizzly bears as a result of continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area would not have negative effects on the status of the YGBE grizzly bear population. This population is robust, the recovery zone is large, and management within the recovery zone favors the needs of grizzly bears; these results signal successful federal land management related to grizzly bear recovery under the strategy detailed in the 1993 Recovery Plan. Therefore, we conclude that continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area is not likely to reduce the numbers, distribution, or reproduction of grizzly bears in the YGBE.

Because continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area would not reduce the reproduction, numbers, or distribution of grizzly bears in the YGBE, and considering the status of the YGBE grizzly bear population, we conclude that the level of adverse effects is not reasonably expected to reduce appreciably the likelihood of both the survival and recovery of grizzly bears. It is the Service's opinion that the effects on grizzly bears from continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area are not likely to jeopardize the continued existence of the grizzly bear.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act, and Federal regulations pursuant to section 4(d) of the Act, prohibit the take of endangered and threatened species, respectively without special exemption. *Take* is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. *Harm* is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns, including breeding, feeding, or sheltering. *Harass* is defined by the Service as an intentional or negligent act or omission that creates the likelihood of injury to listed wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. *Incidental take* is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by the Forest so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest has a continuing duty to regulate the activity that is covered by this incidental take statement. If the Forest (1) fails to assume and implement the terms and conditions or (2) fails to require an applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the Forest must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 C.F.R. § 402.14(i)(3)].

Amount or Extent of Take Anticipated

Effects of livestock grazing on grizzly bears are generally related to depredations of livestock by grizzly bears, disposal of livestock carcasses, storage of human food and stock feed, and grizzly bear habituation, food conditioning, and mortality risk associated with these activities. Livestock grazing on the Forest in the Yellowstone analysis area will continue to pose risks as grizzly bear numbers increase in these areas. The permitted livestock grazing may indirectly result in the removal or death of grizzly bears because bears are prone to prey on livestock. Some individual grizzly bears may become food conditioned or habituated to seek out livestock as prey and tend to continue such behavior. These grizzly bears may be removed from the population in management actions. In addition grizzly bear mortalities related to defense of life and/or property associated with herders and or riders may also occur.

The risk of adverse impacts to grizzly bears do exist associated with continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area. Livestock grazing will pose more risk as grizzly bear numbers increase and expand in the Yellowstone analysis area. Livestock depredation by grizzly bears may indirectly result in incidental take of grizzly bears by modifying natural feeding behavior to the point where management removal of the grizzly bear is needed. Of most concern are the allotments that become attractants for grizzly bears living both in and outside the recovery zone, and result in grizzly bear mortality sinks.

Permitted livestock grazing on the Forest is contingent on the continued implementation of numerous conservation measures that provide for protection and conservation of the grizzly bear. These conservation measures are designed to minimize grizzly bear-livestock and grizzly bear-human conflicts, reducing the overall incidence of adverse effects on grizzly bear. For example, conservation measures required in permits addressing livestock carcass management and food storage can reduce the likelihood of a grizzly bear-human conflict. The conservation measures from the 2010 consultation that are still appropriate and effective were brought forward into this consultation along with the inclusion of additional measures that have been ongoing in the Yellowstone analysis area but not previously stated. These measures are described in the amended biological assessment, which is incorporated by reference (U.S. Forest Service 2020). They are also provided in Appendix A of this biological opinion.

Information and education requirements with permittees will also contribute to reducing circumstances that could cause a grizzly bear-human conflict with increased training on how to work in bear country. Annual meetings with permittees and cooperating agencies (MFWP and WS) also increase understanding of bear use and activity throughout the Yellowstone analysis area which contributes towards grizzly bear conservation. In addition, the Forest will follow the Conservation Strategy nuisance bear standard for nuisance bear management. These standards are embedded within the 2009 Revised Forest Plan.

While the conservation measures and information and education requirements are expected to reduce and minimize the level of grizzly bear-livestock conflicts and depredations of livestock as well as grizzly bear-human conflicts, not all situations will be avoided. For example, while the number of carcasses will be reduced, we recognize that complete carcass removal is not possible. Thus, some level of grizzly bear management removal related to livestock conflicts or depredations or mortality related to self-defense is inevitable. As the number of grizzly bears continues to increase in the Yellowstone analysis area, an increase in the number of grizzly bears subject to potential management removal or mortality as a result of grizzly bear-livestock and grizzly bear-human conflicts may occur. Consequently, livestock management on the Forest has the potential to result in some level of incidental take of grizzly bears if such conflicts occur.

The Service anticipates take in the form of harm to grizzly bears as a consequence of livestock grazing and the associated livestock management operation in habitats commonly used by grizzly bears. The habitat modification of adding a significant, anthropogenic food source that results in the death or injury of bears can itself be considered “take” in the form of harm. The likely depredation of some of the permitted livestock represents an impairment of natural feeding behavior that may in some cases ultimately lead to management removal or defense of life mortality of grizzly bears (such as a surprise encounter near a carcass site due to a bear defending the carcass).

According to Service policy, as stated in the Endangered Species Consultation Handbook (USFWS and National Marine Fisheries Service [NMFS] 1998) (Handbook), some detectable measure of effect should be provided, such as the relative occurrence of the species or a surrogate species in the local community, or amount of habitat used by the species, to serve as a measure for take. Take also may be expressed as a change in habitat characteristics affecting the

species (Handbook, p 4-47 to 4-48). In instances where incidental take is difficult to quantify, the Service uses a surrogate measure of take.

The level of incidental take in the form of harm associated with livestock grazing is difficult to detect and quantify. Therefore, in such cases, the Service uses surrogate measures to gauge the level of take. In this case, we anticipate that the level of incidental take resulting from continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area in the form of harm is proportional to the number of grizzly bears that are removed or killed within the Yellowstone analysis area associated with livestock grazing. We base this on the fact that both the level of take through harm and associated grizzly bear mortalities will correlate to the level of bear use and permitted grazing use within the Yellowstone analysis area. Specifically, the Service believes this level of take in the form of harm is proportional to the management actions for nuisance bear control in compliance with the Interagency Grizzly Bear Guidelines (IGBC 1986) or from defense of life or property, when the permitted grazing or associated activities are reasonably believed to have contributed to the injury or death of the grizzly bear (e.g., direct connection to grazing, such as the management of bear depredating livestock, or indirect connection to grazing, such as defense of life. The illegal killing or injury of grizzly bears (including trapping or shooting by private citizens) constitutes a separate action that is not exempted by the special regulations nor this biological opinion.

As described above, given the increasing number of grizzly bear-livestock conflicts and management actions in the Yellowstone analysis area since 2010 (Table 2), we expect the number of grizzly bear-livestock conflicts, grizzly bear removals, and grizzly bear mortalities associated with livestock grazing will continue to increase over the next 10 years. It is difficult, however, to accurately predict the exact number of conflicts, grizzly bear management removals and grizzly bear mortalities, though we expect the number will increase through time as the density of grizzly bears increases in the Yellowstone analysis area. The following approach recognizes both the uncertainty and the expectation for increasing conflicts associated with livestock grazing in the Yellowstone analysis area. We are not intending to limit the activities necessary to manage grizzly bears in the Yellowstone analysis area by implementing this approach, but instead are intending to provide a reasonable estimate of what we expect could happen over the next decade.

The number of grizzly bear-livestock conflicts have increased from 0 in 2010 to a high of 30 in 2018, with numbers varying in between for the remaining years. As a result of grizzly bear-livestock conflicts, management removal of grizzly bears has occurred 4 times between 2015 and 2020 (none were removed between 2010 through 2014) and 5 grizzly bear mortalities related to self-defense (riders/herders) have occurred between 2013 and 2020 (no self-defense mortalities related to livestock occurred prior to 2013). This increase in conflicts over time is not due to an increase in livestock numbers or allotments but mainly due to a growing and expanding grizzly bear population. We expect the population will continue to grow and expand, though the rate of growth may slow within the Yellowstone analysis area once it reaches saturation and filling all available territories. While we display the conflict data back through 2010, very few conflicts occurred and no management removals occurred until 2015. Only 1 grizzly bear management removal occurred in 2015 and no grizzly bear mortalities occurred in 2016. Thus, we have used conflict, removal, and self-defense mortality data for the 4-year period of 2017 (the year conflicts

began to increase considerably) through 2020 (year with most current data) to forecast anticipated management removals and grizzly bear mortalities associated with livestock grazing in the Yellowstone analysis area into the future (10 years) as that is most representative of the increasing geographic distribution of grizzly bears as well as the increasing number of grizzly bears.

On average, approximately 20 conflicts occurred per year over the 4-year period of 2017 through 2020 (noting that the number of conflicts varied from 13 to 30 in any given year). As a result of these conflicts, 3 grizzly bear management removals occurred during this same time-frame along with 4 grizzly bear mortalities related to self-defense from riders and herders for a total of 7 grizzly bear mortalities from 2017 through 2020. As grizzly bear numbers and distribution increases, these numbers may increase somewhat as well. In addition to the grizzly bear management removals that occurred, several attempts were made to trap and capture grizzly bears associated with livestock conflicts that were unsuccessful. The number of unsuccessful management capture attempts range from 1 to 5 in any given year, with an average of 2.5 unsuccessful capture attempts occurring per year between 2017 and 2020. Had these capture attempts been successful, it is unknown as to whether relocation or management removal of the offending grizzly bear would have occurred. However, it is reasonable to assume that had some of these attempts been successful, the number of grizzly bear management removals could be higher in some years.

We do not know exactly how many conflicts or management removals will occur in any given year in the future. Based on the known mortalities over the 4-year period from 2017 through 2020 (7) we would expect, on average, about 2 grizzly bear mortalities associated with livestock grazing in any given year. However, we also expect the rate of grizzly bear mortalities will continue to increase as the grizzly bear population and distribution increases in the Yellowstone analysis area and need to account for the potential capture attempts that were unsuccessful. As grizzly bears continue to increase in density and distribution in Montana, relocation of grizzly bears is less common than removal. To account for the potential higher number of management removals (based on unsuccessful captures) and the likelihood of an increase in conflicts as grizzly bear numbers and distribution increases, we will include 1 additional grizzly bear per year to the expected amount of management removals in the future (based on the minimum number of unsuccessful management capture attempts in any given year between 2017 and 2020).

Management removal of grizzly bears or self-defense grizzly bear mortalities may not occur every year and in some years multiple management removals and/or self-defense grizzly bear mortalities may occur. For example, no grizzly bear management removals or self-defense grizzly bear mortalities occurred in 2016 and only 1 grizzly bear management removal occurred in 2015 and 2019. However, 1 grizzly bear management removal and 1 self-defense grizzly bear mortality occurred in both 2017 and 2018 (2 total grizzly bear mortalities each year) and 2 self-defense grizzly bear mortalities occurred in 2020.

Because we expect the number of grizzly bear mortalities to be higher in some years and lower in others, it does not make sense to address incidental take with specific annual numbers. Thus, to account for differences between years, we use a rolling window to measure the amount of

incidental take of grizzly bears expected associated with livestock grazing in the Yellowstone analysis area. We use the amount of grizzly bear management removals and self-defense mortalities that occurred between 2017 and 2020 to anticipate the amount of grizzly bear mortality likely to occur in the future. As described above, we will also add 1 grizzly bear mortality to each year to account for the potential higher number of management removals (due to unsuccessful captures) and the likelihood of an increase in conflicts as grizzly bear numbers and distribution increases. For the 4-year period of 2017 through 2020, 3 management removals of grizzly bears and 4 self-defense grizzly bear mortalities occurred for a total of 7 grizzly bear mortalities. Using these numbers and then adding 1 additional grizzly bear per year, we would expect no more than 11 grizzly bear mortalities associated with livestock grazing in the Yellowstone analysis area over any given 4-year period. This amount represents our surrogate measure for incidental take of grizzly bears in the form of harm through habituation and/or modification of natural feeding behavior associated with livestock grazing in the Yellowstone analysis area. The Service believes this level of incidental take in the form of harm is proportional to the management actions taken or attempted when the permitted grazing or associated activities are reasonably believed to have contributed to the injury or death of the grizzly bear (e.g., direct connection to grazing, such as the management of bear depredating livestock, or indirect connection to grazing, such as a bear killed in defense of life by herders or riders).

Tracking of grizzly bear mortalities would begin with the most-recent 4-year period from issuance of this biological opinion and would then be tracked on a sliding scale. For example, tracking for 2021 would reflect the most recent 4 years of mortality data associated with livestock grazing including the years 2018, 2019, 2020, and 2021; tracking for 2022 would include the years 2019, 2020, 2021, and 2022; tracking for 2023 would include the years 2020, 2021, 2022, and 2023; and so on until 2031.

In summary, should more than 11 grizzly bears be removed from the Yellowstone analysis area related to livestock grazing during any given 4-year period over the next 10 years, through the end of 2031, then the level of incidental take we anticipate would be exceeded and therefore the level of take exempted would be exceeded. Under CFR 402.16 (1), in this scenario, reinitiation of consultation would be required. Additionally, should the level of incidental take associated with livestock grazing reach, but not exceed, the anticipated incidental take level, the Forest should informally consult with the Service regarding the adequacy of existing mechanisms to minimize potential take.

Effect of the take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species. The amount of incidental take described above is low. Much of the Yellowstone analysis area occurs outside of the recovery zone. As detailed in this opinion, and according to the 1993 recovery plan (U.S. Fish and Wildlife Service 1993), lands outside of the recovery zones are not considered biologically essential to recovery of the species. Further, considering the grizzly bear recovery strategies (U.S. Fish and Wildlife Service et al. 2016; U.S. Fish and Wildlife Service 1993) and the size, status, and distribution of the YGBE grizzly bear population, incidental take of grizzly bears in the Yellowstone analysis area

would not affect the recovery of the YGBE grizzly bear population. The continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area implements several measures that would sufficiently minimize impacts to grizzly bears.

Reasonable and Prudent Measures

Biological opinions provide reasonable and prudent measures that are expected to reduce the amount of incidental take. Reasonable and prudent measures are those measures necessary and appropriate to minimize incidental take resulting from proposed actions. Reasonable and prudent measures are nondiscretionary and must be implemented by the agency in order for the exemption in section 7(o)(2) to apply. The Service believes that continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area adequately reduces the potential for and minimizes the effect of incidental take of grizzly bears. The conservation measures and information and education requirements are described in the amended biological assessment, which is incorporated by reference (U.S. Forest Service 2020). They are also provided in Appendix A of this biological opinion. These measures serve to minimize the potential for incidental take of grizzly bears related to livestock grazing in the Yellowstone analysis area. No additional reasonable and prudent measures are necessary to minimize the impacts of incidental take of grizzly bears.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Forest must comply with terms and conditions that implement the reasonable and prudent measures. As explained above, measures to be implemented under the continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area will reduce the potential for and minimize the effect of incidental take. Since no reasonable and prudent measures were necessary to minimize the impacts of incidental take of grizzly bears, no terms and conditions are necessary with the exception of the reporting requirements outlined below.

Reporting requirements

To demonstrate that the continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area is adequately reducing the potential for and minimizing the effect of any incidental take that may result, the Forest shall complete a report with the information listed below and submit it to the Service's Montana Field Office in combination with the reporting requirements associated with the 2009 Revised Forest Plan, which is due to the Service's Montana Field Office by March 1 of each year for the preceding calendar year. The report shall include an up-to-date record of grizzly bear-human conflicts, grizzly bear management removals, and grizzly bear mortalities related to defense of life associated with livestock grazing activities. The report shall be structured by calendar year. In addition, notify the Service's Montana Ecological Services Office, within 72 hours of any grizzly bear mortalities associated with livestock grazing in the Yellowstone analysis area.

Closing Statement

The Service is unable to precisely quantify the amount of harm to grizzly bears associated with the continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area. Therefore, we use a surrogate measure for the amount of incidental take we anticipate. In our surrogate measure of incidental take of grizzly bears, we anticipate that no more than 11 grizzly bear mortalities will occur associated with livestock grazing (including management removals and defense of life mortalities) within the Yellowstone analysis area over any given 4-year period through the end of the year 2031.

We determined that measures to be implemented under the continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area adequately reduce the potential for and minimize the effect of any incidental take that may result. Therefore, reasonable and prudent measures, with their implementing terms and conditions, were not provided. However, reporting requirements were included in order to demonstrate that continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area is adequately reducing the potential for and minimizing the effect of any incidental take that may result. If, during the course of the action, the level of take occurring exceeds that anticipated in this incidental take statement, such incidental take represents new information requiring reinitiation of consultation and review of the incidental take statement. The Forest must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Sections 7(a)(1) of the Act directs federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans or to develop information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for the species.

1) Continue to manage access on the Forest to achieve lower road densities. By managing motorized access, several grizzly bear management objectives could be met including: (1) minimizing human interaction and potential grizzly bear mortality; (2) minimizing displacement from important habitats; (3) minimizing habituation to humans; and (4) providing relatively secure habitat where energetic requirements can be met (Interagency Grizzly Bear Committee 1998). Additionally, lower road densities would also benefit other wildlife and public resources.

2) Motorized access management is only one of several factors influencing grizzly bear habitat and grizzly bear security. The presence of attractants is a major factor leading to the food conditioning and habituation, and the eventual direct mortality or management removal of grizzly bears. The Service supports the Forest's continued efforts to manage

food storage. Management of garbage, food and livestock feed storage, to prevent access to bears, benefits grizzly bears as well as black bears and other carnivores. Human-carnivore interactions would also be reduced, leading to a public safety benefit.

3) Grizzly bears concentrate in certain areas during specific time periods to take advantage of concentrated food sources or because the area provides a high seasonal food value due to diversity in vegetation and plant phenology (e.g., important spring for fall range). Where grizzly bear use is known or likely to occur and where practicable, delay disturbing activities during the spring in spring habitats to minimize displacement of grizzly bears.

4) Participate in ongoing interagency efforts to identify, map, and manage linkage habitats essential to grizzly bear movement between ecosystems. Please contact the Service's grizzly bear recovery coordinator at (406) 243-4903 or Montana Fish, Wildlife and Parks for information.

REINITIATION NOTICE

This concludes consultation on the effects of continued livestock grazing under the 2009 Revised Forest Plan within the Yellowstone analysis area on grizzly bears. As provided in 50 C.F.R. § 402.16, reinitiation of consultation is required and shall be requested by the federal agency or by the Service where discretionary federal involvement or control over the action has been retained or is authorized by law and: (1) if the amount or extent of taking specified in the incidental take statement is exceeded; (2) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action.

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Appendix A

The following conservation measures and recommendations relative to livestock grazing are designed to minimize grizzly bear--livestock and grizzly bear-human conflicts, reducing the overall incidence of adverse effects on grizzly bear. Conservation measures from the 2010 biological assessment (included in the 2012 biological assessment as an appendix) that are still appropriate and effective were brought forward into the measures below along with the inclusion of additional measures that have been ongoing in the Yellowstone analysis area but not previously stated. The measures below were taken directly from the amended biological assessment (U.S. Forest Service 2020).

1) All livestock depredation is reported to USDA Wildlife Services, Montana Fish, Wildlife and Parks Bear Management, and the Forest Service.
2) Livestock depredations will be investigated and managed by Montana Fish, Wildlife and Parks or its authorized agent (USDA Wildlife Services, see explanation below) following Interagency Nuisance Bear Guidelines (U.S. Fish and Wildlife Service et al. 1986, pp. 51-70).
3) Forest-wide Food Storage Order is required for all operations.
4) All dead livestock deemed to be a human health or safety hazard following distances in the Forest-wide Food Storage Order will be moved when the area is deemed safe for entry. When it is not reasonable or necessary to move dead livestock, permittees will promptly report carcass locations to the Forest Service and the Forest Service will work with the permittee to jointly determine the appropriate action.
5) Herders and riders will continue to watch livestock closely for sick, injured, or stray animals.
6) The Forest Service will continue to provide information to livestock grazing permittees and their employees about conservation of grizzly bears, the potential occurrence of grizzly bears on grazing allotments, the risks of working in bear country, the need for heightened awareness of bears, appropriate personal safety measures, and proper behavior in bear country.
7) Permittees and the Forest Service will continue to work in cooperation with Montana Fish, Wildlife and Parks, USDA Wildlife Services, and the Interagency Grizzly Bear Study Team to identify and collect information related to the habitat use, survival, reproduction, and depredation tendencies of grizzly bears inhabiting livestock grazing allotments in the action area.
8) Permittees and the Forest Service will continue to identify and implement opportunities that reduce the potential for grizzly bear conflicts. Permittees may be provided opportunityto change/move pastures to avoid conflict with large carnivores.
9) It is recommended that all permittees and their representatives (herders, riders, or other employees) carry bear spray while working within allotments. Spray canisters should be holstered or otherwise carried so that they are available for use in the event of encounters with bears. Storing spray canisters in back packs, saddle bags, and vehicles are acceptable methods of storage during non-working time periods.
10) During the annual operating instruction meetings with permittees - discussion with permittees will include the possible risks of running livestock and working in grizzly bear country, regulations concerning the taking of grizzly bears, and employee training on grizzly

bear awareness and procedures. Forest staff can provide training information as requested by the permittee.

a) Employee training will include:
    i) The status of the grizzly bear
    ii) Grizzly bear behavior
    iii) Human behavior in bear country to minimize conflicts
    iv) Food Storage order requirements – including carcass handling and disposal
    v) Encounter procedures and use of bear spray
    vi) Bear activity reporting, including encounters, livestock deaths and actions taken relative to carcass disposal/removal, suspected depredation by grizzly bears, and existing or potential bear conflict situations
    vii) Management of cow/sheep camps, facilities, and corral areas

Montana Fish, Wildlife and Parks has a statewide legal memorandum of understanding (MOU) with USDA/APHIS – Wildlife Services (WS) that makes WS the lead investigators on wildlife-caused livestock depredations and predator control. For livestock producers incurring depredation losses due to grizzly bears, WS field specialists must verify the loss as a confirmed or probable depredation for the producer to be reimbursed for the livestock loss by the state Livestock Loss Board. In consultation with Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service, WS may attempt capture or removal of an offending bear(s). If WS captures a grizzly bear, Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service determine the fate of the bear and Montana Fish, Wildlife and Parks conducts those management actions.