

# Monitoring Strategy

## **Evaluation and Monitoring Strategy**

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*The 2012 planning rule, which is found at 36 Code of Federal Regulations (CFR) 219, guides forest plan monitoring across the Forest Service. The Caribou-Targhee National Forest conformance strategy focuses on addressing the purpose of the forest plan monitoring program as described in 36 CFR 219.12(a)(1), which includes the need for monitoring information that enables the responsible official to determine if a change in plan components in the plan area may be needed.*

*In addition, each forest plan monitoring program must contain one or more monitoring questions and associated indicators addressing each of the following eight requirements, which are noted at 36 CFR 219.12(a)(5):*

- 1. The status of select watershed conditions.*
- 2. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.*
- 3. The status of focal species to assess the ecological conditions required at 36 CFR 219.9.*
- 4. The status of a select set of the ecological conditions required under 36 CFR 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.*
- 5. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.*
- 6. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.*
- 7. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.*
- 8. The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).*

*The following monitoring items from table below address each of the eight monitoring requirements:*

- 1. The status of select watershed conditions.*
  - Hydrologic disturbance in watersheds*
  - Woody Residue Needs for Soil and Watershed*
  - Detrimental Soil Disturbance*
  - Fine Organic Matter Retention*
  - Improvement of Water Quality Limited Streams*
  - Application of Best Management Practices (BMPs) (Fisheries, Water and Riparian Resources)*
  - Season Trail Use Impacts to Soil and Vegetation*
  - Achievement of Road Density Standards*
  - Vegetation Structure, Composition, and Distribution of Sagebrush/Grassland Habitats*
- 2. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.*
  - Hydrologic disturbance in watersheds*
  - Woody Residue Needs for Soil and Watershed*
  - Detrimental Soil Disturbance*
  - Fine Organic Matter Retention*
  - Improvement of Water Quality Limited Streams*
  - Application of Best Management Practices (BMPs) (Fisheries, Water and Riparian Resources)*
  - Standing Dead Tree Habitat*
  - Season Trail Use Impacts to Soil and Vegetation*

- *Vegetation Structure, Composition, and Distribution of Sagebrush/Grassland Habitats*
3. *The status of focal species to assess the ecological conditions required at 36 CFR 219.9.<sup>1</sup>*
    - *Bald Eagle Nesting Population*
    - *Cavity Nesters*
    - *Common Loon Population*
    - *Elk Vulnerability and Elk Habitat Effectiveness*
    - *Forest Owl Population*
    - *Furbearer Population Trends*
    - *Goshawk Population Trends*
    - *Gray Wolf Population*
    - *Grizzly Bear Population*
    - *Harlequin Duck Population*
    - *Peregrine Falcon Nesting Population*
    - *Red Squirrel Population*
    - *Spotted Frog Population*
    - *Trumpeter Swan Population*
  4. *The status of a select set of the ecological conditions required under 36 CFR 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.*
    - *Grizzly Bear Habitat Improvement*
    - *Ute Ladies'-Tresses Populations*
  5. *The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.*
    - *User Satisfaction*
    - *Authorized Use Level (Roads and Trails Access)*
  6. *Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.*
    - *Application of Best Management Practices (BMPs) (Fisheries, Water and Riparian Resources)*
    - *Grizzly Bear Habitat Improvement*
    - *Vegetation Structure, Composition, and Distribution of Sagebrush/Grassland Habitats*
    - *Bald Eagle Nesting Population*
    - *Cavity Nesters*
    - *Common Loon Population*
    - *Elk Vulnerability and Elk Habitat Effectiveness*
    - *Forest Owl Population*
    - *Furbearer Population Trends*
    - *Goshawk Population Trends*
    - *Gray Wolf Population*
    - *Grizzly Bear Population*
    - *Harlequin Duck Population*
    - *Peregrine Falcon Nesting Population*
    - *Native Cutthroat Trout Habitat Features*
    - *Red Squirrel Population*
    - *Spotted Frog Population*
    - *Trumpeter Swan Population*
    - *Ute Ladies'-Tresses Populations*
  7. *Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.*

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<sup>1</sup> At this time, focal species have not yet been identified for the Caribou-Targhee National Forest. Therefore, the forest plan monitoring programs will not address focal species. The monitoring items listed under the monitoring requirement: The status of focal species to assess the ecological conditions required at 36 CFR 219.9 are those relative to the Targhee RFP Management Indicator Species.

- Long-term visual range in Class I and Class II air sheds
  - Application of Best Management Practices (BMPs) (Fisheries, Water and Riparian Resources)
  - Season Trail Use Impacts to Soil and Vegetation
  - Authorized Use Level (Roads and Trails Access)
  - Achievement of Road Density Standards
8. The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).
- Woody Residue Needs for Soil and Watershed
  - Detrimental Soil Disturbance
  - Fine Organic Matter Retention
  - Season Trail Use Impacts to Soil and Vegetation

The purpose of forest plan monitoring and evaluation is to evaluate, document, and report how well we are implementing the forest plan, how well the forest plan is working, and if the forest plan purpose and direction remain appropriate. **Monitoring** determines actual conditions and circumstances and compares them with assumptions and expected or desired results. Second, **evaluation** examines the reasons for the conditions we find and where these do not match desired conditions, identifies potential alternative approaches.

## **Types of Monitoring**

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The monitoring identified in this grassland plan is not all of the monitoring conducted on the Targhee National Forest. Other forms of monitoring, which address other laws, policies, and site-specific decisions are also ongoing. Three categories of monitoring (see Forest Service Manual 1925.21) comprise both forest plan and individual project monitoring:

- *Implementation Monitoring* – Used to determine if plans, prescriptions, projects, and activities were implemented as designed and in compliance with the forest/grassland plan;
- *Effectiveness Monitoring* – Used to determine if plans, prescriptions, projects, and activities are effective in accomplishing Plan goals, and objectives, and moving toward desired conditions; and
- *Validation Monitoring* – Used in cases of uncertainty to determine if initial data, assumptions, and coefficients used to predict outcomes in the development of the Plan are correct.

Most monitoring at the national forest level is in the first two categories.

## **Forest Plan Monitoring and Evaluation**

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The table below displays the monitoring plan for the 1997 Revised Forest Plan for the Targhee National Forest. The forest plan monitoring program identified the plan monitoring questions and associated indicators. Monitoring questions and associated indicators must be designed to inform the management of resources on the plan area, including by testing relevant assumptions, tracking relevant changes, and measuring management effectiveness and progress toward achieving or maintaining the plan's desired conditions or objectives. Questions and indicators should be based on one or more desired conditions, objectives, or other components in the plan, but not every plan component needs to have a corresponding monitoring question.

Expected precision and reliability of the monitoring for each area is included as required. (36 CFR 219.12(k)(4)) Two classes of precision and reliability are used:

- **Class A** has methods that are generally well accepted for modeling or measuring the resource or condition. Results are repeatable and often statistically valid. Reliability, precision, and accuracy are very good. The cost of conducting these measurements is higher than other methods. These methods are often quantitative in nature.

- **Class B** methods are based on project records, communications, on-site ocular estimates, or less formal measurements like pace transects, informal visitor surveys, air photo interpretation, and other similar types of assessments. Reliability, accuracy, and precision are good, but usually less than Class A. Class B methods are often qualitative in nature, but still provide valuable information on the status of resource conditions.

We expect to achieve monitoring and evaluation in each of the areas, but actual budget levels and funding mixes (amounts by "program areas" such as recreation, watershed, wildlife, etc.) will affect accomplishment. We may see swings in relative emphasis tied to funding or current issues but we expect to be able to monitor and evaluate some movement toward goals and objectives in each focus area. We also expect that partnerships can be developed to accomplish more in monitoring and evaluation.

## Monitoring Elements

*This table contains monitoring elements organized around significant monitoring questions. More in-depth details, such as precision and reliability or specific protocols will be addressed in the Forest Plan Monitoring Guide.*

Goal	Questions to be Answered	Parameter(s) to Monitor	Monitoring Activity	Measurement Frequency	Indicator or threshold for mgt change	Precision Reliability	Priority
<b>Maintain or improve air quality to meet all applicable standards.</b>	Are management activities impacting air quality?	Long-term Visual Range in Class I and Class II Airsheds	Review photography from mounted, timed-exposed cameras; aerosol particle evaluation.	Variable depending on local activities.	Visibility in miles.	A	3
<b>Long-term soil productivity is sustained by retaining fine organic matter and woody residue on activity areas</b>	Are management activities allowing soils to rebuild?	Hydrologic Disturbance in Watersheds	Rosgen stream-typing and R4 streambank stability ratings	Annually	Bank instability (natural versus management-induced).	A	2
		Woody Residue Needs for Soil and Wildlife	Line transect sampling in project or analysis area by subsection by watershed/subwatershed, by type, elevation, and soil productivity class.	Prior to and following project analysis for each subsection	<ol style="list-style-type: none"> <li>1. Size class, length, composition class to meet standards: <ol style="list-style-type: none"> <li>a. Logs of &gt; 7" diameter @ small end and &gt; 20' length.</li> <li>b. # of logs/acre consisting of logs in appropriate decomposition classes as shown in the Forestwide S&amp;Gs for soil and wildlife.</li> </ol> </li> <li>2. Acres dependent upon analysis approach; and area size, species or life form (such as cavity nesters) of interest.</li> <li>3. Distribution/condition/availability: <ol style="list-style-type: none"> <li>a. Stand,</li> <li>b. Subwatershed or watershed,</li> </ol> </li> </ol>	A	1

					c. Landscape, d. Subsection. 4. Follow requirements for woody residue and dead and down material in the Forestwide S&Gs.		
<b>Long-term soil productivity is sustained by retaining fine organic matter and woody residue on activity areas.</b>	Are management activities meeting the Regional Soil Quality Standards?	Detrimental Soil Disturbance	Sample sites where land treatments have occurred for soils that have been displaced, compacted, puddled, or severely burned.	Annually	Consistently exceeding 15% detrimentally disturbed soils for a given activity	A	2
		Fine Organic Matter Retention	Line transect sampling and 1/10 <sup>th</sup> acre plots.	Annually	At least 50% of the total area within an activity area must retain its fine organic matter (duff layer plus materials less than 3" in diameter) within forested ecosystems; provide for a minimum of 65% ground cover (plants, litter and rock greater than ¾" diameter) on rangeland ecosystems; or in both ecosystems, an equivalent % if the site cannot naturally attain the minimum % mentioned above.	A	3
<b>Maintain or improve water quality to meet water quality standards for the States of Idaho and Wyoming.</b>	Are standards and guidelines protecting beneficial uses?	Improvement of Water Quality Limited Streams	Monitor improvement of water quality on WQLS using approved methods for the parameter of concern.	Annually	When water quality is either not improving or improved to where the stream can be delisted.	A	1
<b>Maintain and restore water quality , to a degree that provides for stable and</b>	Are standards and guidelines protecting beneficial uses?	Application of Best Management Practices (BMPs)	Monitor application of best management practices designed to improve water quality in timber sales and roads.	Once after projects are finished	If instream beneficial uses are impaired.	B	3

<b>productive riparian and aquatic ecosystems.</b>							
<b>Maintain and restore aquatic habitats necessary to support overall biodiversity, including unique genetic fish stocks such as native cutthroat trout.</b>	Are habitats on the Forest adequate to provide for native cutthroat trout?	Native Cutthroat Trout Habitat Features	Perform habitat surveys where needed to assess fish habitat condition and trend.	One time	Number of native trout watersheds in which correlations have been completed.	A	1
<b>Manage or manipulate vegetation for the purpose of achieving Forest Plan resource objectives.</b>	Is the timber program meeting the output expectations of the Plan?	Timber Volume Removed from Unsuitable and Suitable-Unscheduled (U-U/S) Lands	Tally of volume sold.	Annually	Million board feet for the Revised Plan initial decade.	A	1
<b>Maintain and restore healthy, diverse forested and nonforested ecosystems through time, including appropriate components of dead and down woody material.</b>	Is insect and/or pest activity impacting forest health?	Pest Increase in Managed Stands	Review of annual aerial surveys for increased incidence of pest activity.	Annually	Increase in insect and/or disease activity.	A	1
<b>Provide necessary protection and management to conserve listed threatened,</b>	Is the Forest providing habitat to assist recovery of listed species, preclude listing or sensitive species, and protect rare	Ute Ladies'-Tresses Populations	Monitor population trends using: grid systems, belt transects, quadrats, or well defined unmarked areas.	Annually	Population trend as indicated by population size, condition or structure, in permanently marked or unmarked areas; and documented habitat changes.	A	1

endangered, and sensitive species.	species?						
<b>Maintain and restore healthy, diverse forested and nonforested ecosystems through time, including appropriate components of dead and down woody material.</b>	Are management activities impacting sagebrush and grassland habitats?	Vegetation Structure, Composition, and Distribution of Sagebrush/Grassland habitats	Ocular estimates or line intercept method for crown canopy cover.	As needed	Big sagebrush canopy cover age distribution across a subwatershed or watershed.	A	3
<b>Wildlife biodiversity is maintained or enhanced by managing for a diverse array of habitats and distribution of plant communities.</b>	Is the Forest providing adequate habitat to maintain diverse wildlife populations?	Cavity Nesters	Point count surveys using a minimum of 24 transects, with 10-15 point count stations per transect. Documentation of changes in % biological potential.	Annually	Change in population and habitat characteristics.	A	1
	Are wildlife requirements being met by standing dead and replacement green trees?	Standing Dead Tree Habitat	Systematic inventories of habitat conditions and species occurrences prior to and after vegetation treatments.	Prior to and following project analysis for each subsection	Diameter; tree species; tree height; composition (dead tree hardness/class); # and dispersion of dead stand and replacement trees.	A	3
	Is the Forest providing adequate habitat to maintain diverse wildlife populations?	Grizzly Bear Population	Review data for sightings and verified mortalities; review annual data on vegetation, linear features, point activities, and dispersed activities.	Annually	Change in population and habitat characteristics.	A	1
		Grizzly Bear Habitat Improvement	Collect and submit annual data on changes to road and trail access and vegetation to USDA FS-R4.	Annually	Change in habitat effectiveness, habitat value, and bear displacement.	B	1
		Bald Eagle Nesting Population	Standard monitoring of occupancy and productivity; mapping of vegetation changes within nesting territories.	Annually	Change in occupancy/productivity of nesting territories and changes in vegetation within nesting territories.	A	1
		Gray Wolf	Report all verified sightings;	Annually	Change in population and	A	1



		Population	restrict intrusive human disturbances between April 1 and June 30 within 1 mile of active den sites and rendezvous sites, when there are 5 or fewer breeding pairs of wolves in each experimental population area.		intrusive human disturbances within 1 mile around active den sites and rendezvous sites between April 1 and June 30, when there are 5 or fewer breeding pairs of wolves in each experimental population area.		
		Peregrine Falcon Nesting Population	Standard monitoring of occupancy and productivity; mapping of vegetation changes/disturbances within nesting territories.	Annually	Change in occupancy/productivity of nesting territories and changes in vegetation within nesting territories.	A	1
		Furbearer Population Trends	Winter track/sign surveys.	At least half of the ecological subsections each winter	Travel distance per encounter of tracks or other sign; changes in important habitat parameters.	A	1
		Goshawk Population Trends	Random sampling of adult occupancy at a minimum of 15 goshawk nesting sites/year; mapping of vegetation changes/disturbances within nesting territories.	Annually	Change in occupancy/productivity of nesting territories and changes in vegetation within nesting territories.	A	1
		Forest Owl Population	Conduct a minimum of 10 miles of calling transects within each ecological subsection annually; mapping of changes in forest seral stages within active and historic nesting territories.	Annually	Travel distance per encounter of calling adults; changes in important habitat parameters.	A	1
		Trumpeter Swan Nesting Population	Standard monitoring of occupancy and productivity; mapping of riparian and aquatic vegetation changes at suitable nesting ponds and lakes.	Annually	Change in occupancy/productivity of nesting territories; changes in riparian and aquatic habitat within or adjacent to suitable nesting habitat.	A	1
		Spotted Frog Population	Random sampling of occupancy and abundance at 15 sites; document changes to habitat conditions.	Annually	Occupancy at documented sites and relative abundance; changes in riparian and aquatic habitat conditions within or adjacent to documented sites.	A	1
		Common Loon	Document the presence of	Annually	Occupancy at documented	A	1

		Population	common loon at the sites listed in Process Paper D; survey and document habitat changes.		sites and relative abundance; changes in riparian and aquatic habitat conditions within or adjacent to documented sites.		
		Harlequin Duck Population	Document the presence of Harlequin duck at the sites listed in Process Paper D; survey and document habitat changes.	Annually	Occupancy at documented sites and relative abundance; changes in riparian and aquatic habitat conditions within or adjacent to documented sites.	A	1
		Elk Vulnerability and Elk Habitat Effectiveness	Review data gathered by IDFG for % bull elk mortality; monitor OHV use during the fall general elk hunting season.	Annually	% bull elk mortality during the general elk hunting season; changes in OROMTRD, cross-country OHV use, and hiding cover.	A	1
		Red Squirrel Population	Follow methodology in "Indicators for Red Squirrel" by Mattson and Reinhart; document and map changes in forest seral stages within grizzly bear BMU's and subunits.	Annually	Densities of active squirrel middens; cone producing conifer stands, with emphasis on whitebark pine.	A	1
<b>Provide desired user and recreation opportunities on the Forest.</b>	Are management activities adversely affecting recreation and user opportunities?	User Satisfaction	Utilize Forest User mailing list to randomly sample comments.	Annually	Comments received approving/disapproving the direction of the Forest management and the rate of progress implementing it.	B	2
<b>Manage the Forest consistent with the budget provided.</b>	Is Forest Budget affecting Forest management?	Budget	Compare annual budget figures converted to the same basis as the Revision's projected budget.	Every 5 years	Forest budget adjusted for the effects of inflation.	B	1
<b>Long-term soil productivity is sustained by retaining fine organic matter and woody residue on activity areas.</b>	Is recreation adversely affecting other resources	Seasonal Trail Use Impacts to Soil and Vegetation	Visual and photo documentation and trail condition surveys.	Annually on 5-10% of the system trails	Soil displacement on the trail or within the adjacent meadow or basin area.	B	2
<b>Provide</b>		Recreation/	Field and aerial observations,	Winter: weekly	# of violations of closure	B	2

recreational opportunities consistent with other resource objectives.		Wildlife Conflicts	photography.	in 10% of winter range/year for 3-4 months. Summer: Weekly for 3-4 months.	areas; observed wildlife disturbances; and diminishing wildlife populations or signs of stress.		
Long-term soil productivity is sustained by retaining fine organic matter and woody residue on activity areas.		Dispersed Campsite Soil Displacement	Frissell Condition Class method.	Annually with ~10% of the 4.3 Rx areas	Dispersed soil.	A	3
Achieve desirable wilderness conditions for the Jedediah Smith and Winegar Hole Wilderness as specified in the management prescriptions.		Jedediah Smith Wilderness LAC	See Jedediah Smith Wilderness Monitoring Plan below.	Annually	See Jedediah Smith Wilderness Monitoring Plan below.	A	3
The Forest road and trail system is cost effective and integrates human needs with those of other resources values, particularly grizzly bear, elk, and native cutthroat trout.	Is the Forest road and trail system adequate for access, while maintaining other resource values?	Authorized Use Level	Districts maintain records of administrative motorized use allowed on each route by date.	Annually	# of motorized trips per week per route.	B	2
	Is unlawful access occurring and affecting resource values?	Road Closure Effectiveness	Several methods used, including visual checks of access points, ocular check info from incidental employee observations, and photography/video.	3 times in spring/summer/fall seasons, incorporating at least one holiday weekend and the fall hunting season.	Direct encounter of prohibited uses; evidence of prohibited uses.	B	1
	Is the Forest road and trail system adequate for	Achievement of Road Density Standards	Maintain and update Forest transportation database, allowing for OROMTRD	Annually	Miles per square mile of open roads and open motorized trails	A	1

	access, while maintaining other resource values?		calculations.		(OROMTRD); open and restricted roads and motorized trails (TMARD).		
<b>Domestic livestock grazing is managed to promote the desired conditions of various resources including maintenance of adequate plant and litter ground cover, nutrient recycling, forage for wildlife species, seed production, and the restoration and maintenance of riparian communities.</b>	Is the livestock grazing permitted by the Forest maintaining or allowing recovery of riparian and upland vegetation?	Streambank Disturbance/Stubble Height/Channel Stability	Targhee Monitoring Protocol.	Annually for a 5 year time period.	% streambank disturbance in relation to stubble height, as related to channel stability.	A	1
		Riparian Forage Utilization Within Key Areas	Targhee Monitoring Protocol.	Once a year on units within priority allotments and additional readings if time allows.	Stubble height of key species in the hydric greenline and AIZ; % utilization of browse in the entire key area; and soil disturbance levels in the AIZ.	A	1
		Upland Forage Utilization Within Key Areas	Targhee Monitoring Protocol.	Once a year on units within priority allotments and additional readings if time allows.	% utilization of key species and soil disturbance in key areas.	A	3
		Riparian and Upland Long-term Trend in Benchmarks	Targhee Monitoring Protocol.	Every 5 years	Acres of riparian and uplands meeting or moving toward DVC's (Range Goals 1 and 2)	A	3
<b>Upland and Riparian plant communities meet Desired Vegetation Conditions for site-specific areas.</b>							
<b>Silvicultural techniques will be used as a tool to manage or manipulate vegetation for the purpose of</b>	Are timber management activities meeting Forest plan objectives, while maintain other resource values?	Changes to Land Suitability	Review project-level NEPA analyses for site-level confirmations of LMP tentative suitability calls.	Annually	Change in total acreage in tentatively suited and unsuited lands using the criteria in the regulations and directives system.	B	1
		Maximum Created	Environmental analysis and documentation for specific	In each decision document	Size of created openings, in acres.	A	3

achieving Forest Plan resource objectives. Emphasis is placed on restoration of ecological function, structure, and composition.		Opening Size	project proposals will display compliance with the respective standard(s).	where vegetation management is selected.			
		Security Cover Retention		In each decision document selecting vegetation management in BMU's.	% cover in area.	A	3
		Large Forested Block Retention		In each decision document selecting a vegetation management alternative.	Size of forested blocks within project areas.	A	3

## Jedediah Smith Wilderness Monitoring Plan - Further Details

### INDICATORS AND STANDARDS

Indicators and standards will be monitored yearly and may require adjustment if on site administration indicates resources or social conditions are deteriorating beyond an acceptable level. These measurements relate only within each specific zone of the Wilderness and not all of one type of zone lumped together. In other words, for Class 1, if the standard is exceeded in a particular Class 1 zone, then management action will be taken. Following each indicator is a list of management actions which could be used to bring the indicator back to the identified standard for its class. The order of the actions shown does not indicate priority.

Indicator # 1	Standards			
	Class 1	Class 2	Class 3	Issues 1/
Number of occupied campsites users may see from their site	0	2	3	1, 2, 4

Possible Management Actions - If number of visible campsites is approaching or exceeds standards:

1. Remove campsite(s) and restore the area to as near natural condition as possible.
2. Relocate campsite(s) to more suitable location and restore to as near natural condition as possible.
3. Talk with users and suggest other camping possibilities.

Indicator #2	Standards			
	Class 1	Class 2	Class 3	Issues 1/
Condition of individual campsites	vegetation flattened, not permanently injured	vegetation worn away at center of activity	vegetation lost around center of activity	1, 2, 5

Possible Management Actions - If condition of campsite is approaching or exceeds standards:

1. Rehabilitate the site, sign it for restoration, and/or close it.
2. Talk with users about minimum impact camping techniques.
3. Relocate site to a more durable location and restore the vacated campsite to as near natural condition as possible.
4. Visit local schools, organizational groups to discuss wilderness ethics, regulations, minimum impact practices.

Indicator #3	Standards			
	Class 1	Class 2	Class 3	Issues 1/
Condition of user-created routes and trail segments	game trail	18" to 42" wide, brush, rock, litter present	42" wide, brushed out along edge	1, 2, 4

Possible Management Actions If user-created route or trail is approaching or exceeds standard:

1. Talk with users about trail conditions and experiences.
2. Ensure trail crews and maintenance volunteers are aware of standards and do not exceed them.
3. Rehabilitate trail sections that exceed standards.
4. Relocate trail segments to more suitable locations.
5. Encourage use on other trails.
6. Limit number of users on trail.
7. Visit local schools, organizational groups to discuss wilderness ethics, regulations, minimum impact practices.

Indicator #4	Standards			
	Class 1	Class 2	Class 3	Issues 1/
Number of encounters per mile with other parties along a user-created route or trail	0*	3*	5*	1, 2, 3, 4, 5
* Encounters may be higher within first mile of trail from trailhead.				

Possible Management Actions If number of encounters is approaching or exceeds standards:

1. Encourage users to vary starting times.
2. Lower party size and stock limits.
3. Monitor user acceptance of trail use levels.
4. Encourage users to go to other places.

Indicator #5	Standards			
	Class 1	Class 2	Class 3	Issues 1/
Number of substantiated complaints about outfitters and grazing permittees from the public and other permittees	2	5	10	3, 5

Possible Management Actions If the number of complaints concerning permittees is approaching or exceeds standards:

1. Increase permit administration on the ground.
2. Require wilderness ethics education as a condition of permit issuance.
3. Restrict the number of permits issued.
4. Bring parties together to discuss issue(s).

Indicator #6	Standards			
	Class 1	Class 2	Class 3	Issues 1/
Number of violations of regulations by type	5	10	15	1, 3, 5
1/ See process paper for Jedediah Smith Wilderness				

Possible Management Actions - If the number of violations is approaching or exceeding standards:

1. Increase presence of uniformed Forest Service personnel.
2. Visit local schools, organizational groups to discuss wilderness ethics, regulations, minimum impact camping techniques.
3. Review regulations for appropriateness.
4. Increase posting of regulations at trailheads.

## MONITORING

### Air Quality

1. Monitor acid deposition in Wilderness lakes. Specifically, Two Island Lake is extremely sensitive to acid deposition; and Middle Granite Lake is more typical of Wilderness lakes with some buffering capacity. Reference for more information the water quality survey conducted in 1992 by personnel from the Targhee and Bridger-Teton National Forests.

2. Monitor visual air quality by means such as periodic photography. Consider establishing a monitoring station at the Grand Targhee ski area or other location which would permit observation of air quality in both the Wilderness and Grand Teton National Park.

### Wildlife

1. Monitor human/grizzly interactions (confrontations and movements) to determine any change in the known range of the bear, and which management actions are needed if any.

2. Monitor grizzly bear activity and movement relevant to domestic sheep grazing to determine which management actions are needed if any.

3. Continue annual population censusing of bighorn sheep including lamb survival and ram harvest (Wyoming Game and Fish Department).

### Cultural Resources

Monitor cultural resource sites in high public use areas annually to assess potential and actual effects. Formulate mitigations in conjunction with the Wyoming State Historic Preservation Officer when effects are adverse.