

**Bighorn National forest  
Land and Resource Management Plan  
Chapter 4: Monitoring and Evaluation  
Administrative Change #4 – Appendix A  
Comments and Responses**

Themes from Comments:

- AUMs, as a quantity, should be mentioned in permitted livestock grazing while also collecting data to report on DFCs
- Frequency of monitoring of Economic Benefits should be sooner than 10 years
- Efficiently manage workloads and cost when considering frequency of reporting
- Utilize existing data sources from cooperative agencies (i.e., climate change and precipitation)
- Compliance with OHV/ATV regulations and their impacts to roads and game should be monitored
- Reaffirm future broader scale monitoring changes to Chapter 4 with public/agencies
- Add question or indicator related to monitoring fire
- Species monitoring should include other species beyond Goshawk (i.e., plants, lynx, elk, beaver, water voles, snowshoe hares, bats, amphibians, fish, & mule deer)
- More congruency between frequencies of reporting for related elements is needed to provide comparisons and some timeframes should be much longer to show trend

Commenter	Comment(s)	FS Response <sup>1</sup>
Amy Hendrickon (Wyoming Wool Growers)	<p>Proposed Chapter 4 appears acceptable but some concerns:</p> <p>1) <i>Different reporting frequencies make comparisons difficult. For example forest ecosystem health is every 2 years or as needed while “air quality and species viability are every six years. The same frequencies of reporting for the different uses of the forest (recreation, grazing, etc.) would allow accurate comparisons.</i></p> <p>2) <i>Permitted livestock grazing question should be clearly tied to all potential indicators in order to collect accurate</i></p>	<p>1) In response to your comment, a change to the frequency of reporting for the species viability and air quality monitoring items has been changed to “6 years or earlier.”</p> <p>2) In response to your comment, the monitoring question under the Permitted Livestock Grazing element was changed to: <b>“What is the trend of livestock grazing numbers on the Forest?”</b></p>

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	<p><i>information (include AUMs, permitted use, and actual use in question).</i></p> <p>3) <i>Frequency of reporting of economic benefits (for land use, such as timber, recreation, range, etc.) is proposed at 10 years while other monitoring elements are reported with 5 times greater frequency. Changes in those elements will impact the economic benefits also and the incongruences could cause a loss of management opportunities and tools to benefit the Forest.</i></p> <p>4) <i>Consider the ability of personnel to meet reporting requirements (i.e., two-year reporting frequencies). That frequency could potentially increase workloads on taxed personnel.</i></p> <p>5) <i>Rangeland Health: Two years is not sufficient time to determine a trend of any kind, much less a long term trend. This could result in inaccurate trend reporting that could be used by some who oppose grazing to insist on unsubstantiated alterations to permitted livestock grazing. A five year reporting frequency would be preferred and would at least begin to indicate if a trend is developing. Otherwise, it would be advisable to make a change in the wording of the question so that the reporting frequency is consistent with the monitoring question.</i></p>	<p>3) Frequency of reporting of economic benefits at 10 years allows for the Forest to report meaningful trends in economic data across the four rural counties which encompass the Forest. The regional office would analyze data in an economic model on an annual basis. If the public needed access to that data, the monitoring plan would not prevent the release of that information to the public.</p> <p>4) After 10 years of experience in monitoring the 2005 Plan under the original Chapter 4, the Forest recognized the time and expense of monitoring, and more importantly, the evaluation of that monitoring. With the conversion to the 2012 planning rule, the Forest attempted to change the monitoring questions to be more amenable to the meaningful evaluation of the data. The actual monitoring tasks and the workloads will change little under this administrative change. However, the reporting will be more to the point and focused on the evaluation.</p> <p>5) We agree with your comment that the two year frequency of reporting for Rangeland Health is not a sufficient length of time to determine vegetation trends. The Forest's intent with this monitoring item is that the actual field monitoring frequency is, approximately, 10 years. However, the 10 year monitoring that occurred during the 2 year period will be reported each time the monitoring report is published.</p> <p>In other words, each year, the permittees, cooperators, and range specialists perform some amount of long term (~10 year) monitoring on the permanent monitoring locations. The Forest's intent on this monitoring item is to report the number of monitoring photo points/transects, etc. that were completed during the 2 year period, and report the number that were determined to be meeting or moving toward desired future conditions (MOMT) or not MOMT as well as reporting if the trend is undetermined.</p>

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Beth Ross (Wyoming State Engineer's Office)	<p>Wyoming's water supply depends on mountain snowpack.</p> <p>Cooperative effort with BNF to collect precipitation data.</p> <p>Additional water resource data sources that are useful include 1) monthly reports from the State Engineer's Office Snow Survey website and 2) monthly NRCS Basin Outlook Reports.</p>	In response to your comment, the Forest has now included the SEO monitoring network as a data source for both of the SNOTEL monitoring items.
Brent Brooks	<p>Doyle area has wild and scenic qualities.</p> <p>All motorized travel should be eliminated in T47N, R84W, Sections 5, 8 and 9.</p> <p>With the exception of allowing for vehicular access to Doyle Campground, all vehicular and ATV access should be prohibited on all forest service lands lying East of Hazelton Road in T47N, R84W, Sections 5, 6, 7, 8, 9 12, 13, 16, 17, 18, 19, 20 and 21.</p> <p>Observes noncompliance to the OHV designated trails with motorized vehicle (ATV) tracks present on lands which are outside of the designated trail/road system.</p>	The Forest Supervisor and District Ranger have been notified about your comment.
Carson Engelskirger (Wyoming State Forestry Division)	<ol style="list-style-type: none"> <li>1) The Forest should utilize credible existing data from other partners, universities, the State of Wyoming, etc.</li> <li>2) The Forest should utilize efficient monitoring strategies and not expend more resources than in the past.</li> <li>3) Recommends that the Forest reaffirm, in advance, any monitoring direction if a regional monitoring plan is proposed in the future.</li> <li>4) Suggests monitoring direction correlate back to Governor's Forest Task Force Final Report and Wyoming Forest Action Plan.</li> </ol>	<ol style="list-style-type: none"> <li>1) The Forest does use credible existing data from a variety of federal and state agencies.</li> <li>2) The Forest agrees with your comment.</li> <li>3) The Forest Supervisor has been informed of this comment.</li> <li>4) The changes to the Forest's monitoring plan correlate with this final report and action plan. The Forest agrees that this correlation should continue.</li> </ol>

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David Fairbanks, M.D.	Forest should support recreation activities at Antelope Butte including skiing, mountain biking, hiking, and music festivals.	The Forest Supervisor and District Ranger have been notified about your comment.
Duffy Brown	<p>Because of habitat degradation, commenter is opposed to any vehicular access, including ATV/ORV vehicles, other than from the Hazelton road in to the Doyle Creek campground, specifically to include all or part T47N, R84W, Sections 5-9, 8, 9, 12, 13, 16-21, east of the Hazelton Road.</p> <p>Fragile montane habitat exists there.</p> <p>There are rare "go-to" public land hunting spots in Area 34 and ATV/ORV use causes changes in elk movement patterns onto private land.</p> <p>There are other trails/areas with vehicular access.</p>	The Forest Supervisor and District Ranger have been notified about your comment.
Doug Miyamoto (Wyoming Dept. of Agriculture)	<p>1) FWS website says "candidate and proposed species are those being considered for listing" and "potential impacts should be considered [for them] to prevent listing". Potentially enormous amount of monitoring to respond to question 4 as written, where "proposed" species are included.</p> <p>When does a species move from "petitioned" to "proposed" (mentioned in Federal Register or when FWS begins formal review)?</p> <p>How will the BNF address what could be an exhausting list of species?</p> <p>2) Add monitoring question related to fire under Forest Ecosystem Health.</p>	<p>1) The Forest recognizes the vast amount of monitoring indicated for these species. However, one of the strongest National Forest Management Act requirements is the species viability and diversity requirements. Without sufficient monitoring and evaluation, it is the area where the Forest Service is often vulnerable to potential objections and litigation. One example of the recognition of the cost vs. benefit of the exhausting nature of this monitoring is in the selection of one focal species, as opposed to having Management Indicator Species (MIS).</p> <p>The process for a species moving from petitioned to proposed is provided by the FWS in the following document: <a href="https://www.fws.gov/endangered/esa-library/pdf/listing.pdf">https://www.fws.gov/endangered/esa-library/pdf/listing.pdf</a></p> <p>Given the guidelines explained in this document, the Forest does not anticipate an exhausting list of candidate and proposed species.</p>

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		<p>See also Species Monitoring – General Statement footnote below this table.</p> <p>2) In agreement with your comment, the Forest Ecosystem Health monitoring element is changed to “What is the status, extent, and trend of natural disturbance events in and around the plan area, including insects, disease, wildfires, blowdown and any other natural events.” Under the second Forest Health monitoring item, LANDFIRE has also been added as a database to reference for potential data sources.</p>
	<p>3) Indicators for Rangeland Health monitoring question surround trend monitoring and is only 2 years which would not allow for trend. Monitoring would have to be completed on an allotment by allotment basis and some years result in trends for some allotments and not others. Due to the necessity to report trend based on allotments and not Forest-wide, we recommend the Frequency of Reporting be changed to at least three years, with five years being more preferable.</p> <p>4) Focal species could be plants or animals. The frequency of reporting appears tied to goshawks and does not address plants. Change the Frequency of Reporting to read: "5 years for plant species; 2 years for Northern Goshawk."</p> <p>5) Permitted Livestock Grazing: What is the trend? It is tied to Animal Unit Months, permitted use, and actual use and the question does not clearly convey this information. Change this question to read: "What is the trend of livestock grazing numbers on the Forest?"</p>	<p>3) This particular monitoring item is to summarize the long term trend monitoring, such as Parker 3-step, cover frequency, etc. While these are re-read at approximately 10 year intervals, the Forest has typically been conducting 10-25 of these transects per year. Our intent is to report the long term monitoring that has been accomplished in the preceding 2 year period. The data is collected at benchmark sites, which are selected to represent management upon a pasture or allotment. The data will be summarized by the acres represented by that benchmark site, or by a simple percentage of upland or riparian benchmark sites meeting or moving toward desired, etc.</p> <p>4) The only focal species that will be included in the new Chapter 4 conversion is Northern goshawk. Plants are included in the sensitive, species of local concern, and demand species categories. Under the 2012 Planning Rule, focal species should be indicative of whether ecological integrity and ecosystem diversity is being maintained or improved.</p>

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	<p>6) Soils: "What activities have affected soil productivity and hydrologic function?" Frequency of Reporting for this question is 2 years and while this may capture short-term or more obvious changes in soil productivity or hydrologic function. Need to recognize long-term changes with a review of overall soil inventories and soil health assessments. Could be reported as little as ten years but should probably be completed on a much less frequent basis. Initial attempts may involve reviewing the last 50 years of data.</p>	<p>5) In agreement with your comment, the Permitted Livestock Grazing element was changed to: "What is the trend of livestock grazing animal unit months on the Forest?"</p> <p>6) This monitoring question pertains to forest "activities." The Forest does not have a formal data collection program for collecting soil productivity or hydrology function data. Therefore, there are no periodic comprehensive reviews of soil data. Rather such data comes from best management practice (BMP) reviews for various projects and activities. Data presented in the two year time frame will summarize these reviews and draw qualitative trends from the information gathered. Local observations during BMP reviews serve to improve BMP practices over the Forest as a whole. Instances where BMPs were not adequate will be reported, along with proposed mitigation for any shortfalls that will improve forest-wide BMP practices that serve to minimize impacts of forest activities on soil productivity and hydrologic function.</p>
Mike Barrett	<p>Need to monitor FS trash (i.e., plastic pipe/old fencing on the ground around springs).</p> <p>Need to monitor mule deer and manage for their browse along forest edges (winter range). Consider planting bitter brush.</p>	<p>The Forest Supervisor and District Ranger have been notified about your comment.</p>
William (Rob) Davidson (Council for the Bighorn Range)	<p>1) Public should be more directly involved in all aspects of forest planning through the next planning cycle including monitoring. Current model is limited to the original cooperating agencies keeping larger interested public at a distance.</p> <p>2) Drastic change from 35 to 18 pages and 42 (with 124 sub elements) to 30 major elements. Original plan links elements to goals in the LRMP and that linkage appears to be eliminated.</p>	<p>1) All public comments are being given full consideration and the monitoring conversion has been available for comments from the general public. Among the 11 public comments received, only three of the comments were from cooperating agencies and the remaining eight were from the general public and nonprofit associations. The general public will also have opportunities, under the guidelines of the 2012 Planning Rule (FSH 1909.12_40, pgs. 1-26), to comment on any future amendments or revisions to the Forest Plan. Amendments and revisions require a NEPA process and that, as a minimum, the general public be</p>

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	<p>3) Under each heading such as (i), the listed elements should have a numerical or alphabetic identifier to ensure the element can be correctly identified and tracked.</p> <p>4) Under (i) National BMPs Program the protocols or reference should be identified.</p> <p>5) The BNF has an approved 1992 Cloud Peak Wilderness Monitoring Plan for Air Quality which outlines the possibility of sampling other metrics every 6 years: Flora-Lichens, Flora-Vascular Plants, Visibility, Fish and Soils. As the two lakes are sampled three times each year, it would be timelier to report the results every two years.</p> <p>6) Under Potential Data sources the lakes mentioned are incorrect. The correct lakes are Emerald lake and Florence Lake. The protocol for sampling is in the 1992 BNF Air Plan.</p> <p>7) The Rapid Assessment is a longer time framed monitoring method. Only needed every 20 to 30 years.</p> <p>8) Above the 9200 ft, the recruitment of woody debris is more likely on 300-year time frame. Should be done every 40-50 yrs.</p> <p>9) How will one focal species provide adequate knowledge when the LRMP listed 8 species (i.e., lynx, elk, beaver, water voles, snowshoe hares, bats, amphibians and fish/trout)? How can one avian species provide info on the health of aquatic and terrestrial species needs in various seral stages of forested areas? Rather than the BNF biologists holding the data, isn't there a more permanent repository for such critical information that would be more available to interested publics. In the current Monitoring and Evaluation edition, Elements 9</p>	<p>notified and provided a comment period. The Forest recognizes the importance of public involvement and forest planning currently involves two collaborative planning groups to consider roadless area and dispersed camping issues.</p> <p>2) Within the draft monitoring plan conversion, every monitoring element and item is linked to a plan component (desired conditions, goals, objectives, standards, guidelines, and suitability) within the revised 2005 LRMP. However, under the 2012 Planning Rule, not all forest plan components are required to be linked to a monitoring question.</p> <p>3) In response to your comment, the draft monitoring plan table now includes a numerical identifier.</p> <p>4) The Forest Plan Soil, Water, Riparian, and Wetland Guideline Number 1 states, "Incorporate appropriate practices and design criteria from the Watershed Conservation Practices Handbook into all project design, analysis and decision documents" Soil and water practices and design criteria, for Region 2, are contained in Chapter 10 of the Handbook (FSH 2509.25).</p> <p>5) Historically, the air quality data is only available to the Forest every six years. Therefore, because of statistical analysis issues with the timing of available data it would not be feasible to change the frequency of reporting to every two years.</p> <p>6) This comment is correct. The potential data sources are now changed to Emerald and Florence lakes.</p> <p>7) In response to your comment, rapid assessment was deleted as a potential data source.</p>

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	<p>and 10 have 16 different monitoring metrics. How can that be condensed to just one element?</p> <p>10) Under (iv) Species Viability, specific species should be identified with the information in legacy databases. What and where are these legacy databases kept?</p> <p>11) Under (v) Recreation NVUM, monitoring question, “What is the percent of satisfaction for recreational visits on the unit?” Measuring satisfaction is a very subjective. The recreation spectrum includes wilderness to front country. A more appropriate question: “Is the BNF providing acceptable levels of recreation opportunities within the constraints of its budget and LRMP goals?” BNF can never satisfy all recreational users equally.</p> <p>12) Under (vi) it is highly unlikely that 30 to 40-year data from the SNOTEL sites within the BNF can accurately portray any climate change influences. Tree ring data or lake sediment analysis would provide a much longer time frame and a better indicator of climate change.</p> <p>13) Economic Benefits (vii): the four counties social assessment indicates the public placed recreation and wildlife values above logging. The monitoring plan for this is every 10 years in conflict with the stated frequencies of either 2 or 6 years. Why a 10-year interval for this element? BNF should partner with PEW for an economic study.</p> <p>14) Counting the widgets produced (i.e., AUMs) does not monitor the condition. Provides ammunition for those who want to maintain historically high stocking rates. Should be reporting on the how they are moving towards the desired future condition.</p>	<p>8) Based on the recommendation of the former wilderness manager, the frequency of reporting for woody debris has been changed to 20 years.</p> <p>9) See General Comment in footnote #1 below this table. Bighorn NF species data is, by Forest Service policy, housed within Forest Service corporate databases. This information is available to the public upon request. All species data collected is shared with the Wyoming Natural Diversity database.</p> <p>The purpose of condensing the former elements 9 and 10 with 16 different metrics into one element is that previous monitoring reports performed well in reporting on the 16 metrics, but did not answer the overarching, pertinent question: “Are there species whose viability on the Bighorn NF is a concern?” The Forest will still be monitoring and collecting data on the 16 metrics, and those will be used to inform the viability question.</p> <p>10) Legacy databases include, but are not limited to: Forest Service corporate habitat and species databases, Wyoming Game and Fish databases, Wyoming Natural Diversity Database databases, and any other similar database with information concerning Bighorn NF species.</p> <p>11) The Forest acknowledges the subjectivity of measuring satisfaction. There is a degree of subjectivity in all social science survey measures. This is a regionally required broader-scale monitoring question that other Forests in the region are also including.</p> <p>12) The Forest will not be presenting a new climate analysis of precipitation records within the monitoring report because these activities are outside the role of USFS</p>



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	<p>15) Wood products and Stewardship (vii): As stated in #11, the BNF is counting widgets (outputs) not monitoring movement towards the DFCs.</p> <p>16) Need report per year of acres brought under management with unplanned ignitions per Appendix A (Wildfire Strategies Map).</p> <p>17) Minerals: There is a listed standard in the LRMP under Minerals and Energy resources that operating plans are to be reviewed annually. It does not appear in the draft.</p>	<p>employees on the Forest. However, the Forest will report what other agencies, that have climate specialists to track and analyze precipitation, have interpreted about the trends.</p> <p>13) See response #3 to Hendrickson (Wyoming Wool Growers) above.</p> <p>14) Long-term rangeland health monitoring is being reported under Rangeland Health monitoring element 9.</p> <p>15) Long-term forest ecosystem health monitoring is being reported under monitoring element 7, Forest Ecosystem Health.</p> <p>16) This monitoring is being reported under monitoring element 6, Forest Ecosystem Health.</p> <p>17) There are many requirements in the Forest Plan, Forest Service Policy, etc., that the Forest does not report in the monitoring report. The Forest reports the number of mineral operating plans administered, annually, in the accomplishment reporting.</p>
Shane Mannering	<p>1) No proven scientific data supporting so called "climate change" so it should not be monitored.</p> <p>2) Human and equine camping and traffic in wilderness and non-wilderness is not a problem.</p> <p>3) Side by side and four-wheeler impacts are a huge problem which is increasing with the side by side traffic on FS roads. Consolidating equine camping and traffic with OHV camping and traffic is not a good idea.</p>	<p>1) Climate change monitoring is required under the 2012 planning rule.</p> <p>2) The Forest Plan includes monitoring items to measure and potentially address whether or not the level of use meets management objectives. Thank you for your opinion that camping and traffic are not a problem.</p> <p>3) The Forest Supervisor and District Ranger have been notified.</p>

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Intermountain Forest Association, Tom Troxel	<p>1) <i>The only Focal Species discussed is Northern goshawk. Why was Northern goshawk selected as a Focal Species? Are there other Focal Species?</i></p> <p><i>We request that you define the “structural stage diversity to support Northern goshawk habitat”, and how that links to forest plan components.</i></p> <p><i>We recommend adding a Focal Species for early to mid-successional forests and the habitat provided by those conditions. 219 requires that forest plans provide for a diversity of ecosystems and habitat types, therefore, the monitoring plan should include a mechanism for monitoring that diversity of ecosystems and habitat types.</i></p> <p>2) DFC and use of FIA data as part of monitoring for HSS, cover type, age and size class estimates.</p>	<p>1) We utilize the General Technical Report (GTR) RM-217 <i>Management Recommendations for the Northern Goshawk in the Southwestern United States, Reynolds, 1992</i>. This document lists recommended vegetation structural stages (VSS) for management of Northern goshawk. The VSS equates to the Habitat Structural Stages (HSS) used in the Forest Plan. The research recommendations diversity in VSS, with 10% in VSS 1 (0-1”), 10% in VSS 2 (1-5”), 10% in VSS 3 (5-12”), 20% in each of VSS 4 (12-18”) VSS 5 (18-24”) and VSS 6(24”+). The Forest Plan desired future condition (DFC) lists 2-20% in early (HSS 1-2), 30-60% in intermediate (HSS 3), and 50-70% in late (HSS 4-5). The Forest Plan DFCs mirror the goshawk recommendations for early structural stages, and are fairly close on the intermediate and later stages after adjusting them to fit our smaller tree size (we have very few stands greater than 18” average). The Forest has concluded that the goshawk habitats, compared to those of other species, best represent the DFCs in the forest plan.</p> <p>2) FIA’s plot intensity is one cluster plot per 6,000 acres or, approximately, 180 plots for the whole Forest. Common stand exam plots are taken one every 20-200 acres, but they are expensive and not spread over the entire Forest. LANDFIRE vegetation includes existing vegetation type, cover, and height for every 30m pixel, based on Landsat satellite imagery this dataset is updated every few years. The Forest Field Sampled Vegetation (FSVeg) dataset should be updated for changes over time. The Forest plans to use all of these resources in tracking stand conditions vs. the DFCs in the forest plan.</p>

<sup>1</sup>**Species Monitoring – General statement.** Many people commented on a variety of aspects of the species monitoring protocols and definitions. This reply is a general overview of the species monitoring under the 2005 Bighorn Forest Plan as updated by the 2012 planning rule.

The most important notion is that there is a wide variety of monitoring specified, including:

- Numerous aspects of habitat monitoring: water quality, physical stream characteristics, vegetation monitoring.

- Focal Species – A small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. The forest ID team recommended, and the Forest Supervisor approved, selection of Northern Goshawk. At least a dozen other species, including fish and plants, were considered. All of the species considered had some monitoring issue – either they spent part of their life cycle off of the Forest, making interpretations about how NFS management actions or habitat conditions affected the species population fraught with difficulty; or, they were difficult to monitor; or, they did not have a strong tie to a limited number of ecosystem characteristics.
- Sensitive species – Those plant and animal species identified by the Regional Forester for which population viability is a concern, as evidenced by: (a) significant current or predicted downward trends in population numbers or density; (b) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution (FSM 2670.5.19).
- Species of Local concern – Species that are rare, endemic, disjunct, threatened, or endangered, either throughout their range or just in the Big Horns.
- Demand Species – Species that are hunted, fished, or collected that have some management concern – either as an indicator of management, or over-collection, or other concerns.

The variety of monitoring methods provide a wide understanding of species and their habitat on the Bighorn NF. All of the above species will be monitoring for their different intent. Priority and detail of monitoring will be determined by an ID team interpretation of the level of risk to the species.