

Summary of verified grizzly bear occurrences in the vicinity of the Strawberry-Cascade allotment management area, Beaverhead-Deerlodge National Forest

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The proposed project involves an assessment of sheep grazing allotments located on the Beaverhead-Deerlodge National Forest, approximately 36 km south of Virginia City, Montana. The Strawberry-Cascade allotment management area is approximately 238 km² (58,892 acres). We used the average lifetime activity radius for male grizzly bears in the Greater Yellowstone Ecosystem (GYE; 24 km) to define the analysis area associated with the combined allotments project site¹. The 24-km buffer was applied to the allotment area and the sheep trailing route used to access the allotments. The project area and the 24-km buffer area are outside the Grizzly Bear Recovery Zone but overlap the boundary of the Yellowstone Demographic Monitoring Area (Fig. 1), the area within which demographic criteria (i.e., population size, trend, mortalities, reproduction) for Yellowstone grizzly bears are monitored and evaluated by the Interagency Grizzly Bear Study Team (IGBST). In this report, all available aerial and ground-based grizzly bear observations and location data of radio-marked bears from IGBST databases were summarized to assess grizzly bear occurrence within the vicinity of the project areas for the 19-year period 2000–2018. Occurrences are summarized for the following data categories: 1) grizzly bear observations, 2) radio-marked bear locations and den sites, 3) grizzly bear captures 4) grizzly bear mortalities, and 5) human-grizzly bear conflicts.

Observations of solitary grizzly bears and adult females with young

Verified grizzly bear observations are documented throughout the ecosystem and consist of ground-based and aerial sightings. Typically, these sightings lack information on sex of individuals unless the observed bear is accompanied by young. For that reason, females with young are distinguished from solitary bears of unknown sex. During the period 2000–2018, 53 observations of solitary bears and 41 females with dependent young were documented within the analysis area associated with the Strawberry-Cascade allotments (Fig. 1).

Radio-marked grizzly bear locations

Radio-marked grizzly bear locations were derived from a sample of subadult and adult grizzly bears fitted with radio collars (VHF and GPS) for research and management purposes. A total of 1961 telemetry locations from 44 individual grizzly bears occurred inside the analysis area associated with the Strawberry-Cascade allotments during 2000–2018. The 44 individual bears consisted of 10 females (4 with young, 3 lone adults, and 3 subadults), and 34 males (25 adults, 9 subadults). Six of the radio-marked grizzly bears were known to have denned inside the analysis area ($n = 11$ occasions; Fig. 2).

¹ The lifetime activity radius is the average estimated range that a male grizzly bear uses over a lifetime of monitoring. It is based on the 80th percentile of distances from all VHF telemetry locations per bear to their center of activity. This percentile was calculated for all males with VHF locations and then averaged via arithmetic mean.

Grizzly bear captures

There were 22 grizzly bear captures of 18 individuals (4 females, 13 males, 1 of unknown sex) inside the analysis area during 2000–2018 (Fig. 3). Of the 22 captures, 7 (1 management, 6 research) were female (2 lone adult, 1 with young, 1 subadult) with 1 female being captured on 2 different occasions and another being captured on 3 different occasions. Of the 14 captures of males involving 13 individuals (9 adult, 4 subadult), 11 were for research purposes and 3 were management captures, with 1 adult being captured on 2 different occasions. The 1 capture of unknown sex was for management purposes.

Grizzly bear mortalities

Fourteen grizzly bear mortalities (3 female, 11 male) occurred inside the analysis area during 2000–2018 (Fig. 3). The 3 mortalities of females included 2 with dependent young and 1 lone adult. The 11 mortalities of males included 8 adults and 3 subadults. All mortalities were human-caused; 9 were hunting related and 5 were due to livestock depredation.

Grizzly bear conflicts

Ninety-eight grizzly bear conflicts were reported inside the analysis area during 2000–2018 (Table 1; Fig. 3). Conflict incidences consisted of nuisance activity associated with anthropogenic food rewards ($n = 3$), property damage ($n = 1$), cattle ($n = 73$), sheep ($n = 3$), other causes ($n = 24$), and human injury ($n = 5$).

Table 1. Grizzly bear conflicts inside the analysis area associated with the Strawberry-Cascade allotments, Beaverhead-Deerlodge National Forest, 2000–2018.	
Year	Number of conflicts
2001	2
2004	1
2007	1
2010	2
2011	3
2012	2
2013	6
2014	4
2015	11
2016	7
2017	23
2018	36

Summary

Grizzly bears of both sexes and all age classes were documented within the analysis area encompassing the Strawberry-Cascade allotments and a 24-km buffer area during 2000-2018. Grizzly bears occurred in the analysis area during all seasons. Grizzly bear location data indicate the proposed sites are located within the home ranges of numerous individual male and female grizzly bears of all age classes. Collectively, these data indicate a trend of increasing occurrence of grizzly bears in the area over the past 19 years, resulting in more conflicts due to livestock depredation. If more grizzly bears move into the area, human-grizzly bear encounters may increase as grizzly bears continue to expand their range into suitable habitats within the GYE.

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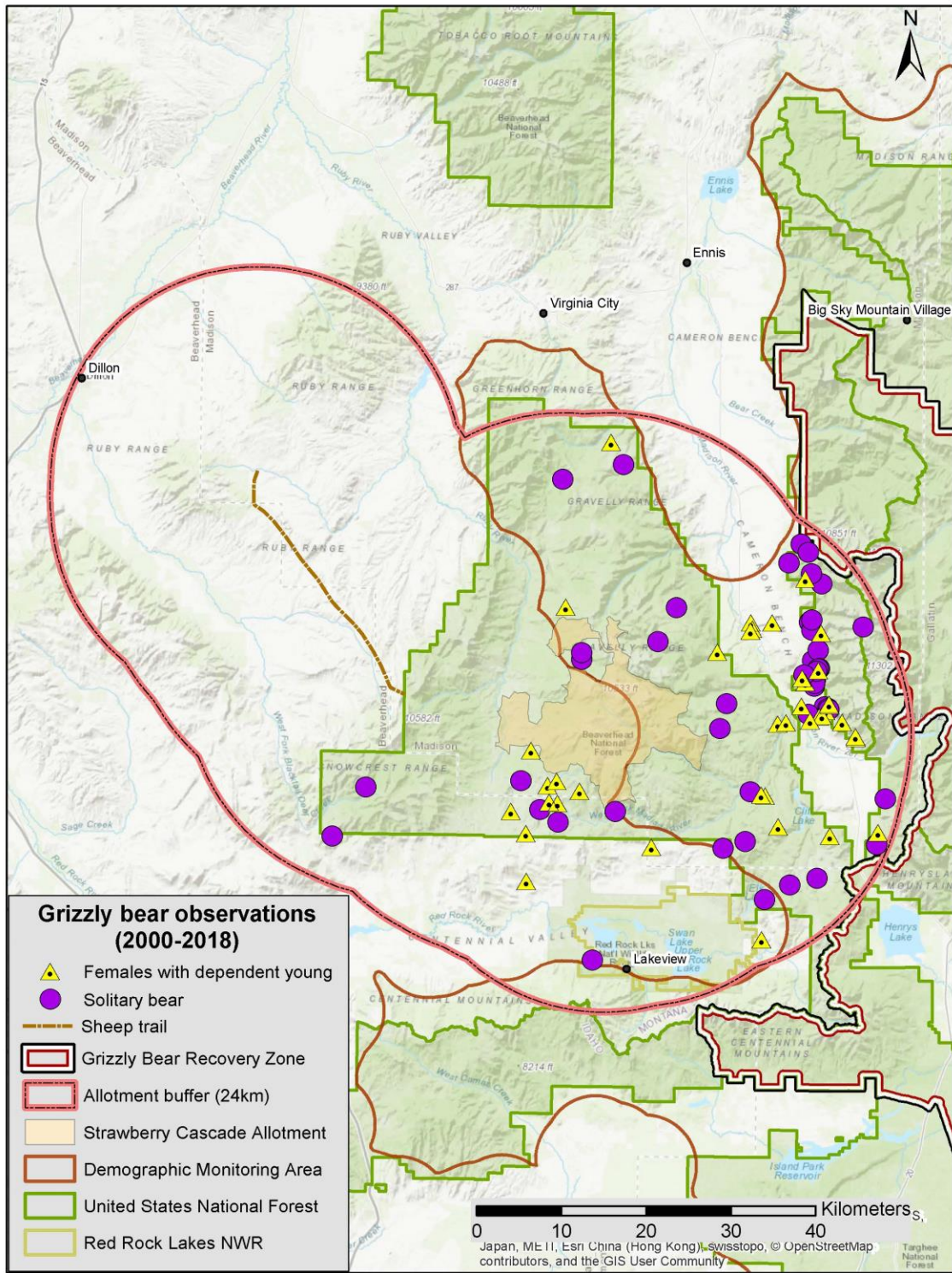


Fig. 1. Observations of female grizzly bears with dependent young and solitary grizzly bears inside the analysis area (includes 24-km buffer area) associated with the Strawberry-Cascade allotments, Beaverhead-Deerlodge National Forest, 2000–2018.

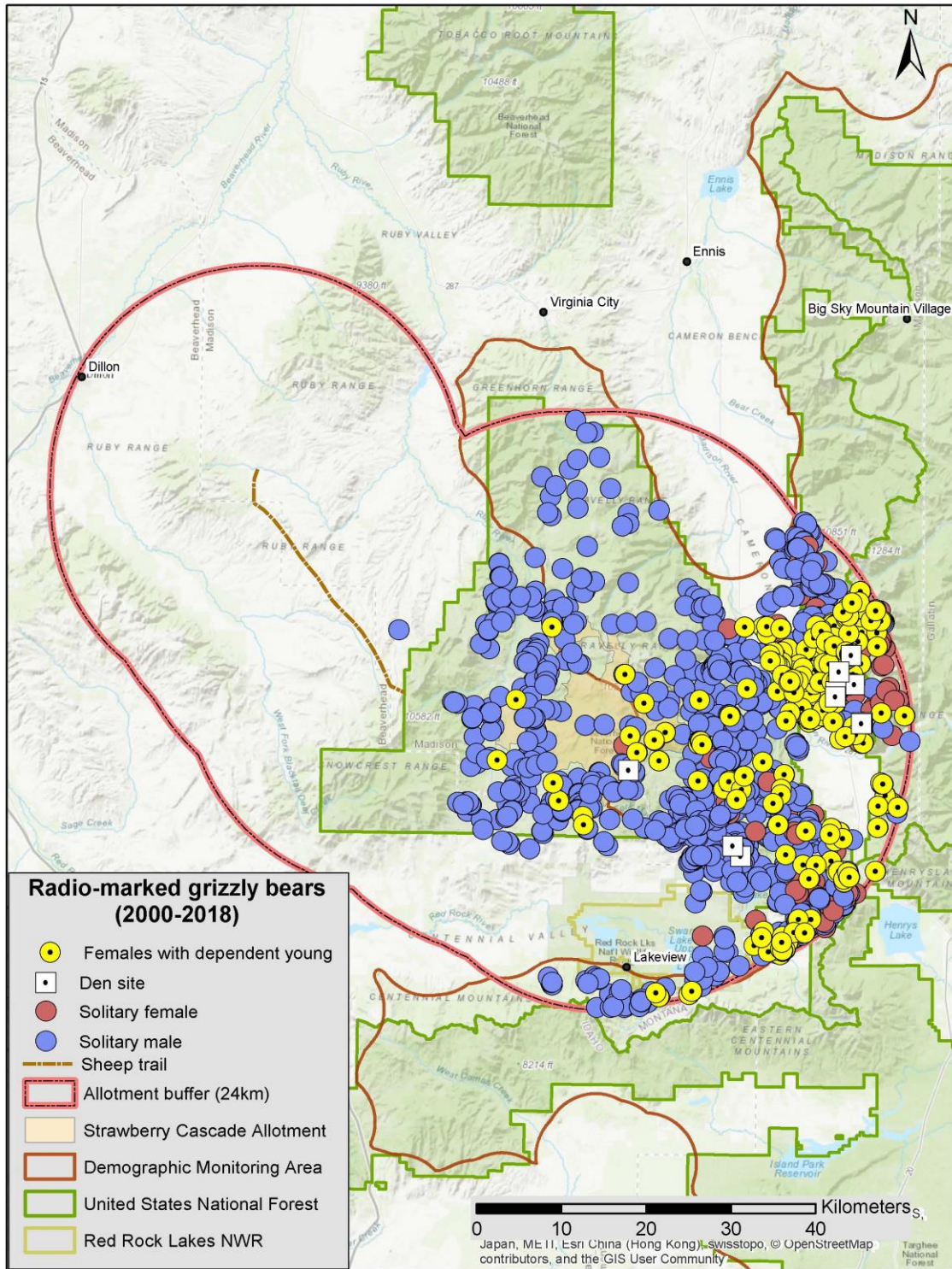


Fig. 2. Telemetry locations and known den sites of radio-marked grizzly bears inside the analysis area (includes 24-km buffer area) associated with the Strawberry-Cascade allotments, Beaverhead-Deerlodge National Forest, 2000–2018.

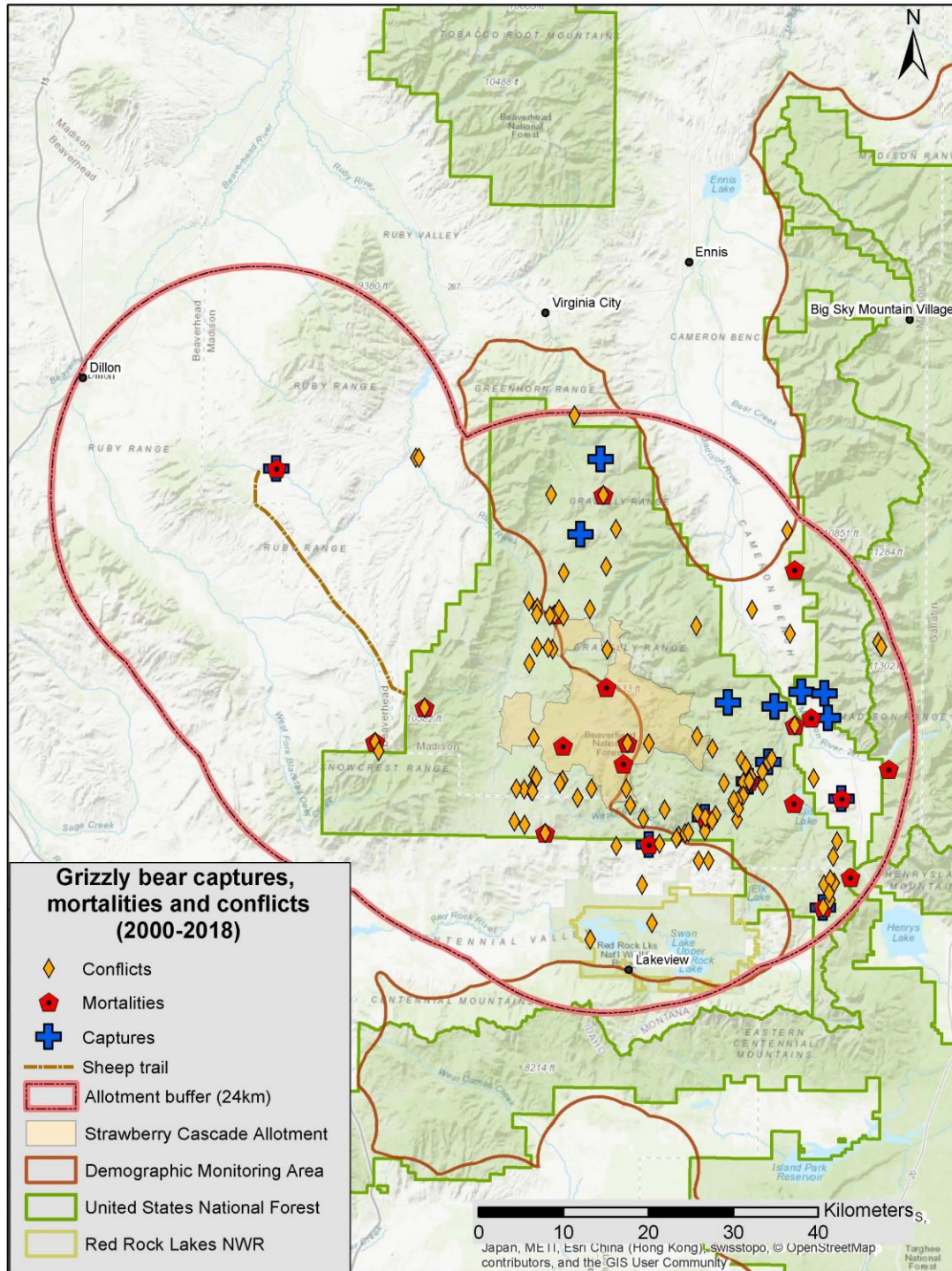


Fig. 3. Grizzly bear captures, mortalities, and conflict locations inside the analysis area (includes 24-km buffer area) associated with the Strawberry-Cascade allotments, Beaverhead-Deerlodge National Forest, 2000–2018.