

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

The 1998 baseline represents the most approximate estimate of the habitat standards within the PCA as of 1998. That estimate relied on the best data available of what was known to be on the ground at the time. Baseline data establish a set of information against which future improvements and /or impacts can be assessed. As new information is available, the database will be adjusted and will serve as a tracking system for monitoring improvements and evaluating habitat conditions and the need for mitigation measures in the future. Any feature(s) not included in this 1998 baseline will be reviewed to determine its status in 1998. If the feature was present in 1998, it will be added to the baseline tables or maps, otherwise the feature will be subject to the standards and Application Rules identified in this document.

BMU/Subunit Information within the PCA

Within the PCA there are 18 bear management units (BMUs) and 40 BMU subunits, totaling 5,894,00 acres (Figure 118 and Figure 120). The major land management agencies include six national forests and two national parks.

Secure Habitat and Motorized Access Route Density within the PCA for each BMU Subunit

Using GIS databases created by each administrative unit, the percent secure habitat, open motorized access route density > 1 mile per square mile, and total motorized access route density > 2 miles/square mile were estimated as of 1998 for each BMU subunit (Figure 119). OMARD is evaluated for each of two seasons, as access routes may be restricted in one season and not another. TMARD and secure habitat are single values by definition and do not vary by season. The contribution of private roads and state and county highways was also evaluated for each BMU subunit (Figure 121). These values represent a minimum percent for OMARD and TMARD, and a maximum percent for secure habitat even if all motorized access features administered by the land management agencies were obliterated or decommissioned on public lands. A standardized program (AML) that runs in the ARC/INFO software environment was used to make the calculations. The buffer command in ARC/INFO is used to buffer all relevant motorized access features by 500 meters. The area outside of this buffer is secure habitat. (For this analysis, areas open to OHV [off-highway vehicle] use were also excluded.) Motorized access route density is calculated using a moving windows process with 30-meter cells and a one-mile square window.

Figure 118. General BMU subunit information (thousands of acres) inside the PCA.

Subunit name	BMU #	Acres	Land management agencies
Bechler/Teton	18	341.8	Caribou-Targhee NF, Yellowstone NP, Grand Teton NP
Boulder/Slough #1	4	180.5	Custer NF, Gallatin NF
Boulder/Slough #2	4	148.5	Custer NF, Gallatin NF, Yellowstone NP
Buffalo/Spread Creek #1	17	142.1	Bridger-Teton NF, Grand Teton NP
Buffalo/Spread Creek #2	17	325.1	Bridger-Teton NF
Crandall/Sunlight #1	6	83.2	Gallatin NF, Shoshone NF
Crandall/Sunlight #2	6	202.2	Gallatin NF, Shoshone NF
Crandall/Sunlight #3	6	142.1	Shoshone NF
Firehole/Hayden #1	10	217.0	Yellowstone NP
Firehole/Hayden #2	10	113.3	Yellowstone NP
Gallatin #1	2	81.9	Yellowstone NP
Gallatin #2	2	99.2	Yellowstone NP
Gallatin #3	2	139.5	Gallatin NF

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Subunit name	BMU #	Acres	Land management agencies
Hellroaring/Bear #1	3	118.4	Gallatin NF, Yellowstone NP
Hellroaring/Bear #2	3	146.6	Gallatin NF, Yellowstone NP
Henrys Lake #1	12	128.6	Caribou-Targhee NF
Henrys Lake #2	12	97.9	Caribou-Targhee NF, Gallatin NF
Hilgard #1	1	128.6	Beaverhead-Deerlodge NF, Gallatin NF
Hilgard #2	1	90.2	Beaverhead-Deerlodge NF, Gallatin NF
Lamar #1	5	192.0	Custer NF, Yellowstone NP
Lamar #2	5	115.8	Yellowstone NP
Madison #1	11	145.3	Beaverhead-Deerlodge NF, Gallatin NF
Madison #2	11	100.5	Gallatin NF
Pelican/Clear #1	8	69.1	Yellowstone NP
Pelican/Clear #2	8	164.5	Yellowstone NP
Plateau #1	13	183.0	Caribou-Targhee NF, Gallatin NF, Yellowstone NP
Plateau #2	13	268.8	Caribou-Targhee NF, Yellowstone NP
Shoshone #1	7	78.1	Shoshone NF
Shoshone #2	7	84.5	Shoshone NF
Shoshone #3	7	90.2	Shoshone NF
Shoshone #4	7	121.0	Shoshone NF
South Absaroka #1	16	104.3	Shoshone NF
South Absaroka #2	16	122.2	Shoshone NF
South Absaroka #3	16	222.7	Shoshone NF
Thorofare #1	15	175.4	Bridger-Teton NF, Yellowstone NP
Thorofare #2	15	115.2	Bridger-Teton NF, Yellowstone NP
Two Ocean/Lake #1	14	310.4	Bridger-Teton NF, Yellowstone NP
Two Ocean/Lake #2	14	91.5	Bridger-Teton NF, Yellowstone NP
Washburn #1	9	113.9	Yellowstone NP
Washburn #2	9	92.2	Yellowstone NP

Figure 119. The 1998 baseline values for secure habitat, OMARD >1 mile per square mile, and TMARD >2 miles per square mile for 40 BMU subunits in the GYA. Includes USFS, BLM, state, county, and private motorized access routes. Size is shown in thousands of acres¹.

Subunit name	BMU #	OMARD % > 1 mi/sq mi		TMARD % >2 mi/sq mi	% secure habitat ²	Size
		S1	S2			
Bechler/Teton	18	12.7	12.7	4.7	78.1	341.8
Boulder/Slough #1	4	2.2	2.2	0.1	96.6	180.5
Boulder/Slough #2	4	1.0	1.0	0	97.7	148.5
Buffalo/Spread Creek #1	17	10.1	10.2	4.1	88.3	142.1 (140.8)
Buffalo/Spread Creek #2	17	13.3	14.5	10.4	74.3	325.1
Crandall/Sunlight #1	6	11.9	16.2	4.0	81.1	83.2
Crandall/Sunlight #2	6	13.6	14.6	8.9	82.3	202.2
Crandall/Sunlight #3	6	12.8	16.6	8.2	80.4	142.1
Firehole/Hayden #1	10	6.3	6.3	1.2	88.4	217.0
Firehole/Hayden #2	10	6.3	6.3	0.9	88.4	113.3
Gallatin #1	2	1.6	1.6	0.1	96.3	81.9
Gallatin #2	2	7.8	7.8	3.8	90.2	99.2
Gallatin #3	2	41.5	42.5	16.9	55.3	139.5
Hellroaring/Bear #1	3	20.8	21.5	13.5	77.0	118.4
Hellroaring/Bear #2	3	0.6	0.6	0.2	99.5	146.6
Henrys Lake #1	12	44.7	44.7	25.9	45.4	128.6 (122.2)
Henrys Lake #2	12	46.1	46.1	28.1	45.7	97.9 (89.6)
Hilgard #1	1	25.1	25.1	12.5	69.8	128.6
Hilgard #2	1	16.0	16.0	10.3	71.5	90.2
Lamar #1	5	7.0	7.0	3.3	89.4	192.0
Lamar #2	5	0	0	0	100	115.8
Madison #1	11	24.2	24.5	10.2	71.5	145.3
Madison #2	11	31.7	31.7	22.3	66.5	100.5 (95.4)

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Subunit name	BMU #	OMARD % > 1 mi/sq mi		TMARD % >2 mi/sq mi	% secure habitat ²	Size
		S1	S2			
Pelican/Clear #1	8	1.3	1.3	0.4	97.8	69.1
Pelican/Clear #2	8	3.0	3.0	0.2	94.1	164.5
Plateau #1	13	19.0	19.2	9.8	68.9	183.0
Plateau #2	13	6.1	6.1	2.4	88.7	268.8
Shoshone #1	7	1.5	1.5	0.9	98.5	78.1
Shoshone #2	7	1.1	1.1	0.4	98.8	84.5
Shoshone #3	7	3.4	3.4	1.3	97.0	90.2
Shoshone #4	7	3.9	4.6	2.0	94.9	121.0
South Absaroka #1	16	0.4	0.4	0	99.2	104.3
South Absaroka #2	16	0	0	0	99.9	122.2
South Absaroka #3	16	2.1	2.1	2.3	96.8	222.7
Thorofare #1	15	0	0	0	100	175.4
Thorofare #2	15	0	0	0	100	115.2
Two Ocean/Lake #1	14	1.8	1.8	0.1	96.3	310.4 (238.1)
Two Ocean/Lake #2	14	0	0	0	100	91.5 (80.0)
Washburn #1	9	12.4	12.4	2.9	83.0	113.9
Washburn#2	9	3.6	3.6	0.7	92.0	92.2
Mean for PCA/total acres		10.4	10.7	5.3	85.6	5,893.8 (5,782.4)

¹ Lakes >1 mile in size were removed from subunit totals, OMARD, TMARD, and secure habitat calculations. Numbers in parentheses are acres of subunit without these lakes.

² Percent secure habitat was rounded to the nearest whole percent for showing BMU subunits that are below 70 percent (Figure 120).

Figure 120. BMU subunits.

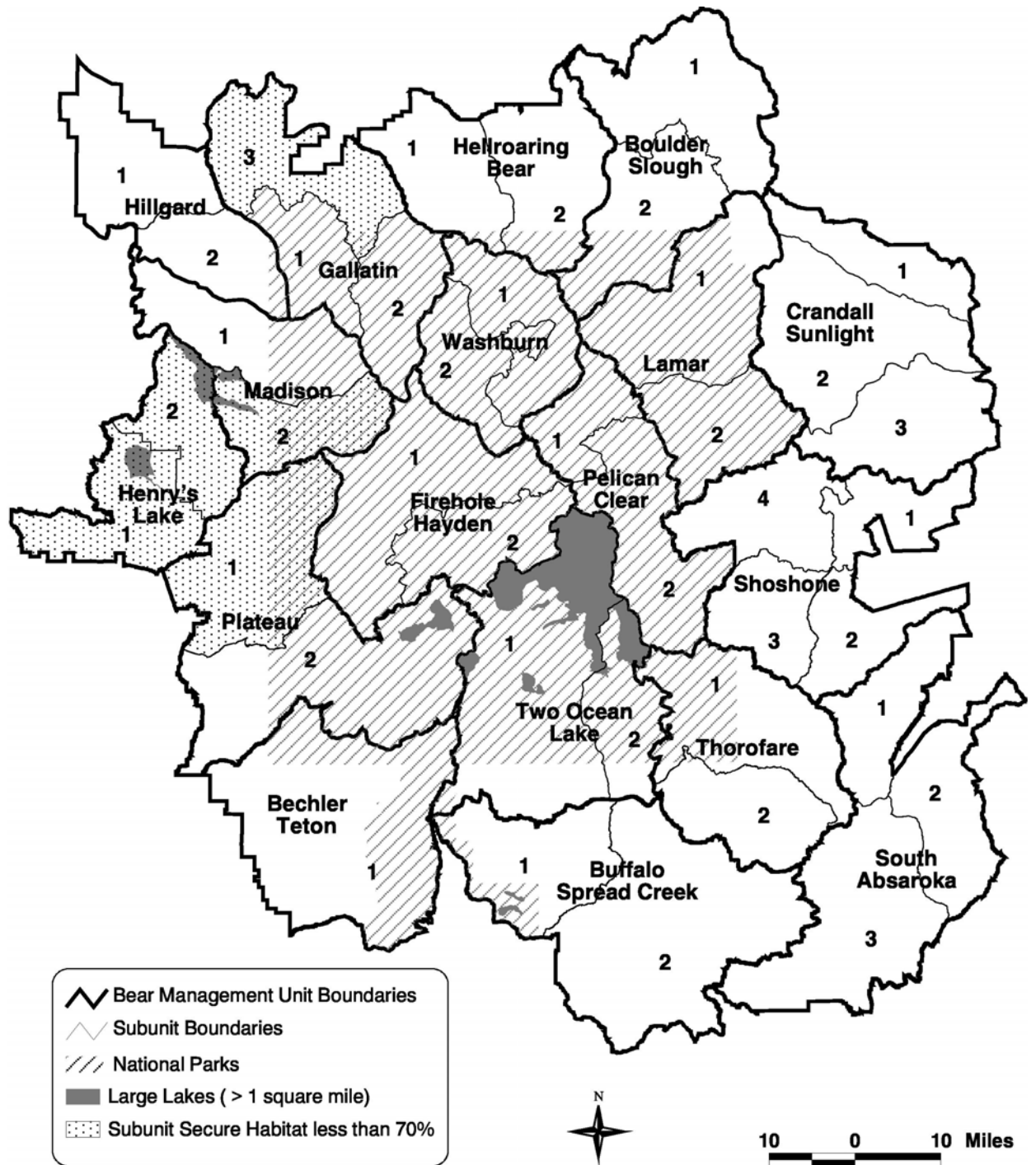


Figure 121. The 1998 baseline values for secure habitat, OMARD >1 mile per square mile, and TMARD >2 miles per square mile for 40 BMU subunits in the GYA. Includes only private roads and state and county highways². Size is shown in thousands of acres^{1,2}.

Subunit name	BMU #	OMARD % > 1 mi/sq mi		TMARD % >2 mi/sq mi	% secure habitat ²	Size
		S1	S2			
Bechler/Teton	18	0	0	0	99	341.8
Boulder/Slough #1	4	2	2	0	97	180.5
Boulder/Slough #2	4	0	0	0	100	148.5
Buffalo/Spread Creek #1	17	0	0	0	99	142.1 (140.8)
Buffalo/Spread Creek #2	17	2	2	0	95	325.1
Crandall/Sunlight #1	6	6	6	1	92	83.2
Crandall/Sunlight #2	6	8	8	1	89	202.2
Crandall/Sunlight #3	6	5	5	1	93	142.1
Firehole/Hayden #1	10	0	0	0	100	217.0
Firehole/Hayden #2	10	0	0	0	100	113.3
Gallatin #1	2	0	0	0	99	81.9
Gallatin #2	2	1	1	0	99	99.2
Gallatin #3	2	16	16	8	81	139.5
Hellroaring/Bear #1	3	9	9	4	91	118.4
Hellroaring/Bear #2	3	0	0	0	100	146.6
Henrys Lake #1	12	31	31	16	67	128.6 (122.2)
Henrys Lake #2	12	14	14	7	85	97.9 (89.6)
Hilgard #1	1	6	6	2	91	128.6
Hilgard #2	1	2	2	3	92	90.2
Lamar #1	5	2	2	1	97	192.0
Lamar #2	5	0	0	0	100	115.8
Madison #1	11	6	6	3	94	145.3
Madison #2	11	8	8	4	90	100.5 (95.4)

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Subunit name	BMU #	OMARD % > 1 mi/sq mi		TMARD % >2 mi/sq mi	% secure habitat ²	Size
		S1	S2			
Pelican/Clear #1	8	0	0	0	100	69.1
Pelican/Clear #2	8	0	0	0	100	164.5
Plateau #1	13	2	2	1	95	183.0
Plateau #2	13	0	0	0	99	268.8
Shoshone #1	7	1	1	0	99	78.1
Shoshone #2	7	0	0	0	99	84.5
Shoshone #3	7	1	1	0	98	90.2
Shoshone #4	7	1	1	0	96	121.0
South Absaroka #1	16	0	0	0	99	104.3
South Absaroka #2	16	0	0	0	100	122.2
South Absaroka #3	16	0	0	0	100	222.7
Thorofare #1	15	0	0	0	100	175.4
Thorofare #2	15	0	0	0	100	115.2
Two Ocean/Lake #1	14	0	0	0	100	310.4 (238.1)
Two Ocean/Lake #2	14	0	0	0	100	91.5 (80.0)
Washburn #1	9	0	0	0	100	113.9
Washburn#2	9	0	0	0	100	92.2
Mean for PCA/total acres		3	3	1.3	96	5,893.8 (5,782.4)

¹ Lakes >1 square mile in size were removed from subunit totals, OMARD, TMARD, and secure habitat calculations. Numbers in parentheses are acres of subunit without these lakes.

² These motorized features are not subject to management under this proposal and the values in this table represent a minimum percent for OMARD and TMARD, and a maximum percent for secure habitat even if all motorized access features administered by the land management agencies were obliterated or decommissioned on public lands.

Figure 122. Acres (in thousands) and national forest/national park overlap when applying the 1 percent rule¹.

BMU #	Largest BMU subunit	1% rule acres ²	National forests within the entire BMU	National parks within the entire BMU
18	Bechler/Teton #1	3.4	Targhee	Yellowstone, Grand Teton
4	Boulder/Slough #1	1.8	Custer, Gallatin	Yellowstone
17	Buffalo/Spread Creek #2	3.3	Bridger-Teton	Grand Teton
6	Crandall/Sunlight #2	2.0	Gallatin, Shoshone	
10	Firehole/Hayden #1	2.2		Yellowstone
2	Gallatin #3	1.4	Gallatin	Yellowstone
3	Hellroaring/Bear #2	1.5	Gallatin	Yellowstone
12	Henry's Lake #1	1.2	Gallatin, Targhee	
1	Hilgard #1	1.3	Beaverhead, Gallatin	Yellowstone
5	Lamar #1	1.9	Custer, Gallatin	Yellowstone
11	Madison #1	1.5	Gallatin	Yellowstone
8	Pelican/Clear #2	1.6		Yellowstone
13	Plateau #2	2.7	Gallatin, Targhee	Yellowstone
7	Shoshone #4	1.2	Shoshone	
16	South Absaroka #3	2.2	Shoshone	
15	Thorofare #1	1.2	Bridger-Teton	Yellowstone
14	Two Ocean/Lake #1	2.4	Bridger-Teton	Yellowstone, Grand Teton
9	Washburn #1	1.1		Yellowstone
PCA	Total 1% rule acres	34.4		
	Total 1% rule acres—BMUs with national parks only	4.9		
	Total 1% rule acres—BMUs with national forests only	6.6		
	Total 1% rule acres—BMUs with national forests plus national parks	22.9		

¹ The 1 percent rule is based on the size of the largest BMU subunit. When BMU boundaries include more than one national forest and/or national park, administrative units will need to coordinate to ensure that the 1 percent rule is not exceeded.

² Large lakes not included in 1 percent rule acre calculations.

Figure 123. Miles of OMAR to be closed to meet Standard for Alternatives 3 and 4 within the PCA.

Subunit name	Miles of OMAR within inventoried roadless areas to be closed in Alternatives 3 and 4	Additional miles of OMAR to be closed to meet minimum 70% secure	Total miles of OMAR to be closed
Bechler/Teton	2	0	2
Boulder/Slough #1	0	0	0
Boulder/Slough #2	0	0	0
Buffalo/Spread Creek #1	2	0	2
Buffalo/Spread Creek #2	19	0	19
Crandall/Sunlight #1	14	0	14
Crandall/Sunlight #2	8	0	8
Crandall/Sunlight #3	8	0	8
Firehole/Hayden #1	0	0	0
Firehole/Hayden #2	0	0	0
Gallatin #1	0	0	0
Gallatin #2	0	0	0
Gallatin #3	105		105
Hellroaring/Bear #1	15	0	15
Hellroaring/Bear #2	0	0	0
Henrys Lake #1	3	58.6	61.6
Henrys Lake #2	20	29.6	49.6
Hilgard #1	80	0	80
Hilgard #2	37	0	37
Lamar #1	6	0	6
Lamar #2	0	0	0
Madison #1	62	0	62
Madison #2	0	8.4	8.4
Pelican/Clear #1	0	0	0
Pelican/Clear #2	0	0	0
Plateau #1	7	0	7
Plateau #2	0	0	0
Shoshone #1	0	0	0

Subunit name	Miles of OMAR within inventoried roadless areas to be closed in Alternatives 3 and 4	Additional miles of OMAR to be closed to meet minimum 70% secure	Total miles of OMAR to be closed
Shoshone #2	0	0	0
Shoshone #3	0	0	0
Shoshone #4	1	0	1
South Absaroka #1	0	0	0
South Absaroka #2	0	0	0
South Absaroka #3	1	0	1
Thorofare #1	0	0	0
Thorofare #2	0	0	0
Two Ocean/Lake #1	0	0	0
Two Ocean/Lake #2	0	0	0
Washburn #1	0	0	0
Washburn #2	0	0	0
Total	390	96.6	486.6

Figure 124. Changes in acres (in thousands) of secure habitat to meet Standard 1 for Alternatives 3 and 4 within the PCA.

Subunit name	Existing acres of secure habitat	Increased acres of secure habitat when OMARs are closed in inventoried roadless areas	Additional acres of secure habitat needed to reach minimum 70% secure	Total acres of secure habitat for Alternatives 3 and 4
Bechler/Teton	266.9	3.0	0	269.9
Boulder/Slough #1	174.3	0.2	0	174.6
Boulder/Slough #2	145.1	0	0	145.1
Buffalo/Spread Creek #1	124.3	1.0	0	125.3
Buffalo/Spread Creek #2	241.4	10.2	0	251.7
Crandall/Sunlight #1	67.5	6.5	0	74.0
Crandall/Sunlight #2	166.4	5.6	0	172.1
Crandall/Sunlight #3	114.2	7.6	0	121.9
Firehole/Hayden #1	191.8	0	0	191.8
Firehole/Hayden #2	100.1	0	0	100.1
Gallatin #1	78.9	0	0	78.9

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Subunit name	Existing acres of secure habitat	Increased acres of secure habitat when OMARs are closed in inventoried roadless areas	Additional acres of secure habitat needed to reach minimum 70% secure	Total acres of secure habitat for Alternatives 3 and 4
Gallatin #2	89.5	0	0	89.5
Gallatin #3	77.2	28.7	0	105.8
Hellroaring/Bear #1	91.2	6.4	0	97.5
Hellroaring/Bear #2	145.8	0	0	145.8
Henrys Lake #1	55.5	6.8	23.3	85.6
Henrys Lake #2	40.9	10.0	11.8	62.7
Hilgard #1	89.8	19.0	0	108.8
Hilgard #2	64.5	13.6	0	78.1
Lamar #1	171.6	3.4	0	175.0
Lamar #2	115.8	0	0	115.8
Madison #1	103.9	22.2	0	126.1
Madison #2	63.4	0	3.3	66.8
Pelican/Clear #1	67.6	0	0	67.6
Pelican/Clear #2	154.8	0	0	154.8
Plateau #1	126.1	2.2	0	128.3
Plateau #2	238.4	0	0	238.4
Shoshone #1	76.9	0.2	0	77.2
Shoshone #2	83.5	0.4	0	83.9
Shoshone #3	87.5	1.0	0	88.5
Shoshone #4	114.8	2.0	0	116.8
South Absaroka #1	103.5	0	0	103.5
South Absaroka #2	122.1	0.1	0	122.2
South Absaroka #3	215.6	1.3	0	216.9
Thorofare #1	175.4	0	0	175.4
Thorofare #2	115.2	0	0	115.2
Two Ocean/Lake #1	229.3	0.1	0	229.4
Two Ocean/Lake #2	80.0	0	0	80.0
Washburn #1	94.6	0	0	94.6
Washburn #2	84.8	0	0	84.8
Total	4,950.1	151.5	38.4	5,140.3

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Developed Sites on Public Lands within the PCA

Developed sites include all sites on public land developed or improved for human use or resource development such as campgrounds, trailheads, lodges, administrative sites, service stations, summer homes, restaurants, visitors’ centers, and permitted resource development sites such as oil and gas exploratory wells, production wells, plans of operation for minerals activities, work camps, etc. Developed sites on public lands are currently inventoried in existing GIS databases and are an input item to the Yellowstone Grizzly Bear Cumulative Effects Model (CEM).

Figure 125 displays the number of developed sites for each administrative unit by BMU subunit as of 1998

Figure 125. The 1998 baseline for number of developed sites on public lands within each of the BMU subunits in the GYA.

Subunit	Administrative units	Permitted summer home complexes ¹	Developed campgrounds ²	Trailheads	Major developed sites and lodges	Administrative or maintenance sites	Other developed sites ³	Plans of operation for minerals activities ⁴
Bechler/Teton	Targhee NF	0	1	5	2	4	17	0
	Yellowstone NP	0	0	2	0	2	2	0
	Grand Teton NP	0	8	3	1	3	10	0
Boulder/Slough #1	Custer NF	0	0	1	0	0	0	6
	Gallatin NF	0	1	7	0	1	3	2
Boulder/Slough #2	Gallatin NF	0	0	0	0	2	0	0
	Yellowstone NP	0	1	3	0	2	1	0
Buffalo/Spread Creek #1	Bridger-Teton NF	0	1	1	0	0	1	0
	Grand Teton NP	0	0	7	2	2	3	0
Buffalo/Spread Creek #2	Bridger-Teton NF	1	4	3	3	4	5	2
Crandall/Sunlight #1	Shoshone NF	0	2	5	1	1	5	0
	Gallatin NF	0	1	2	0	0	5	0
Crandall/Sunlight #2	Shoshone NF	0	5	4	1	2	5	1
	Gallatin NF	0	1	0	0	0	0	0
Crandall/Sunlight #3	Shoshone NF	0	2	3	0	1	2	0
	Wyoming Game and Fish	0	2	0	0	1	0	0
Firehole/Hayden #1	Yellowstone NP	0	1	5	1	6	13	0

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Subunit	Administrative units	Permitted summer home complexes ¹	Developed campgrounds ²	Trailheads	Major developed sites and lodges	Administrative or maintenance sites	Other developed sites ³	Plans of operation for minerals activities ⁴
Firehole/Hayden #2	Yellowstone NP	0	1	3	1	2	8	0
Gallatin #1	Yellowstone NP	0	0	3	0	1	0	0
Gallatin #2	Yellowstone NP	0	2	5	1	12	1	0
Gallatin #3	Gallatin NF	0	2	10	0	0	7	0
	Yellowstone NP	0	0	0	0	0	0	0
Hellroaring/Bear #1	Gallatin NF	0	5	12	1	1	5	8 ⁵
	Yellowstone NP	0	0	1	0	0	1	0
Hellroaring/Bear #2	Gallatin NF	0	0	1	0	1	0	0
	Yellowstone NP	0	0	0	0	2	0	0
Henry's Lake #1	Targhee NF	2	3	1	0	3	10	1
Henry's Lake #2	Targhee NF	0	0	1	0	1	1	1
	Gallatin NF	6	3	4	0	0	2	0
Hilgard #1	Beaverhead NF	0	0	0	0	3	0	0
	Gallatin NF	0	0	6	1	2	2	0
Hilgard #2	Gallatin NF	0	0	4	0	1	1	0
	Yellowstone NP	0	0	3	0	0	0	0
Lamar #1	Yellowstone NP	0	1	5	0	3	2	0
	Gallatin NF	0	2	5	0	6	4	6
	Shoshone NF	0	0	0	0	0	0	0
	Custer NF	0	0	1	0	0	0	2
Lamar #2	Yellowstone NP	0	0	0	0	4	0	0
Madison #1	Gallatin NF	0	1	11	0	1	9	0
	Yellowstone NP	0	0	0	0	0	0	0
Madison #2	Gallatin NF	8	2	1	1	6	6	0
	Yellowstone NP	0	0	1	0	2	1	0

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Subunit	Administrative units	Permitted summer home complexes ¹	Developed campgrounds ²	Trailheads	Major developed sites and lodges	Administrative or maintenance sites	Other developed sites ³	Plans of operation for minerals activities ⁴
Pelican/Clear #1	Yellowstone NP	0	0	2	0	0	0	0
Pelican/Clear #2	Yellowstone NP	0	1	4	1	4	3	0
Plateau #1	Targhee NF	1	0	0	0	0	1	0
	Gallatin NF	0	0	1	0	0	0	0
	Yellowstone NP	0	0	0	0	1	0	0
Plateau #2	Targhee NF	0	1	1	0	1	1	0
	Yellowstone NP	0	0	0	0	4	0	0
Shoshone #1	Shoshone NF	1	2	0	0	0	6	0
Shoshone #2	Shoshone NF	0	0	1	1	0	0	0
Shoshone #3	Shoshone NF	2	0	1	1	0	0	0
Shoshone #4	Shoshone NF	3	3	3	6	0	8	0
South Absaroka #1	Shoshone NF	0	0	0	0	0	0	0
South Absaroka #2	Shoshone NF	0	0	0	0	2	0	0
South Absaroka #3	Shoshone NF	1	3	4	1	1	4	0
Thorofare #1	Bridger-Teton NF	0	0	0	0	0	0	0
	Yellowstone NP	0	0	0	0	4	0	0
Thorofare #2	Bridger-Teton NF	0	0	0	0	2	0	0
	Yellowstone NP	0	0	0	0	0	0	0
Two Ocean/Lake #1	Yellowstone NP	0	2	3	1	3	2	0
	Bridger-Teton NF	0	1	0	0	0	0	0
	Grand Teton NP	0	0	1	0	0	1	0
Two Ocean/Lake #2	Yellowstone NP	0	0	0	0	2	0	0
	Bridger-Teton NF	0	0	0	0	1	0	0

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Subunit	Administrative units	Permitted summer home complexes ¹	Developed campgrounds ²	Trailheads	Major developed sites and lodges	Administrative or maintenance sites	Other developed sites ³	Plans of operation for minerals activities ⁴
Washburn #1	Yellowstone NP	0	2	8	2	7	6	0
Washburn #2	Yellowstone NP	0	1	6	0	1	4	0
Primary Conservation Area	All	25	68	164	29	115	168	29

¹ Single permitted recreation residences are classified as other developed sites in this table. Figure 71 classifies these single residences as permitted summer home complexes.

² Four trailheads on the Bridger-Teton National Forest are combined with the associated campgrounds and are considered a single developed site.

³ Includes developed recreation sites shown in Figure 71 as well as community infrastructure sites, dams (Figure 103), and other miscellaneous facilities .

⁴ Mining claims with plans of operation are considered developed sites for this baseline. Currently, not all sites have active projects.

⁵ Includes one mineral materials site with an outside contractor.

Figure 126. Number of mining claims as of 1998 in BMU subunits in the PCA¹.

Subunit	Gallatin NF	Custer NF	Caribou-Targhee NF	Shoshone NF	Bridger-Teton NF
Boulder/Slough #1	8	144			
Buffalo/Spread Creek #1					14
Buffalo/Spread Creek #2					6
Hellroaring/Bear #1	653				
Henrys Lake #1			5		
Henrys Lake #2			3		
Lamar #1	429	42			
Shoshone #3				16	
South Absaroka #2				28	
South Absaroka #3				6	
Total	1,090	186	8	50	20

¹ Activities based in statutory rights, such as oil and gas leases and mining claims under the 1872 General Mining Law are also tracked as part of the developed site monitoring effort. Mining claims and or oil and gas leases do not in and of themselves constitute a site development, but have the potential to be developed sometime in the future. There were no oil and gas leases inside the PCA as of 1998, and 1,354 mining claims in ten subunits inside the PCA. It is important to note that one mining claim does not necessarily mean a potential for one operating plan. Claims are often staked around known mineral deposits to protect the original claim, and operating plans can sometimes encompass hundreds of claims. In addition, there are always a number of claims filed that, after detailed exploration, do not prove to have enough mineralization to be economically developed. Claims or claim groups with approved operating plans are included in the developed site baseline (Figure 125).

Livestock Grazing on Public Lands within the PCA

There were 100 commercial livestock grazing allotments inside the PCA in 1998 and 23,090 permitted sheep AMs (Figure 127). Allotments with less than 100 acres inside the PCA were not included. Where several allotments are managed as one, this was counted as a single allotment. Sheep AMs are calculated by multiplying the permitted number of sheep times the months of permitted use. In many cases, actual use by sheep may have been less than the permitted numbers identified for 1998.

Figure 127. Number of commercial livestock grazing allotments and sheep AMs inside the PCA in 1998.

Administrative unit	Cattle allotments		Sheep allotments		Sheep AMs ¹
	Active ²	Vacant	Active ¹	Vacant	
Beaverhead-Deerlodge NF	2	3	0	0	0
Bridger-Teton NF	9	0	0	0	0
Caribou-Targhee NF	9	1	7	4	14,163
Custer NF	0	0	0	0	0
Gallatin NF	24	9	2	3	3,540
Shoshone NF	24	0	2	0	5,387
Grand Teton NP	1	0	0	0	0
Total in PCA	69	13	11	7	23,090

¹Since 1998 five of the seven active sheep allotments on the Caribou-Targhee National Forest and the two active sheep allotments on the Shoshone National Forest within the PCA have been closed. As of 2004, there are only four active sheep allotments inside the PCA, totaling 7,130 AMs.

²One of the active cattle allotments on the Bridger-Teton National Forest was closed in late 2003.

³Vacant allotments are those without an active permit but may be used periodically by other permittees at the discretion of the land management agency to resolve resource issues or other concern

Habitat Effectiveness

Habitat effectiveness outputs from the CEM (Weaver et al. 1986, Bevins 1997, Dixon 1997, Mattson et al. 2004) as of 1998 are presented in Figure 128. Habitat effectiveness is a relative measure of that part of the energy potentially derived from the area that is available to bears given their response to humans (Mattson et al. 2004). The higher the number the greater the habitat effectiveness. The highest values in the estrus period are associated with cutthroat trout spawning streams, high values in early hyperphagia are a result of moth aggregation sites and high values in late hyperphagia are primarily due to whitebark pine. HE is calculated using the ICE9 software (Bevins 1997), which evaluates information, contained in several GIS and tabular databases. The databases include digital maps of vegetation, ungulate winter ranges, and point, linear, and dispersed human activities; coefficient tables that categorize the relative values of vegetation and human activities; and tables that identify the type, intensity, and duration of the human activities.

Figure 128. 1998 habitat effectiveness (HE) values by season from the Yellowstone grizzly bear CEM for each of the 40 GYA grizzly bear management subunits¹.

Subunit	Spring (3/1-5/15) HE	Estrus (5/16-7/15) HE	Early Hyperphagia (7/16-8/31) HE	Late Hyperphagia (9/1-11/30) HE
Bechler/Teton#1	116	64	44	274
Boulder/Slough#1	105	105	119	853
Boulder/Slough#2	123	112	111	521
Buffalo/Spread Cr#1	79	86	78	267
Buffalo/Spread Cr#2	58	98	125	863
Crandall/Sunlight#1	53	94	78	800
Crandall/Sunlight#2	52	82	124	329
Crandall/Sunlight#3	53	50	156	208
Firehole/Hayden#1	96	189	162	244
Firehole/Hayden#2	45	843	66	342
Gallatin#1	139	144	198	635
Gallatin#2	104	97	105	585
Gallatin#3	78	69	89	599
Hellroaring/Bear#1	85	74	95	678
Hellroaring/Bear#2	117	99	98	628
Henry's Lake#1	41	39	32	178

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Subunit	Spring (3/1-5/15) HE	Estrus (5/16-7/15) HE	Early Hyperphagia (7/16-8/31) HE	Late Hyperphagia (9/1-11/30) HE
Henrys Lake#2	41	41	33	225
Hilgard#1	99	68	91	614
Hilgard#2	81	97	132	902
Lamar#1	127	118	136	571
Lamar#2	132	167	180	795
Madison#1	53	115	227	390
Madison#2	41	60	147	63
Pelican/Clear#1	103	324	105	560
Pelican/Clear#2	105	2253	203	997
Plateau#1	26	49	36	109
Plateau#2	75	81	56	442
Shoshone#1	39	50	115	264
Shoshone#2	51	56	1424	387
Shoshone#3	65	57	583	484
Shoshone#4	57	78	327	392
South Absaroka#1	55	57	392	399
South Absaroka#2	41	45	339	250

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Subunit	Spring (3/1-5/15) HE	Estrus (5/16-7/15) HE	Early Hyperphagia (7/16-8/31) HE	Late Hyperphagia (9/1-11/30) HE
South Absaroka#3	46	73	303	551
Thorofare #1	84	488	298	956
Thorofare #2	79	82	295	583
Two Ocean/Lake#1	115	1300	64	426
Two Ocean/Lake#2	117	2401	107	1079
Washburn#1	121	110	126	404
Washburn#2	99	86	85	272

¹Weaver et al. 1986, Bevins 1997, Dixon 1997. HE values are based on productivity coefficients depicting an average year (Mattson et al. 2004). The higher the number the greater the HE.

Analysis Unit Information for Alternative 4 Areas outside the PCA

For Alternative 4 outside the PCA, there are 39 Analysis Units (AUs) totaling 5,999,000 acres on six national forests (Figure 131). National Forest System land comprises 96 percent of this area. Private and other agency lands within national forest boundaries comprise 4 percent of this area.

Secure Habitat for each Analysis Unit in Alternative 4 Areas outside the PCA

Using GIS databases created by each administrative unit, the percent secure habitat was estimated as of 2003 for each AU for National Forest System lands in Alternative 4 (Figure 129). A standardized program (AML) that runs in the ARC/INFO software environment was used to make the calculations. The buffer command in ARC/INFO is used to buffer all relevant motorized access features by 500 meters. The area outside of this buffer is secure habitat. For this analysis, areas open to OHV [off-highway vehicle] use were also excluded.

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Figure 129. Secure habitat analysis on National Forest System lands for each analysis unit in Alternative 4 areas outside the PCA. Acres are shown in thousands.

Analysis unit	Total national forest acres	Existing national forest secure habitat acres	Existing % secure habitat	New additional acres of secure habitat to meet Standard 1 in Alternative 4 ¹	Total % secure habitat for Alternative 4	Minimum miles of motorized access to close to achieve Alternative 4 standards	Total existing open motorized access miles
Beaverhead 2	258.9	162.4	63	18.9	70	29	499.3
Beaverhead 3	304.2	161.5	53.1	71.7	77	97	585.2
Beaverhead 4	152.5	143.5	94	8.6	100	2	21.9
Beaverhead 5	99.0	50.2	51	32.1	83	45	173.3
Beaverhead 6	224.0	149.1	67	50.5	89	37	242.3
Beaverhead 7	257.8	157.3	61	41.1	77	30	322.2
Beaverhead 8	54.9	53.6	98	0	98	0	4.4
Beaverhead 9	113.7	55.0	48	24.6	70	21	215.8
Beaverhead 10	114.6	62.9	55	30.5	82	17	179.5
Bridger-Teton 2	131.6	126.7	96	4.1	99	10	13.6
Bridger-Teton 3	190.4	190.4	100	0	100	0	0
Bridger-Teton 4	337.8	222.3	66	58.1	83	195	449.1

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Analysis unit	Total national forest acres	Existing national forest secure habitat acres	Existing % secure habitat	New additional acres of secure habitat to meet Standard 1 in Alternative 4 ¹	Total % secure habitat for Alternative 4	Minimum miles of motorized access to close to achieve Alternative 4 standards	Total existing open motorized access miles
Bridger-Teton 5	324.9	206.3	64 ²	45.3	77	57	271.5
Bridger-Teton 6	128.9	109.5	85 ²	9.0	92	13	40.8
Bridger-Teton 7	179.3	130.1	73 ²	27.5	88	24	99.3
Custer 2	136.7	118.4	87	4.8	90	5	70.4
Custer 3	204.2	188.3	92	2.7	94	5	50.1
Gallatin 2	183.1	130.7	71	9.3	76	17	356.7
Gallatin 3	100.8	65.2	65	6.0	71	10	180.0
Gallatin 4	187.3	161.8	86	9.1	91	27	148.7
Gallatin 5	130.4	110.2	85	6.4	89	10	62.8
Gallatin 6	95.3	70.7	74	7.9	83	18	203.3
Gallatin 7	42.3	36.5	86	2.5	92	4	22.8
Gallatin 8	44.0	43.8	100	0	100	0	0.4
Shoshone 2	100.4	72.6	72	13.8	86	32	114.6
Shoshone 3	90.0	70.6	78	7.9	87	12	72.8
Shoshone 4	155.8	124.4	80	9.7	86	17	117.4
Shoshone 5	145.6	123.0	85	7.1	89	4	88.8
Shoshone 6	152.7	113.2	74	8.3	80	23	173.3
Shoshone 7	114.2	32.5	29	47.4	70	117	433.3
Shoshone 8	130.8	128.9	99	0.7	99	3	5.8
Shoshone 9	72.6	72.6	100	0	100	0	0

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Analysis unit	Total national forest acres	Existing national forest secure habitat acres	Existing % secure habitat	New additional acres of secure habitat to meet Standard 1 in Alternative 4 ¹	Total % secure habitat for Alternative 4	Minimum miles of motorized access to close to achieve Alternative 4 standards	Total existing open motorized access miles
Shoshone 10	119.0	114.5	96	1.9	98	2	16.1
Targhee 2	219.3	123.5	56	61.5	84	150	304.1
Targhee 3	225.4	164.6	73	49.1	95	137	194.8
Targhee 4	77.6	69.3	89 ²	6.3	98	2	7.5
Targhee 5	194.3	86.8	45	49.2	70	124	344.5
Targhee 6	165.6	96.4	58	19.5	70	45	221.1
Targhee 7	52.1	31.3	60	10.9	81	22	58.1
Total	5,999.0	4,331.0	72	763.8	85	1,363	6,365.6

¹There are two steps in calculating the new additional acres of secure habitat to meet Standard 1. The first step is closing all motorized access routes in inventoried roadless areas. The second step is closing additional motorized access routes if necessary to achieve a minimum of 70 percent secure habitat. Sometimes the first step results in achieving more than the minimum 70 percent secure habitat. Standard 1 requires closing all motorized access routes in inventoried roadless areas even if 70 percent secure habitat is exceeded.

²These four analysis units have areas open to cross-country motorized travel, which reduces the amount of secure habitat. If the cross-country motorized travel areas were closed to such use, the amount of secure habitat would be as follows: Bridger-Teton 5 would be 76 percent secure, Bridger-Teton 6 would be 87 percent secure, Bridger-Teton 7 would be 80 percent secure, Targhee 4 would be 96 percent secure. If the cross-country motorized travel areas were closed to such use, fewer miles of motorized access would need to be closed to achieve 70 percent secure.

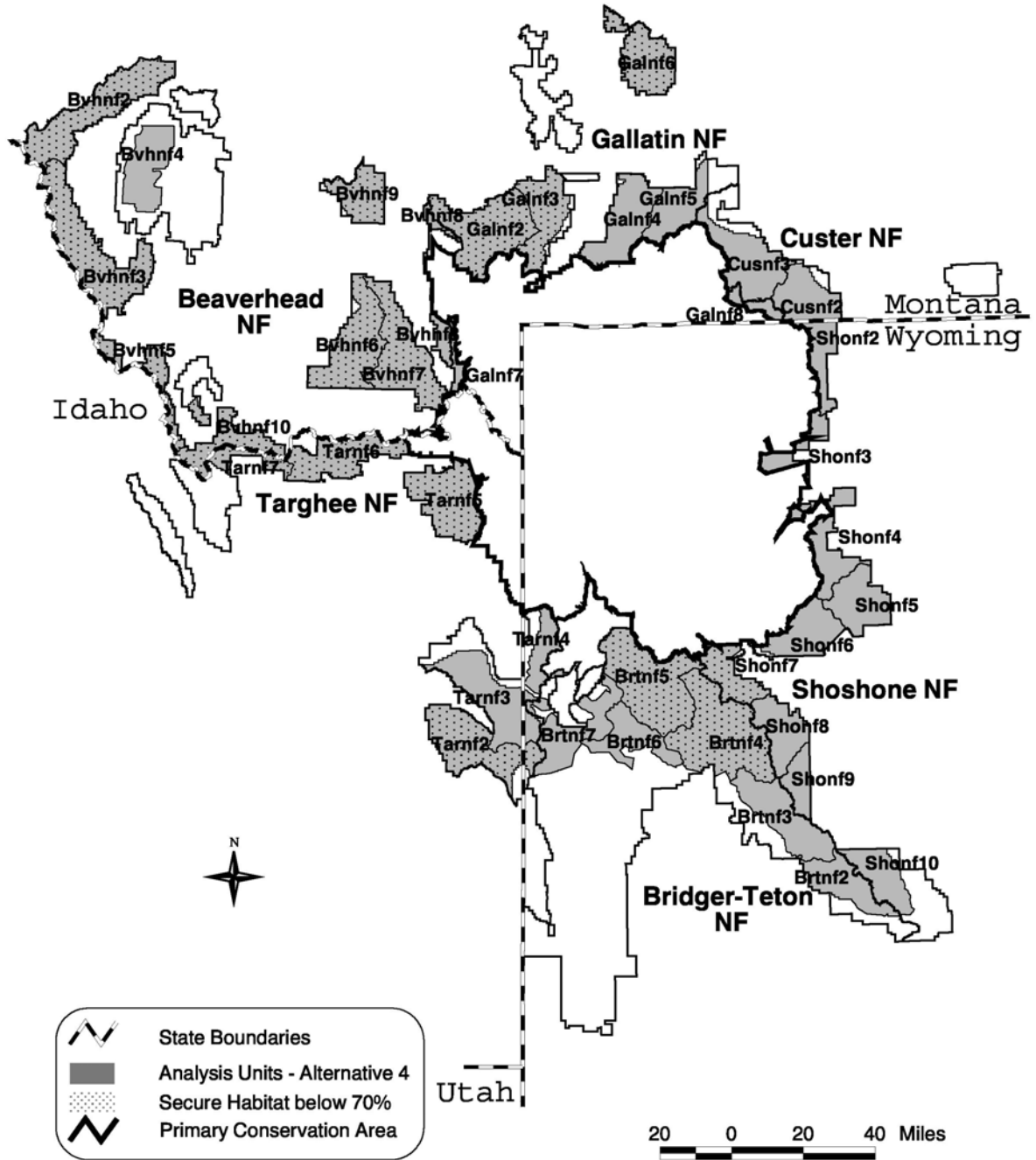
Figure 130. Analysis unit information outside the PCA for private/other ownership lands. Acres are shown in thousands.

Analysis unit	Total private/other acres	Existing secure acres	Percent secure
Beaverhead 2	6.6	1.8	28
Beaverhead 3	7.4	1.0	13
Beaverhead 4	0.4	0.3	84
Beaverhead 5	1.0	0.05	5
Beaverhead 6	1.7	0.4	24
Beaverhead 7	1.7	0.7	40
Beaverhead 8	2.1	2.0	93
Beaverhead 9	1.0	0.06	6
Beaverhead 10	2.0	0.1	5
Bridger-Teton 2	0.0	0.0	na
Bridger-Teton 3	0.0	0.0	na
Bridger-Teton 4	0.0	0.0	na
Bridger-Teton 5	0.0	0.0	na
Bridger-Teton 6	0.0	0.0	na
Bridger-Teton 7	0.6	0.02	3
Custer 2	0.0	0.0	na
Custer 3	0.0	0.0	na
Gallatin 2	82.5	21.8	26
Gallatin 3	55.7	32.6	58
Gallatin 4	10.1	5.8	57
Gallatin 5	4.2	1.2	28
Gallatin 6	67.7	36.8	54
Gallatin 7	0.1	0.03	3
Gallatin 8	0.0	0.0	na
Shoshone 2	2.3	1.0	42
Shoshone 3	1.7	0.6	37
Shoshone 4	11.3	4.0	35
Shoshone 5	0.7	0.3	43
Shoshone 6	0.8	0.07	9
Shoshone 7	0.8	0.2	25
Shoshone 8	0.04	0.04	100
Shoshone 9	0.0	0.0	na
Shoshone 10	0.0	0.0	na
Targhee 2	6.7	1.3	20
Targhee 3	2.4	0.5	20
Targhee 4	0.0	0.0	na
Targhee 5	19.3	8.1	42

Appendix A – BMU/Subunit Information within the PCA and Analysis Unit Information outside the PCA

Analysis unit	Total private/other acres	Existing secure acres	Percent secure
Targhee 6	6.0	1.0	17
Targhee 7	0.4	0.007	2
Total	297.2	121.6	41

Figure 131. Analysis units outside the PCA.



Developed Sites on National Forest System Lands in Alternative 4 Areas outside the PCA

Developed sites here include all sites on National Forest System lands developed or improved for human use or resource development such as campgrounds, trailheads, lodges, administrative sites, service stations, summer homes, restaurants, visitor’s centers, and permitted resource development sites such as oil and gas exploratory wells, production wells, plans of operation for minerals activities, work camps, etc. Figure 132 displays the number of developed sites for each administrative unit within the boundaries of Alternative 4 outside the PCA.

Figure 132. The 2003 baseline for numbers of developed sites on National Forest System lands within the boundaries of Alternative 4 outside the PCA.

National forest	Permitted summer home complexes	Developed campgrounds	Trailheads	Major developed site and lodges	Administrative or maintenance sites ¹	Other developed sites ²	Plans of operation for minerals activities ³
Beaverhead	2	23	16	3	29	22	35
Bridger-Teton	0	16	25	0	0	21	0
Custer	3	13	25	0	0	11	6
Gallatin	3	21	59	2	0	58	16
Shoshone	6	14	26	7	15	24	0
Targhee	5	19	24	9	7	37	6
Total	19	106	165	21	51	173	63

¹ Not all administrative and maintenance sites are included. These sites are exempt from the developed site standard.

² Includes developed recreation sites shown in Figure 72 as well as community infrastructure site, dams (Figure 103), and other facilities.

³ Mining claims with plans of operation are considered developed sites for this baseline. Currently, not all sites have active projects.

Appendix B – Definitions and Descriptions of the Management Situations³³

Management Situation 1

Population and habitat conditions

The area contains grizzly population centers (areas key to the survival of grizzly where seasonal or year-long grizzly activity, under natural, free-ranging conditions is common) and habitat components needed for the survival and recovery of the species or a segment of its population. The probability is very great that major federal activities or programs may affect (have direct or indirect relationships to the conservation and recovery of) the grizzly.

Management direction

Grizzly habitat maintenance and improvement (improvement does not apply to Park Service), and grizzly-human conflict minimization will receive the highest management priority. Management decisions will favor the needs of the grizzly bear when grizzly habitat and other land use values compete. Land uses which can affect grizzlies and/or their habitat will be made compatible with grizzly needs or such uses will be disallowed or eliminated. Grizzly-human conflicts will be resolved in favor of grizzlies unless the bear involved is determined to be a nuisance. Nuisance bears may be controlled through either relocation or removal but only if such control would result in a more natural free-ranging grizzly population and all reasonable measures have been taken to protect the bear and/or its habitat (including area closures and/or activity curtailments).

Management Situation 2

Population and habitat conditions

Current information indicates that the area lacks distinct population centers; highly suitable habitat does not generally occur, although some grizzly habitat components exist and grizzlies may be present occasionally. Habitat resources in Management Situation 2 either are unnecessary for survival and recovery of the species, or the need has not yet been determined but habitat resources may be necessary. Certain management actions are necessary. The status of such areas is subject to review and change according to demonstrated grizzly population and habitat needs. Major federal activities may affect the conservation of the grizzly bear primarily in that they may contribute toward (a) human-caused bear mortalities or (b) long-term displacement where the zone of influence could affect habitat use in Management Situation 1.

Management direction

The grizzly bear is an important, but not the primary, use of the area. In some cases, habitat maintenance and improvement may be important management considerations. Minimization of grizzly-human conflict potential that could lead to human-caused mortalities is a high management priority. In this management situation, managers would accommodate demonstrated grizzly populations and/or grizzly habitat use in other land use activities if feasible, but not to the extent of exclusion of other uses. A feasible accommodation is one which is compatible with (does not make unobtainable) the major goals and/or objectives of other uses. Management will at least maintain those habitat conditions which resulted in the area being stratified Management Situation 2. When grizzly population and/or grizzly habitat use and other land use needs are mutually exclusive, the other land use needs may prevail in management consideration. In cases where the need of the habitat resources for recovery has not yet been determined, other land uses may prevail to the extent that they do not result in irretrievable/irreversible resource commitments which would preclude the possibility of eventual re-stratification to Management Situation 1. If grizzly population and/or habitat use represents demonstrated needs that are so great (necessary to the normal needs or survival of the species or a segment of its population) that they should prevail in management considerations, then the area should be reclassified under Management Situation 1. Managers would control nuisance grizzlies.

³³ Interagency Grizzly Bear Guidelines (IGBC 1986).