



**USDA Forest Service**  
Malheur, Umatilla, and Wallowa-Whitman National Forests

## Desired Conditions Narrative

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## **PRINCIPAL 1 - Social Well-Being**

### **CRITERIA 1.1 - Collaborative Stewardship** (How do we work together to achieve our shared vision?)

**EXPLANATION OF CRITERIA:** Collaboration is essentially people working together to solve problems and achieve common goals. Stewardship is the philosophy and practice, the art and the science of responsibly using, conserving, and caring for the environment in which we live and on which we depend. Land stewardship focuses on achieving desired resource conditions that restore and maintain healthy ecosystems and also contribute to the resiliency of local, rural communities. Activities may include watershed restoration and maintenance, road obliteration for sediment control, wildlife habitat improvements, fuel load reductions, timber stand improvements, and insect/disease protection.

Collaborative stewardship occurs when people who care about a particular landscape and who may hold diverse values, attitudes, and beliefs come together to pool their ideas, experience, and resources. They exercise their mutual responsibilities to create workable solutions that care for the land in a way that protects it for future generations in as good or better condition than it currently is. Collaborative stewardship is the forum for participating, identifying issues, facilitating the flow of information and learning, and creating solutions to address the public's concerns and desires about management of the national forests (Red Lodge Clearinghouse 2004, USDA Forest Service Stewardship Contracting 2004, Wondolleck and Yaffee 2000).

**DESIRED CONDITION:** Collaboration processes are developed and contribute to the success of achieving the vision and the desired conditions. A spirit of interdependency, cooperation and openness exists between entities interested in and affected by the Forest Plan. The central focus of working together fosters and enhances communication, cooperation, and partnerships. Collaboration allows multiple views and diverse values to be expressed and shared in an open forum and discussed by the interested parties. Working collaboratively helps promote better decisions and builds greater support and public understanding of decisions. Collaborative stewardship is a fundamental underpinning that facilitates as appropriate meeting the public's concerns and desires about management of the Blue Mountains national forests within existing authorities.

**EXPLANATION OF INDICATORS:** Successful collaborative processes build understanding by fostering exchange of information and ideas, provide a mechanism for effective decision making, get necessary work done by coordinating across boundaries, and develop the capacity of agencies, organizations, and communities to deal with change. Several factors for success have been identified in case studies of collaborative stewardship efforts including building on common ground, creating new opportunities for interaction and problem solving, using meaningful processes, fostering commitment, recognizing people and proactive behavior as part of the process, and mobilizing resources to support the effort. Many efforts are transformative due to open, transparent and inclusive processes and because they make meaningful progress toward attainable goals (Daniels and Walker 2001; Gray, Enzer, and Kusel 1998; Wondolleck and Yaffee 2000).

Achieving the Blue Mountain national forests' desired conditions also requires the active collaboration and support of local communities in the area that implement the related stewardship programs and projects. Several guiding principles developed by leaders in the Blue Mountains highlight the collaborative desire to link local decision-making authorities with local natural resource needs and issues and to define the appropriate means of resolving them (Eastern Oregon Rural Alliance, *Guiding Principles*, 2004). Accomplishing the Blue Mountains national forests' desired conditions also requires working collaboratively with the public, agencies, tribes, and the science community to integrate multiple needs and objectives for restoration activities with local community and tribal strategies and capabilities (including knowledge) (*Interior Columbia Basin Strategy*, USDA/USDI 2003). These factors are relevant depending on other factors, timing and appropriate scale for implementing projects at the community or watershed level. The indicators below are organized around the primary criticisms of collaborative processes in terms of whether or not they are fair, legitimate, and effective and also incorporate the factors leading to meaningful progress.

**INDICATOR 1.1.1 - *Participating and Engaging*** (Are opportunities for planning and participation fair and open to everyone?)

**DESIRED CONDITION:** Participation is fair, open and accessible to anyone who is interested or affected by the Forest Plan. People feel respected and empowered and that their involvement is meaningful. Diverse values and perspectives are sought and included in the process to provide opportunities for a broad spectrum of interests and values. Public participation builds on existing relationships and creates new partnerships to enhance capacity for participation. People demonstrate determination and commitment by involving themselves in collaborative efforts.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Participation in public meetings  Partnership contributions (days, dollars, in-kind contributions)			Forest-wide			

**INDICATOR 1.1.2 - *Decision-making*** (Did we make legitimate and supported decisions?)

**DESIRED CONDITION:** Blue Mountain national forests’ decisions are legitimate and accountable within the authorities of laws, regulations, and other legally recognized and established responsibilities. Decisions are made in a collaborative environment as appropriate based on the consideration of context, scale, timing and other related factors. The decision-making process is credible and transparent and mutually supported by a broad range of people. Support for decisions is built along the way with a broad willingness by multiple partners to enhance a greater understanding of those decisions and to help implement the related activities. Multiple planning processes and objectives are coordinated and integrated with other entities across geographic, political, and administrative boundaries to improve integration and efficiency of accomplishing locally-identified natural resource management goals, objectives and strategies.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Percent of environmental documents appealed  Number of Memorandums of Understanding w/ counties			Forest-wide			

**INDICATOR 1.1.3 – *Learning and Adapting*** (What did we learn and how do we adapt to this new information?)

**DESIRED CONDITION:** Local, cultural, traditional, and scientific knowledge and experience are incorporated into project planning and activities to expand understanding about achieving the desired conditions. Community-based groups and partnerships form to proactively address resource management issues and are committed to working together to facilitate and implement widely supported projects. Current scientific information and understanding is combined with new knowledge to generate and sustain learning. Collaborative multi-party monitoring occurs cooperatively

through diverse stakeholders. Creative and flexible solutions are developed based on this understanding to make necessary changes in project design and activities.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Number of projects done collaboratively			Forest-wide			
Number of partnership agreements						
Number and quality, attendance, & higher levels of understanding through public review field trips						

**CRITERIA 1.2 – Institutional and Community Capacity** (How are the Blue Mountains national forests and communities adapting to change?)

**EXPLANATION OF CRITERIA:** Institutions describe the way people interact with one and another, how they solve problems and govern use. Formal institutions include things like the administrative processes and programs of the Blue Mountains national forests. Informal institutions include people’s customs, practices, relationships, or behavioral patterns that guide the life of a community or society. Institutions are conventional practices that are taken for granted and provide the deep structure for social processes. Social scientists have long been concerned about institutions and institutional effects, but have recently begun to focus on the adequacy of institutions for achieving sustainability (Cortner and Moote 1999, Lichatowich 1999, and Shinn 1996). Institutional capacity addresses how adequate and capable institutions are to achieve desired goals of society.

Community capacity can be defined as "the collective ability of residents to respond (the communal response) to external and internal stresses; to create and take advantage of opportunities; and to meet the needs of residents, diversely defined" (Kusel 1996). The Blue Mountain national forests play an important role in supporting community capacity since they provide the natural environment that is capable (natural capital) of directly or indirectly contributing to human satisfaction. Communities provide the connections among individuals, relationships, social arrangements, networks, and norms that make group actions more effective than individual actions (social capital) (Castle 1998). Community capacity addresses how adequate and capable communities are in terms of providing leadership, economic and social diversity, community assistance, and community health.

Institutional and community capacity refers to the extent to which agencies, governments, organizations and communities have the capability to mobilize their members and collectively respond to change.

**DESIRED CONDITION:** The Blue Mountain national forests work with other agencies, organizations, groups and communities to support formal and informal processes and practices that collectively help people respond to changes in conditions related to the Blue Mountain national forests.

**INDICATOR 1.2.1 – *Community Resiliency* (How adaptable are communities to change?)**

**EXPLANATION OF INDICATOR:** Communities with high social and economic resiliency are those that are adaptable to change. Some elements of community capacity include: social cohesion of community, abundance of regional amenities, civic leadership, positive, pro-active attitude toward change, economic structure, and population size (Brown 1999). Some indexes for social and economic resiliency of communities include measures of community resiliency, economic resiliency, social and cultural diversity (population size and mix of skills), civic infrastructure (leadership, preparedness for change), and infrastructure that supports the attractiveness or amenities of the area (Horne and Haynes 1999).

This indicator recognizes that rural communities (including tribal) in the area are interdependent with each other and healthy, diverse, and functioning ecosystems healthy ecosystems. It incorporates a community-based ecosystem management focus that links sustainable land stewardship with sustaining healthy communities. It emphasizes long-term land stewardship to maintain and restore the health of the land and allows for appropriate and prudent use of the natural ecosystems. Ecological services or products are viewed as part of the whole system, and can be consumed within the limits of the system. Community and ecosystem health are intertwined with sustainable ecosystem management (Gray, Enzer, and Kusel 1998). This indicator recognizes furthering the goals of economic diversity, resiliency and vitality for rural and tribal communities (*Interior Columbia Basin Strategy*, USDA/USDI 2003)

**DESIRED CONDITION:** The Blue Mountain national forests contribute to healthy and resilient communities (including tribal) by providing sustainable, ecological services or products, and communities contribute to the land by fostering sustainable land stewardship. Local communities that rely on the Blue Mountain national forests’ resources are resilient and adapt to changing conditions. They have the capacity to collectively create and take advantage of opportunities to meet the needs of diverse perspectives while protecting the ecological integrity of the Blue Mountain national forests’ ecosystems. Long-term relationships between people and the Blue Mountain national forests support self-sustaining, vital, and resilient ecosystems and communities. Policies and programs recognize the uniqueness of each community in terms of their human, social, economic, and natural resources and assets to the fullest extent possible.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Population, race and ethnicity, age classes, education levels, school enrollment, public assistance claims, property values, housing vacancy rates, crime levels, population migration patterns, poverty rates, unemployment  Socioeconomic resiliency or diversity indexes: combinations of: economic resiliency, social and cultural			County/ community			

diversity (population size and mix of skills), civic infrastructure (leadership, preparedness for change), and infrastructure that supports the attractiveness or amenities of the area						
Community self-assessments of physical, human, and social capital needs						

**INDICATOR 1.2.2 - Institutional Adequacy** (How adaptable and accountable are the Blue Mountain national forests to change?)

**EXPLANATION OF INDICATOR:** The extent to which laws, regulations and practices support or influence achieving the desired conditions for sustainability. This indicator focuses on accountability of the Blue Mountain national forests’ operations to the public. The focus is also on cost-effective processes and constraints, and minimizing the time it takes for regulatory processes to occur to provide timely implementation of projects. It also emphasizes prioritizing projects cooperatively and collaboratively with other agencies and entities to achieve desired conditions with declining resources. Opportunities for enforcing restrictions and implementing projects together with other agencies and/or entities are desired to provide better probability of meeting desired conditions. It also includes technology transfer, management certifications, skill base development, and overall accessibility of agencies to the public.

**DESIRED CONDITION:** The Blue Mountain national forests’ actively work across jurisdictional and functional programs and boundaries to integrate agency functions and respond to the changing needs of ecosystem management. Formal agency processes are enhanced through responsive communication and informal networking to solve problems and meet customer needs. Information sharing and technology transfer occurs in multiple directions within the Blue Mountain national forests’ organization and with partners and other entities to build the capacity and resiliency to collectively respond to change.

Projects are designed to meet multiple objectives where compatible with other uses and values to assist achieving desired conditions. Management constraints are measurable, enforceable and cost effective. Cooperative management and monitoring opportunities provide public accountability and flexibility to promote effective and efficient use of resources over the long run.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Number of cooperative agreements			Forest-wide			
Forest Plan Monitoring completed						

Collaborative, cooperative multi-party monitoring efforts						
Timeliness and efficiency of planning, regulatory or permit processes						

**INDICATOR 1.2.3 – Land Ownership** (Are the land ownership patterns efficient to manage?)

**DESIRED CONDITIONS:** Achieve the optimum land ownership pattern to provide for the protection and management of natural resource uses and meet the needs of the nation now and in the future.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Number of available parcels acquired/exchanged	Land ownership		Forest-wide			
Number of unused administrative sites disposed of						
Miles of land boundaries surveyed and marked						
Miles of land boundary surveyed and marked	Property boundaries					Survey and mark national forest boundary lines
Number of sites disposed or conveyed	Administrative sites					Dispose of unneeded and unused administrative sites

**INDICATOR 1.2.4 – Trust Responsibilities** (Are we meeting our shared responsibilities with American Indian tribes?)

**EXPLANATION OF INDICATOR:** The Blue Mountain national forests shares in the federal government's overall trust responsibility to American Indian tribes where treaty or other legally defined rights apply to national forest lands. In meeting this shared responsibility, the agency assists in carrying out the intent of the treaty and any subsequent case law or amendments. This is done by operating in a just and responsive way and making efforts to adjust the management of national forest lands in favor of the concerns of the respective American Indian tribe(s), as far as practicable, while still maintaining a responsibility to all the people - the general public. The extent to which government-to-government relationships are established, followed and productive (and whether or not they are legally prescribed) is a measure of the cooperation and respect. Consultation,

collaboration, and cooperation between the Blue Mountain national forests and tribal governments are emphasized to meet these trust responsibilities (*Interior Columbia Basin Strategy*, USDA/USDI 2003)

**DESIRED CONDITION:** Consultation, collaboration, and communication between the Blue Mountain national forests and American Indian tribes occur early in the development of project proposals. This continues on a regular basis as defined in consultation and coordination agreements and memorandums of understanding to consider the effects of activities on the tribes and the resources connected to their reserved rights and the federal trust responsibilities. American Indian treaty rights are protected and preserved on ceded lands on the Blue Mountains national forests by virtue of the "Treaties of 1855" for the Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, Nez Perce Tribe, and Confederated Tribes and Bands of the Yakama Indian Nation of the Yakama Reservation. These reserved rights include taking fish, erecting buildings for curing fish, hunting, gathering, and pasturing. Each treaty with each tribe contains language unique unto itself and is read with this knowledge to fulfill the Blue Mountain national forests' trust responsibilities. Gathering opportunities are provided for these tribes to support and respect their cultural, spiritual, and community well-being. The interests and concerns of these tribes are integrated into the planning process.

Interests of the Burns Paiute Tribe, Shoshone-Bannock, Shoshone-Paiute Tribes of the Duck Valley Reservation, Fort McDermitt Paiute and Shoshone Tribes, Fort Bid well Indian Community of Paiute Indians, Klamath Tribes, and the Joseph Band of Nez Perce-Colville Confederated Tribes are also considered in project planning.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
The extent to which government-to-government relationships are established, followed and productive			Forest-wide			

**CRITERIA 1.3 – Social Equity** (*Are our actions fair? Now and in the future?*)

**EXPLANATION OF CRITERIA:** Social equity is "the fair distribution of the benefits and costs of natural resource use and environmental protection, taking account of such basic human needs as food, shelter, employment, public facilities and services" (Maclaren 1996). Individuals of the present generation have an equal right to benefit from the use of resources (intra-generational equity) without compromising the ability of future generations to meet their own needs (inter-generational equity). Equity recognizes not only rights at a broad level of present and future generations, but considers the rights and needs of minority, disenfranchised, or non-mainstream groups or individuals of all kinds that benefit from the Blue Mountain national forests. Equity issues include environmental justice and civil rights, worker and public health and safety, and community environmental health.

**DESIRED CONDITION:** Public safety and assistance to Blue Mountain national forests' workers, users and visitors is provided while recognizing diverse needs. Information programs assist the public in understanding management of the various resources and assist them in their search for a variety of challenging and pleasing experiences.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
			Forest-wide			

**INDICATOR 1.3.1 – Environmental Justice and Civil Rights** (Are we impacting anyone more than everyone else?)

**EXPLANATION OF INDICATOR:** Environmental Justice is the “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies” (EPA).

**DESIRED CONDITION:** People are treated fair and meaningfully involved in activities that affect them regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Groups of people, including racial, ethnic, or socioeconomic groups bear a proportionate share of the environmental benefits and consequences resulting from the Blue Mountain national forests’ programs and policies.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
			Forest-wide			

**INDICATOR 1.3.2 – Public Health and Safety** (Are the Blue Mountain national forests’ safe to work and recreate in?)

**DESCRIPTION OF INDICATOR:** Human health and safety are important components of human well-being. Worker health and safety refers to health and safety issues facing those who work in the forest environment (regardless of who they work for – for example, Forest Service or non-Forest Service employees). Public health and safety refers to a subset of health and safety issues associated with the use of Blue Mountain national forests’ including air quality, water supply, road and facilities safety, diseases, accidents, and search and rescue.

**DESIRED CONDITION:** The public, agency employees and other workers on the Blue Mountain national forests enjoy a safe environment. Natural resources and other property under the agency’s jurisdiction are protected.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Rates of traffic accidents			Forest-wide			
Injury rates for forest sector jobs (including firefighting)						
Facilities and roads maintained to standard						
Air and water quality						

**Indicator 1.3.3 – Community and Environmental Health** (Are health risks to people living adjacent to the Blue Mountain national forests' too high?)

**EXPLANATION OF INDICATOR:** The health of humans and ecosystems is inseparable. Community health can have a variety of different meanings and uses. In this indicator, it refers to physical health and safety issues at a scale broader than the individual (for example, fire hazards or risk, air quality violations, or water quality concerns). One area of concern is reducing the risks from wildland fire in urban-rural interface areas (*Interior Columbia Basin Strategy*, USDA/USDI 2003).

**DESIRED CONDITION:** Blue Mountain national forests' management activities assist protecting the physical health of individuals, adjacent landowners and communities from environmental risks and threats. People are educated and aware of the risks of living, working, and recreating in and near the Blue Mountain national forests.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Change in fire hazard risks in Wildland/Urban Interface areas			Forest-wide			
Air pollution index						
Downstream water quality of municipal watersheds						

**CRITERIA 1.4 – *Social and Cultural Values*** (What do we care about and value?)

**Explanation of Criteria:** Social and cultural values shape and influence decisions made by people. People hold diverse attitudes, beliefs, and values about what they care about on the Blue Mountain national forests and how to retain and protect their values. Management actions may affect these social and cultural values. Social and cultural opportunities are useful to understand people’s preferences, use patterns and social and cultural history or sense of place associated with the Blue Mountain national forests.

**Desired Condition:** The Blue Mountain national forests fill an expanding amenity stewardship role by recognizing and managing for social and cultural values and opportunities related to hunting and gathering, scenery, interpretation, education, and research; heritage, special places, access and use, recreation, and custom and culture aspects of the Blue Mountain national forests. Diverse social values, attitudes, beliefs, and lifestyles are reflected across the Blue Mountain national forests.

**INDICATOR 1.4.1 - *Hunting and Gathering*** (Can I hunt and gather things on the forests?)

**EXPLANATION OF INDICATOR:** The Blue Mountain national forests provide commercial, recreational and cultural fishing, hunting or gathering opportunities for people in many ways. This indicator refers to recreational or cultural (including subsistence use) fishing, hunting, and gathering activities that result in products for non-commercial use. This use is also important to local lifestyles in terms of supporting subsistence needs and recreation to surrounding communities, family groups, or as traditional pursuits.

**DESIRED CONDITIONS:** Gathering and subsistence opportunities such as hunting, fishing, berry picking, and fuelwood gathering are traditional uses of the Blue Mountain national forests and are provided for non-commercial use in a variety of ways. Other non-commercial uses include gathering Christmas trees, plant materials, herbs, mushrooms, and poles for personal use by visitors. The specific resources available vary across the landscape. These uses may or may not involve fee permits, free permits, use regulations (for example, quotas or harvest areas).

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Number of persons participating in harvest for consumption/cultural purposes; by number of permits issued or self-reported volume of products removed.	Christmas trees, fuelwood, mushrooms, berries, plant materials, logs for posts and poles	Participation in harvest for personal use	Forest-wide		Non-commercial gathering opportunities are provided to visitors. The availability of these forest products varies across the landscape and involves fee or free permits or use regulations.	Non-commercial gathering opportunities are provided to visitors. The availability of products varies across the landscape and may involve fee or free permits or use regulations.
Hunting		Hunting - Tied to habitat conditions as described in Population Sustainability (2.1.9)	Forest-wide		Quality hunting habitat is available to the public.	Quality hunting habitat is available to the public.
Fishing		Fishing - Tied to water conditions as in Air, Soil, and Water Quality (2.2.2).	Forest-wide		Quality fishing habitat is available to the public.	Quality fishing habitat is available to the public.

**INDICATOR 1.4.2 – Scenery** (*The way the landscape looks is important*)

**EXPLANATION OF INDICATOR:** Retention of a natural occurring landscape is important to maintaining both tourism and recreation opportunities and is important to the quality of life for both visitors and local residents in and around the Blue Mountains national forests.

**DESIRED CONDITION:** The natural and cultural features of landscapes that provide scenic integrity are intact. Landscapes possess a vegetation pattern and species mix that is natural in appearance. Built elements and landscape alterations complement landscape characteristics.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Number of projects that conform to scenic integrity objectives		Scenic quality index (Ranges on a continuum from High Quality to Unacceptably low quality)	Forest-wide			The natural and cultural features of landscapes that provide scenic integrity are intact. Landscapes possess a vegetation pattern and species mix that is natural in appearance. Built elements and landscape alterations complement landscape characteristics.

**INDICATOR 1.4.3 - Interpretation, Education, and Research** (*How can I learn more about the national forests?*)

**EXPLANATION OF INDICATOR:** Recreation and natural resource management as well as conservation education is improved through increased knowledge of Blue Mountain national forests' visitors. Connections are made with the American people on the importance of public land heritage stewardship through public involvement programs. Better services are supplied to visitors through the use of current knowledge and research about who is using the Blue Mountain national forests and how. The interaction between this education function and the region's school districts can show various cause/effect relationships.

**DESIRED CONDITION:** People connect to the land and to each other through expanded public information, interpretive services, and environmental education programs/activities, with well-supported nonprofit partners in a lead role. The Blue Mountains national forests provide opportunities to learn about the many features of the forest and help to provide effective use of public resources. The Blue Mountain national forests provide an excellent field laboratory for people to learn, know and understand ecological, economic and social dynamics.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Number of facilities and programs administered to standard.	Interpretive Services and Conservation Education	Ties to heritage resources, and ecological integrity at many indicator levels such as: landscape diversity, disturbance processes and population sustainability.	Forest-Wide			People connect to the land and to each other through expanded public information, interpretive services, environmental education programs & activities, with well-supported nonprofit partners in a lead role.
	Research					Strong partnerships exist between the forest and institutes performing mutually beneficial research.

**Indicator 1.4.4 - Heritage Resources** (Are we taking care of important historic and pre-historic places and things?)

**EXPLANATION OF INDICATOR:** The significant tangible features of sites or locations and other cultural/historic aspects that people value across the Blue Mountains national forests are maintained by ensuring that the sites and resources are maintained. In some cases this may mean stabilizing a site or a resource or feature and in other places it means protecting the site from impacts from other resource use or users. Some sites and features may be best protected through public acknowledgement and recognition where in other cases keeping the resources unpublicized may best achieve their protection purposes.

**DESIRED CONDITION:** Significant heritage resource sites are preserved or enhanced. The past, present, and future of heritage resources' role in ecosystem management, including socio-cultural values in an environmental context, are recognized.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Number of sites managed to standard (inventoried, evaluated, protected, promoted, preserved, restored, rehabilitated, monitored, or enhanced).			Forest-wide		Number of sites managed to standard.	Significant heritage resource sites are preserved or enhanced. The past, present, and future of heritage resources' role in ecosystem management, including socio-cultural values in an environmental context, are recognized.

**INDICATOR 1.4.5 – Specially Designated Places** (What kind of specially designated areas are on the forests?)

**EXPLANATION OF INDICATOR:** A wide variety of special management areas are identified as featured attractions and as part of the diversity of recreation opportunities. They fall into categories such as Scenic Areas and Special Interest Areas, they have been developed in conjunction with communities, such as Scenic Byways, and were established through Congressional designation such as the various Wilderness Acts, The *Hells Canyon National Recreation Area Act*, and the *Wild and Scenic Rivers Act*. Another set of categories includes National Historic Trails, National Recreation Trails, and National Historic Park. These places would be managed in accordance with site specific (or area specific) management plans, to protect and enhance the public enjoyment of the area.

**DESIRED CONDITION:** Each special places sub-category has individual desired conditions to be discussed and maintained.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Acres or percent of NF lands in the Blue Mountains NF's that are in NWPS designation.	Wilderness Areas		Oregon/ Washington  Tri-Forest-Wide		4.8% Malheur 21.7% Umatilla 24.5% W-W 17.7% Blue Mtns. national forests 973,674 acres total	Wilderness Areas are managed to emphasize rehabilitation, enhancement of opportunities for solitude, and provide a wide range of primitive and unconfined recreation opportunities. These areas are managed to preserve representative natural conditions.
Acres in Appendix C of current Forest Plan documents	Inventoried Roadless Areas					Managed in an unroaded and essentially undeveloped condition.
	Hells Canyon National Recreation Area					The area is managed according to the <i>HCNRA Act</i> .
Miles of byways managed in accordance with the establishment criteria.	Scenic Byways					The scenic integrity of Scenic Byways is high, and they serve as a means to connect communities with the natural environment surrounding them.

	<b>Special Interest Areas</b>	<b>Special areas have been delineated on maps, and management plans or strategies have been completed/implemented for them.</b>			<b>The special attributes for which these areas are recognized provide a wide variety of unique recreation opportunities for public use and enjoyment.</b>	<b>The Special attributes for which these areas are recognized provide a wide variety of unique recreation opportunities for public use and enjoyment.</b>
	Research Natural Areas (RNA's)			These are tied to Landscape Diversity component		Preserve examples of significant natural ecosystems. These areas typify important natural situations that have special and unique characteristics of scientific interest and importance. Activities in RNA's are limited to those that are nondestructive.
Miles of river Outstandingly Remarkable Values protected	Wild and Scenic Rivers		Wild rivers = 201 miles. Scenic rivers = 95 miles Recreational rivers = 104 miles		400 miles are designated rivers under the <i>Wild &amp; Scenic Rivers Act</i> .  Number of miles of "study" rivers, with known locations and protection measures in place for protection of Outstandingly Remarkable Values until designation can be determined.	Outstandingly Remarkable Values are protected at appropriate classification for river management.  Outstandingly Remarkable Values are protected at appropriate classification for river management
Acres of Scenic Area managed to protect the scenic values and recreation experience.	Scenic Areas			17,234 total acres Vinegar Hill-Indian Rock		Vinegar hill-Indian Rock Scenic Area is managed to protect the scenic values and recreation experience.
Miles of trail maintained to standards	National Recreation Trails					National Recreation Trails are maintained to a standard commensurate with the designation significance of the trail.

**Indicator 1.4.6 – Access and Use (How and where can I use the forests?)**

**EXPLANATION OF INDICATOR:** Use of the Blue Mountain national forests goes hand-in-hand with access to the forest. In essence national forest land is available for public recreation purposes. One form of assessing this availability is related to road density and acres accessible from roads. Many, but not all, forest recreation uses occur within ½ mile of roads. As roads deteriorate, and are taken off the road system, there are effects on recreation use.

Linked to the transportation aspect of economic well-being, the quality of the access is important in providing conditions that benefit visitors and national forest administration and do not degrade natural resources. Changes in access across public lands affect uses and users on both private and public lands, since the system is connected to state, county or local public roads and trails.

Disabled access refers to physical access for individuals with restricted mobility. The *American with Disabilities Act (ADA)* governs a minimum set of requirements here and national forest policies elaborate on these. These facilities are growing in importance for people particularly with an aging population.

Rights-of-way to access national forest lands satisfy public needs and facilitate planned resource activities.

**DESIRED CONDITION:** Motorized use provides a range of recreation opportunities, experiences, and challenges. Motorized use occurs on roads and trails, and in areas designated for cross country travel. High use areas are managed within capacities in order to maintain the quality of experiences. Conflicts are addressed and resolved in a timely manner. Opportunities for recreation activities have components accessible to members of the population.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Areas where use of motorized equipment is restricted  Areas open to motorized travel  User satisfaction	Motorized winter use			Tied to both the Built Infrastructure, and to Recreation and Tourism (1.4.7)		Motorized use occurs on roads and trails, and in areas designated for cross country travel. High use areas are managed within social and ecological capacities in order to maintain the quality of experiences. Conflicts are addressed and resolved in a timely manner.
Areas where use of motorized equipment is restricted  Road density Areas open to motorized travel  User satisfaction	Motorized non-winter use			Tied to Recreation and Tourism (1.4.7)		

Accessible facilities (number and percent of facilities available by activity)	Access for persons with disabilities					Opportunities for recreation activities have components accessible to members of the population.
User satisfaction						
Miles/number of right-of-way	Rights-of-way, easements, and legal access			Tied to Land Ownership patterns (1.2.3)		Acquire rights-of-way necessary for optimum protection and use of national forest resources.

**INDICATOR 1.4.7 – Recreation** (What kinds and amount of recreation activities are available?)

**EXPLANATION OF INDICATOR:** Recreation opportunities are provided to meet evolving cultural needs over time and in conjunction with other national forest resource uses. The quality of these opportunities or experiences is related to changing levels of use over time from local and non-local users.

The recreation experience is defined by an established continuum of various criteria including the mix of scenic quality, facilities and site management, access, remoteness, naturalness, facilities and site management, social encounters, visitor impacts and visitor management. Current Recreational Opportunity Spectrum (ROS) categories include Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roded Natural, Roded Modified, and Rural. National standards provide a management and accountability system that focuses on the quality of the recreation experience and not just on the quantity of opportunities or the capacity of facilities.

**DESIRED CONDITION:** Recreation activities and services contribute to visitors' satisfaction and represent a variety of skill levels, needs and desires in partnership with permit holders, private entities, nonprofit/volunteer groups, state, federal and tribal partners. Visitor use levels contribute to a positive change in local economies across the Blue Mountains.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Number, type and quality of recreation sites  Number type and quality of permits/activities  Visitor satisfaction surveys to determine quality recreation experiences	Recreation Activities		Forest-wide			Recreation activities and services contribute to visitors' satisfaction and represent a variety of skill levels, needs and desires in partnership with permit holders, private entities, nonprofit/volunteer groups, state, federal and tribal partners.
Occupancy and use rates	Visitor Use			Tied to economic factors		Visitor use levels contribute to a positive change in local economies across the Blue Mountains.

**1.4.8 INDICATOR – *Customs and Culture*** (How do we connect to the land individually and collectively?)

**EXPLANATION OF INDICATOR:** Customs are habitual group patterns of behavior that are transmitted from one generation to another. Customs form the core of human culture and are stronger and more persistent in rural than in urban areas. Culture refers to the ideals, values, and beliefs that members of a society share to interpret experience and generate behavior that is reflected by their human work and thought (Haviland 1999).

Across the Blue Mountain national forests, the customs and culture strongly emphasize cultural identity and independence. Customs and culture associated with the forests support diverse lifestyles and beliefs and contribute to a strong sense of identity, history, and self-contemplation. They reflect a traditional 'way of life' that may have an economic component, but also include one's connection to a unique place that can't be substituted or replicated such as their community, a place in the woods, or a place in their past. Some of the social values reflected in this indicator also include life-sustaining, biological diversity, spiritual, intrinsic, future, therapeutic, and cultural values (Brown and Reed 2000). Sustainability of the culture unique to the area means protection of the local unique customs.

**DESIRED CONDITION:** The forests' policies and programs respect and recognize the customs and culture unique to the Blue Mountains and the forces, historical and current, which have shaped the people and communities of the area. Diverse traditions, practices, perspectives, lifestyles, and ways of connecting with the land are nurtured and protected. Places that provide for people's emotional connection to the Blue Mountains national forests are recognized and protected as appropriate. The attitudes, values, and beliefs associated with these customs reflect and contribute to stewardship ethics and practices that sustain the land for present and future generations.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Surveys of public values and perceptions			Forest-wide			
Descriptions of sense of place attachment and meanings						

## **PRINCIPLE 2 – Ecological Integrity**

### **CRITERIA 2.1 - Ecological Function**

**EXPLANATION OF CRITERIA:** An ecosystem can be defined as a unit that encompasses all living organisms in a given area interacting with their environment so that energy flows between components resulting in a defined trophic structure, biotic diversity and material cycles (Odum 1971). Tansley (1935) coined the term 'ecosystem' to include 'living and non-living parts'. Standard definitions such as the one from Lincoln, Boxshall, and Clark (1982) define an ecosystem as: 'A community of organisms and their physical environment interacting as an ecological unit. Ecosystem function refers to the functions or processes that affect ecosystems.

#### **DESIRED CONDITION: Ecological Function**

Natural and human influenced processes and functions are operating within a range that creates and maintains resilient and sustainable systems. Recognition is given to the social and economic interactions. Processes allow for appropriate wildlife population recruitment, growth and mortality.

#### 2.1.1 Indicator: *Disturbance Processes*

**EXPLANATION OF INDICATOR:** Disturbances, either of natural or of human origin, impact all aspects of ecosystems at a landscape level. These impacts can include habitat stages, successional stages, structural differentiation, nutrient cycles, forage availability, water quality/quantity yields, successional pathways, wildlife variety and quantity, carbon balances, scenic variability, availability of products, and economic values of products.

#### **DESIRED CONDITION: Disturbance Processes**

Disturbance processes such as invasive species, insects and disease, wildland fire, herbivory, floods, drought, landslides are functioning at the appropriate magnitude, frequency and extent to create or maintain a resilient and sustainable system. Recognition are given to differences in historic range of variability (HRV), current, and future processes based on the uniqueness of local plant/animal physiology, plant community type, and geomorphology (see the table below for specific desired conditions for individual disturbance types). Restoration of sites and processes occurs as appropriate.

Measure	Sub-category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Wildland (wildfire) fire, acres burned per decade	Fire Regimes 1-5	Intensity Frequency of fire Extent (size of burned area)				
Wildland fire managed for resource benefit, acres burned per decade	Fire Regime 1-5	Intensity and extent of acres burned for each fire regime				
Acres of condition class	Fire Regime 1-5	Acres of condition class 1, 2, and 3 for each fire regime category				
Acres of hazardous fuel condition	Fire Regime 1-5	Acres of crown fire potential (or torching index) for each fire regime				

<p>Insect and disease- Acres of hazard rating.</p>	<p>Douglas-fir tussock moth Douglas-fir beetle Fir engraver beetle Spruce beetle Western and Mountain pine beetle in ponderosa pine Mountain pine beetle in lodgepole pine Mistletoe in Douglas-fir Mistletoe in larch Root diseases.</p>	<p>Acres of low, moderate, or high rating for each species (use the RSAPD model, BMPSC-02-03) This will incorporate stocking levels of stands and species composition in hazard ratings.</p>			<p>Endemic levels of I&amp;D will fulfill the natural role of creating diverse landscapes and components such as hollow trees and snags. Epidemic outbreaks will function within the natural range of variability.</p>
<p>Invasive species- (acres of invasive species)</p>	<p>List of invasive species</p>	<p>Acres of infestation by species</p>			<p>Healthy native plant communities remain diverse and resilient, providing high quality habitat for a full suite of native organisms. The need for invasive plant treatments is reduced due to the effectiveness and habitual nature of preventative actions, and the success of restoration efforts.</p>
<p>Flood and drought -</p>		<p>Magnitude Frequency Timing (seasonality) Duration</p>			<p><u>Floods</u> of varying magnitude and duration occur, but within the naturally occurring range of variability (timing, magnitude, duration, and frequency); flooding affects channel and floodplain structure, and influences riparian species establishment, distribution, and succession, resulting in spatially complex aquatic and riparian habitats. <u>Droughts</u> – periods of low streamflow and/or low</p>

						precipitation – occur periodically as part of the natural flood/flow regime.
Landslides		Areal extent; mapping or other identification of geologic types and localities susceptible to mass erosion				The frequency and magnitude of landslides and debris flows is a natural function of climate and local geological conditions.

**2.1.2 INDICATOR - *Hydrologic Function*** (Are hydrologic processes operating in the appropriate frequency, magnitude, and duration?)

**EXPLANATION OF INDICATOR:** The hydrologic functioning of watersheds is influenced by geology, climate, topography and vegetation. At the watershed level, the rate of runoff is a function of both hill slope and stream channel processes. Vegetation intercepts precipitation and protects soils from erosion. Root structure influences slope stability and binds soil particles, reducing erosion rates. Riparian vegetation is a source of organic material for streams, provides bank stability, affects channel structure, and plays a key role in the routing of sediment and nutrients. Nutrient dynamics are affected by the hydrologic regime, by riparian structure and extent, and by channel size, slope and structure, all of which affect water quality and the productivity of aquatic habitats. Both past and present land use affect watershed conditions by changing the structure and composition of terrestrial and riparian vegetation, erosion rates, and channel structure.

**DESIRED CONDITION:** The rates of watershed runoff, water yield, timing, frequency, magnitude and duration of runoff, surface erosion, and nutrient cycling support healthy and diverse terrestrial, riparian, and aquatic habitats. Watersheds will exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Measure	Sub-category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Watershed condition		Road Density Soil erosion rates Vegetation condition; species composition; structural stage Riparian conditions Channel conditions Aquatic habitat				

**2.1.3 INDICATOR - *Productive Capacity*** (Are we maintaining the long-term productivity of the ecosystem?)

**EXPLANATION OF INDICATOR:** Productivity is the sum total of individual organisms accumulation of biomass over time. It includes primary productivity, biomass accumulation by members of the plant kingdom storing energy from the sun in carbon based biomass via photosynthesis and secondary productivity, biomass accumulation by members of the animal kingdom that gather and recombine the energy products of both primary productivity and secondary productivity via respiration. Productivity is dependent on a multitude of factors ranging from regional climate, to ecosystem integrity, to population health and organism capacity.

The data source would be vegetation inventory plots for each of the forests. Data elements would include mean annual increment expressed in volume per unit area by forest type (dry, moist, cold) and stand structure/age, mortality rates, harvest removal rate. Plot data would be summarized by national forest (scale) and management category (such as wilderness or suitable timberlands).

**DESIRED CONDITION: PRODUCTIVE CAPACITY**

Long term productivity of aquatic, riparian, and terrestrial systems is maintained; or restored if past activities have caused impairment. Nutrient cycling processes are consistent with historic regimes. Fish, animal, and plant productivity is maintained within the recognized capabilities and potential of factors such as regional climate variations, ecosystem integrity, population health, and organism capacity.

Measure	Sub-category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Biomass production	Dry, moist, and cold forest (broken out for suitable and unsuitable timberlands versus other forest land)	Total acres- Merch vol/acre- Nonmerch vol/ac- Mean annual increment- Avg annual harvest volume- Mortality/yr- Ratio of growth to mortality and removal				Growth rate expectations would recognize differing site potentials based on local climate, and unique plant communities.
Nutrient Dynamics	Terrestrial  Aquatic	Site index; soil condition class; soil organic matter  Water quality/water chemistry - nutrient availability  Index of Biological Integrity (IBI) or similar measure  Stream channel-floodplain condition  Riparian condition	Scale will vary			Key elements would be cycled through atmospheric, terrestrial, and hydrologic pathways at rates consistent with a naturally occurring system. Decomposition of organic matter would be within a range of rates equivalent to those in the reference condition.

**INDICATOR 2.1.4 - Population Sustainability (Are habitat conditions sufficient to maintain sustainable native populations?)**

**EXPLANATION OF INDICATOR:**

**DESIRED CONDITION:** Habitats for native species are maintained in sufficient quality, distribution and abundance to allow species populations to be well distributed and interactive. Populations of native species thrive in ecological partnership with natural disturbance processes.

Measure	Sub-category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Population trends of focal species		Population Numbers Breeding Pairs Extent of Occupied/ Unoccupied Habitat Habitat Condition and Trend	Scale will vary depending on focal species selected	Historical Species accounts Habitat Information via GIS and supplemented by ICBEMP and The Nature Conservancy	Current Species Accounts Historic Range of Variability (HRV) Analysis Baysian Belief Network (BBN) Models	Sustainable populations of focal species

**CRITERIA 2.2 - Ecological Structure and Composition (Does the landscape structure and composition create a resilient system?)**

**EXPLANATION OF CRITERIA:** A landscape can be defined by the size, shape and distribution of patterns on the land. It is an area composed of interacting and interconnected patterns of ecosystems whose distribution on the landscape is influenced by geology, land form, soils, climate, biota and human influences. Landscapes can be related to other ecological criteria for organization, such that the landscape becomes the spatial matrix in which organisms, populations, ecosystems are set. Landscape structure addresses issues related to land use zoning, distribution of plant and animal communities, and vegetation management actions.

Population can be defined as organisms of the same species that have the potential to interbreed and share a common gene pool. Population structure/composition refers to the elements that characterize a population and the distribution of organisms within the population. Population structure elements include the factors such as age, number of individuals of each age, distribution across space, or health of individuals.

Organism structure is related to the physical variation in organisms that stems from genetic variation. Organism structure is direct result of genetic diversity, where genetic diversity refers to the total set of genetic information and its distribution within the population for an individual species.

**DESIRED CONDITION:** The structure and composition of systems such as organisms, populations, ecosystems, and landscapes maintains or recreates resilient and sustainable conditions. Recognition is given to the social and economic interactions with ecological structure and composition.

**INDICATOR 2.2.1 - Landscape Diversity (Are we creating a diverse landscape?)**

**EXPLANATION OF INDICATOR:** Within an ecosystem functional diversity is an outcome of plant and animal species interactions such as herbivory, competition, symbiosis, allelopathy, parasitism, and mutualism. The data elements for this item would include a discussion on horizontal and vertical arrangement within different plant community groups. Measures would include vegetation community type abundance, patterns (patch

size, shape, and connectivity), horizontal and vertical structure, and special habitats (ecological legacies). Data would be summarized at scales ranging from sub-fine to mid-scale.

**DESIRED CONDITION:** Landscapes within the Blue Mountains are sustainable considering the historic range of variability (of plant communities) and the reality that human and natural disturbances continue into the foreseeable future. The structural, spatial, successional, and special habitat components of the landscape provide for sustainable populations of native species at a variety of scales.

Measure	Sub-category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Change in distribution of acres	Dry Forest -hot/dry -warm/dry	Acres of existing structural stages for each sub-category				The desired condition will be specific to each plant association grouping (PAG) and the desired amounts (acres) for groups of structural stages. Note: we might collapse structure down to young, mid age, and old multi/single groups for forest types.
	Moist Forest	Forest: -stand initiation				
	Cold Forest	-stem exclusion young open				
	Woodland	-stem exclusion young closed				
	Dry grassland	-stem ex. open & closed mid age				
	Moist grassland	- young multi layer -late/old multi-layer				
	Cold grassland	-late/open single layer				
	Dry shrubland	Grass/shrub: follow Johnson/O'Neil groups— see Blues structure proposal. (combination of canopy closure, height, and age of plants)				
	Moist shrubland					
	Cold shrubland					
	Riparian Forest (grouped by low, moderate, high soil moisture)	Riparian communities characterized by extent, relative to potential, species composition, seral stage.				
	Riparian herbland (L,M,H soil moisture) Riparian shrubland(L,M,H soil moisture)					
Water						
Rock/non-vegetation						

Change in distribution of acres	Dry Forest -hot/dry -warm/dry	Acres of existing structural stages for each sub-category				The desired condition will be specific to each PAG (category) and the desired amounts (acres) for groups of structural stages. We might collapse structure down to young, mid age, and old multi/single groups for forest types.
	Moist Forest	Forest: -stand initiation				
	Cold Forest	-stem exclusion young open				
	Woodland	-stem exclusion young closed				
	Dry grassland	-stem ex. open & closed mid age				
	Moist grassland	- young multi layer				
	Cold grassland	-late/old multi-layer				
	Cold grassland	-late/open single layer				
	Dry shrubland	Grass/shrub: follow Johnson/O'Neil groups— see Blues structure proposal. (combination of canopy closure, height, and age of plants)				
	Moist shrubland					
	Cold shrubland					
	Riparian Forest (grouped by low, moderate, high soil moisture)	Riparian communities characterized by extent, relative to potential, species composition, seral stage.				
	Riparian herbland (L,M,H soil moisture)					
	Riparian shrubland (L,M,H soil moisture)					
	Water					
	Rock/non-vegetation.					

Landscape Patterns		Patch Size Patch Numbers Patch Shape Patch Distribution Interior/edge ratio Connectivity	Historical information via ICBEMP  Other historical accounts		Queries from existing vegetation data	A dynamic landscape diversity that provides for sustainable populations of native species.
Special Habitats: snags, downed wood, nest and perch trees, caves, brush piles, beaver ponds, riparian areas and wetlands (springs, seeps, bogs), cliffs, talus slopes, hardwoods, special shrubs  Research Natural Areas (RNA).		Location  Size  Condition/Trend  Administrative Status	Historical information via ICBEMP  Other historical accounts		Queries from existing vegetation data	Special habitats are in good condition and prevalent on the landscape
Acres of Successional status (existing species composition)	Dry Forest -hot/dry -warm/dry  Moist Forest  Cold Forest  Woodland  Dry grassland  Moist grassland  Cold grassland  Dry shrubland  Moist shrubland  Cold shrubland  Riparian Forest (grouped by low, mod, high soil moisture) Riparian herbland (L,M,H)	Acres of early, mid, or late successional status.				Recommendations for desired percentages of specific species by subcategory. Need to be able to relate to the stand and subwatershed level for implementation.

	soil moisture) Riparian shrubland(L,M,H soil moisture)					
	Water					
	Rock/non- vegetation					

**INDICATOR 2.2.2 - Air, soil and water quality** (Are we creating or maintaining high air, water, and soil conditions?)

**EXPLANATION OF INDICATOR:** Air quality is affected by particulate emissions, including smoke from fires, wood-burning stoves, and industrial emissions. In the Pacific Northwest vehicle emissions are the leading source of several major pollutants, including carbon monoxide, carbon dioxide, and nitrous oxides. Soil quality is a function of geoclimatic setting, vegetation, soil texture, organic content, disturbance, and other factors. Standards for water quality are determined by the individual states (Oregon, Washington and Idaho) and vary by the type of use (for example standards for human use (domestic, irrigation, and recreation) are different, and less stringent, than standards for the protection of aquatic species). The main source of water quality impairment in Blue Mountain streams is elevated water temperature (sediment is second).

**DESIRED CONDITION: Air** - Air quality in the Blue Mountains will comply with *Clean Air Act* standards, state Air Quality Management Plans and Memorandums of Understanding between the Oregon Department of Environmental Quality and Pacific Northwest Region of the Forest Service which places annual limits on particulate emissions from prescribed fires on national forest lands in northeastern Oregon.

**Soils** - The productivity of forest and range soils contributes to long-term sustainability.

**Water** - The physical, chemical, and biological integrity of surface and groundwater is sufficient to provide for the human uses, and the needs of terrestrial and aquatic species. Water quality in streams on national forest lands in the Blue Mountains will comply with designated state (Oregon, Washington, or Idaho) water quality standards.

Measure	Sub-category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Air		Particulate emissions (tons); acres of prescribed fire				
Soil		Surface disturbance				
		Compaction				
		Organic matter content				
		Moisture regime				
Water		Temperature				
		Nutrients				
		Metals				
		Sediment				
		Dissolved Oxygen				

**2.2.3 INDICATOR - *Populations of Indigenous Species*** (Does the landscape support habitat for federally-listed species, species-at-risk, and species-of-concern?)

**EXPLANATION OF INDICATOR:**

**DESIRED CONDITION:** Collaboration and use of the best available science creates an ecological setting within the Blue Mountains that conserves habitat for federally-listed species, species at risk and species of concern. Through the implementation of Recovery Plans, federally-listed species are down-listed or de-listed. Species Conservation Plans are developed and implemented for the species at risk and the species of concern.

Measure	Sub-category	Data Element	Reference Value	Scale	Existing Condition	Desired Condition
Sustained viability of federally-listed species, species at risk and species of concern		Number of Recovery Plans Implemented	Number of Recovery Plans in 1990	Scale will vary by species	Status in 1990	Federally-listed species have implemented recovery plans
Same as above		Number of Species Conservation Plans Developed and Implemented	Number of Species Conservation Plans in 1990		Status in 1990	Species-at-risk and species-of-concern have completed and implemented Species Conservation Plans
Same as above		Number of Species down-listed	Number of federally-listed species in 1990		Status in 1990	*
Same as above		Number of species de-listed	Same as above		Status in 1990	*

\*Generally, federally-listed species have distribution patterns that extend beyond the planning area. Recovery accomplishments could take place within the planning area without the species either being down-listed or de-listed.

## **PRINCIPAL 3 – *Economic Well-Being***

### **CRITERIA 3.1 – *Capital and Wealth* (How do we meet our present needs without compromising future needs?)**

**EXPLANATION OF CRITERIA:** The full wealth of the Blue Mountain national forests to the nation needs to take into account the different forms of capital – natural, built, and human. Natural capital is the living and non-living natural asset that yields a flow of diverse and valuable goods or services into the future. Built infrastructure (also called human-made or manufactured capital) consists of structures, roads, or trails that are produced by humans over time. Human capital refers to investments in individuals that enhance their contributions to society (Castle 1998). These resources must be available to generate goods and services. The wealth aspect refers to investments or endowments to maintain the productivity of the natural, built, and human capital.

**DESIRED CONDITION:** The natural, built, and human capital related to the Blue Mountain national forests is linked with sustaining ecological integrity and social and economic well-being. The Blue Mountain national forests' ecosystems function as unique, renewable natural assets (capital) that provide a sustainable flow (income) of valuable ecological and economic goods or services in perpetuity. The Blue Mountain national forests provide non-renewable goods or services while protecting ecological integrity. Diverse species, people, and communities that depend on these ecosystems benefit from this sustainable flow of natural income. Infrastructure and human capital investments maintain these assets and develop the capacity to sustain ecological integrity.

#### **INDICATOR 3.1.1 – *Natural Capital* (How do we know if we are sustaining natural assets?)**

**Explanation of indicator:** Natural capital is the asset that yields a flow of diverse and valuable goods or services into the future. The capital is the 'stock' and the income produced from the stock is the 'flow.' The term 'capital' refers to the natural assets of the Blue Mountain national forests. There are two types of natural capital: renewable natural capital such as ecosystems that are self-restoring, and non-renewable natural capital such as mineral deposits that are like inventories that can be used up. Renewable natural capital produces ecosystem goods that are removed such as timber or services such as erosion control or recreation.

Humans depend on natural resources for sustaining the flow of goods and services. Sustainability is aided by living off the interest (income) generated from the capital, not harvesting the capital itself. Consuming from the base asset, the capital, is not income and is not sustainable. Income can be measured as the growth or increase in asset quantity or quality (for example volume or area). For example, a stand of trees is a stock that produces an annual flow of new trees or growth.

**DESIRED CONDITION:** The Blue Mountain national forests provide a healthy and productive environment and assist in supplying natural assets (capital) to contribute to local, regional, and national social and economic values and needs. They provide valuable renewable and non-renewable resources to produce ecological and economic goods or services that benefit ecosystems, people, and communities. Production of goods or services comes from the growth and investment in the natural assets and plays a fundamental role in providing sustainable flows (income) of multiple uses and values to the public in perpetuity.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Acres of land available (minus set asides, wilderness, or unsuitable lands) for commercial timber production  Mean annual increment (MAI)  Net growth in trees (stock)  Net biomass available	Forests		Forest-wide			
Amount of area dedicated or available for recreation use by type or quality  Percent of used carrying recreational facilities and/or area capacity	Recreation					
Quantity and quality of habitat conditions	Fish/wildlife					
Acres available and suitable for range use by type and quality	Rangeland vegetation					
Area (acres) of lands available and suitable for exploration and development	Minerals (hard rock minerals and common variety (sand and gravel)	Known mineral occurrences; number of active claims/leases				
Quantity and quality of water available	Water	Water yield (quantity; acre-feet per year); quality subject to state water quality standards				

Area available and suitable for development of energy resources	Oil, gas, geothermal, coal, shale					
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**INDICATOR 3.1.2 - Facilities and Infrastructure** (How are we maintaining our roads, trails, and facilities?)

**EXPLANATION OF INDICATOR:** The transportation system of **roads** is safe, affordable, and environmentally sound, responds to public needs, and is efficient to manage. The system provides public access for recreation, special uses and fire protection activities and supports forest-management objectives. An environmentally sustainable, integrated system of motorized and non-motorized **trails** is maintained. The system can accommodate a range of experience in high-quality settings, and is managed to minimize conflicts while providing opportunities for partnerships, stewardship and mental and physical renewal for a diverse visitor population. **Off-highway vehicle** road and trail systems provide a range of recreation opportunities, experiences, and challenges for off-highway vehicle enthusiasts.

The facilities that support recreation activities (including campgrounds, picnic areas, boat docks, organization camps, recreation residences, and ski areas) are maintained to meet health and safety standards. Where available, sites meeting requirements of *Americans with Disabilities Act* (ADA) are signed.

**DESIRED CONDITION:** Facilities and infrastructure are high quality, well maintained, safe, accessible, and consistent with visitor expectations and support the built environment image guide principles. Facility maintenance meets established national standards. Structures are well integrated into the landscape and advance environmentally sensitive technology.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Miles of road and trails, maintained and operated to meet the objective maintenance level and class  Volume of deferred maintenance  Miles of unclassified roads removed or classified into the system.	Transportation system - roads		Forest-wide	Ties to Built Infrastructure 3.1.2		The transportation system of roads and trails is safe, affordable, and environmentally sound, responds to public needs, and is efficient to manage. The system provides public access for recreation, special uses and fire protection activities and supports forest-management objectives.
Miles of trail operated to standard  Volume of deferred maintenance  User satisfaction	Transportation system - trails			Tied to Recreation and Tourism (1.4.7)		An ecologically sustainable, integrated system of motorized and non-motorized trails is maintained.

Number of facilities maintained to standard	Recreation and Administrative Facilities		Forest-wide	Tied to Recreation and Tourism (1.4.7) and to Heritage (1.4.4)		Facilities are high quality, well maintained, safe, accessible, and consistent with visitor expectations and support the built environment image guide principles.
Volume of deferred maintenance						
Historic structures are maintained to preserve important features						

**INDICATOR 3.1.3 - Human Capital** (Does the workforce match the stewardship needs to achieve desired conditions?)

**EXPLANATION OF INDICATOR:** Human capital refers to investments in individuals that enhance their contributions to society (Castle 1998). This indicator focuses on the diversity and knowledge of the labor force within the area which is directly or indirectly linked to activities on the Blue Mountain national forests. Human capital includes individuals available and seeking employment, not only those currently employed. Without adequate human capital, management and production of natural resources would not occur in a sustainable fashion and could not adapt to change. Sustainability of a community is tied in part to how it maintains and nurtures its labor force and effectively matches it to natural capital needs and investments.

**DESIRED CONDITIONS:** Human capital (examples are education, skills, culture, and knowledge) is adequate to maintain natural assets and is adaptive to changes in ecological function, structure, and composition. The local workforce is engaged in prevention, protection, maintenance, and restoration activities on the Blue Mountain national forests. People who reside in the area adapt resource-related human needs for sustainable, multiple benefits and uses of these assets.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Assessment of diversity of local labor skills, education and knowledge for types of available natural resource employment	Related to 1.2.1 Community Resiliency		Forest-wide			
Population, age classes, education levels  Skills and competitiveness of local contractors to acquire local contracts			Forest-wide			

Percent of total restoration-related work awarded to residents of Blue Mountains counties						
Percent of total restoration-related work in each county awarded to residents of that county						
Size and length of contracts/type of work compared to local contractors needs						

### 3.2 CRITERIA – *Flows of Products and Services (How much of the natural assets should we use?)*

**EXPLANATION OF CRITERIA:** Human populations depend on Blue Mountain national forests’ directly or indirectly for a wide range of extractive and non-extractive goods and services. Opportunities to provide these goods and services in a sustainable manner are linked to the productive capacity of the natural capital of the forests. Stewardship decisions revolve around producing goods and services within the regenerative capacity of the natural system. The amount harvested or consumed should be from the excess (the interest) in order to be sustainable. These sustainable flows provide both market and non-market economic goods and services that people consume and/or value within the capabilities of the ecosystems (*Interior Columbia Basin Strategy*, USDA/USDI 2003).

**DESIRED CONDITIONS:** The Blue Mountain national forests provide a sustained flow of valuable ecological and economic products and services for multiple-uses by ecosystems, people, and communities within the regenerative capabilities of the ecosystems. These market and non-market goods and services result from stewardship of the natural assets (capital) and assist in providing desired social values or public goods.

#### INDICATOR 3.2.1 – *Production of Market Goods and Services (How much do we produce and how do we value it?)*

**EXPLANATION OF INDICATOR:** 'Market' goods and services are those that are traded in the market. Typical market goods include timber removed for wood products and forage consumed for domestic livestock grazing. The production of market goods and services is that amount that is produced (such as timber harvested) from a specific area over a stated period. Production of goods and services can be interpreted to include both the volume and the value.

**DESIRED CONDITION:** The Blue Mountain national forests produce sustainable flows of market goods and services from the natural income (not the capital) within the productive capacity of the Blue Mountain national forests’ ecosystems. These goods and services support commercial uses by people within and outside the area and include but are not limited to sawtimber for wood products, post and poles, fuelwood, utilization of forage for domestic livestock grazing, outfitters and guide operations, mushroom gathering, and minerals.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Volume and value of sawtimber wood products sold  Quantity and value of non-sawtimber wood products including post and poles, fuelwood  AUMs and value of forage permitted for domestic livestock grazing  Number of service days and value of outfitter and guide fees  Recreation use on fee sites/areas  Number of permits and fees from commercial mushroom gathering  Number of permits and fees from mineral operations			Forest-wide			

**INDICATOR 3.2.2 – Production of Non-marketed Goods and Services** (How much do we produce and how do we value it?)

**EXPLANATION OF INDICATOR:** The production of non-market goods and services is that amount that is produced (for example timber harvested) from a specific area over a stated period. 'Non-market' goods and services are those that are not traded in the market and are typically considered to be 'public goods'.

Typical non-market values relate to on-site uses of the Blue Mountain national forests that consume a good or service such as hunting, fishing, mushroom picking, and Christmas tree harvesting. Non-market values also relate to on-site uses that are non-consumptive such as dispersed recreation, wildlife viewing, or photography.

In addition to values associated with being physically on the Blue Mountain national forests, passive (non-use) or preservation values capture important economic value to the public (Swanson and Loomis 1996). Passive or non-use values occur when people receive benefits through the satisfaction of knowing that it exists or that it remains available to bequest to future generations rather than through actively using resources or visiting the area. These values are one measure of intrinsic or inherent value associated with off-site uses.

**DESIRED CONDITIONS:** The Blue Mountain national forests produce sustainable flows of non-market goods and services from the natural income (not the capital) within the productive capacity of the Blue Mountain national forests’ ecosystems. These goods and services provide people with multiple on-site and off-site values or uses within and outside the area such as wildlife viewing, fishing, hunting, gathering timber and non-timber products, and participating in diverse recreation opportunities.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Recreation use on non-fee sites/areas	Non-commercial uses		Forest-wide			
Number of permits and value of gathering activities						
Water volume and value						

**CRITERIA 3.3 - Trade and Distributional Equity** (How are the economic benefits from the Blue Mountain national forests shared?)

**EXPLANATION OF CRITERIA:** Trade refers to the buying and selling of goods and services that provides the foundation for local economies. Distributional equity refers to how the benefits of trade (jobs, income, consumption, and services) from the production of goods and services on the Blue Mountain national forests are shared among different segments of society.

**DESIRED CONDITION:** The Blue Mountain national forests recognize changes in the local, regional, national, and global economy and support efforts to improve the diversity of natural resource-related economies in the Blue Mountains. Local industries use innovate technologies to maintain infrastructure, add value to ecological goods and services produced from the Blue Mountain national forests and to provide high quality local jobs.

**INDICATOR 3.3.1- Trade Balance** (Are local economies self-sustaining?)

**EXPLANATION OF INDICATOR:** The trade balance is a comparison of the goods and services that are produced locally and sold in markets outside the area (exports) and the goods and services which locals purchase from outside the local area (imports).

**DESIRED CONDITION:** The Blue Mountain national forests provide a sustainable flow of a variety of commodity and non-commodity resources that assist in supporting economic sustainability of local communities and lifestyles. Local communities support economic sustainability through development of a diverse economic base including infrastructure and manufacturing of wood products, ranching, recreation and tourism opportunities.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Number of lumber and wood products processing plants			Forest-wide			
Capacity of lumber and wood products processing plants by size and type						
Change in economic base						
Changes in exports and trade balances categories						

**INDICATOR 3.3.2 – *Employment and Income*** (How does the production of goods and services on the Blue Mountain national forests affect local people?)

**EXPLANATION OF INDICATOR:** Employment is often regarded as one of the most critical dimensions and indicators of economic equity: it provides a key measure of local participation in ecosystem management, and points to local income generation. Some argue that, if one employs more local labor, then it is more likely that ecosystem management will be sustainable as local dwellers have a long-term interest in stewardship of the land. Changes in social and economic well-being may be indicated by changes in the overall magnitude of the income and also by shifts from locally-generated products and services to other external sources of income. This indicator is intended to reveal shifts in the degree of dependence on the Blue Mountain national forests and external sources of income and whether income is shifting to higher or lower paying jobs.

**DESIRED CONDITION:** Employment and income opportunities related to the Blue Mountain national forests emphasize restoration and stewardship activities to achieve ecological desired conditions. Traditional income and employment opportunities related to timber harvesting and grazing continue to contribute to the custom and culture and livelihood of residents of the local area. Recreation-related income and employment opportunities contribute to local economies and opportunities are sought to enhance 'off-season' months. Employment and income opportunities are expanded within the limits of achieving ecological desired conditions to restore the health of the land.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Direct and indirect employment in the forest sector	Relates to 1.2.1 Community Resiliency		Forest-wide			
Restoration-related employment						
Substitution of service jobs for wood and lumber products employment						
Change in average wages by type						
Change in personal income by type						

**INDICATOR 3.3.3 – Equity** (How are benefits and costs distributed now and in the future?)

**Explanation of indicator:** This indicator looks further at the issues associated with the distribution of benefits and costs to future generations. Employment and income indicators address equity issues at the scale of the individual. This indicator focuses on understanding whether there are mechanisms in place to distribute benefits and whether those benefits are distributed equitably at scales above the individual (such as by group or community).

**DESIRED CONDITIONS:** Investments in restoration and stewardship projects to meet ecological desired conditions contribute to local employment opportunities and support achieving resilient communities. Projects are designed to encourage and facilitate local firms to make long-term investments in infrastructure, equipment, and labor. Strategies and mechanisms for investment link ecosystem restoration and strengthening community capacity to implement stewardship activities. Investments in human capital support training, skills and knowledge and enhance the relationship between learning, adaptive management, and stewardship of the land.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Level and distribution of investment in ecosystem management projects	Related to 1.2.1, 3.3.3 and 3.4.1		Forest-wide			
Flexibility in innovative contracting mechanisms						
Partnership						

contributions (days, dollars, in-kind contributions)						
Level of cooperation and planning between cross-jurisdictional investments						

**CRITERIA 3.4 – *Efficiency*** (Are tax dollars being used efficiently?)

**EXPLANATION OF CRITERIA:** Efficiency refers to the how well the Blue Mountain national forests utilize resources in producing goods and services. Efficiency is a condition in which benefits are maximized relative to costs. The stewardship of economic systems is maintained by the efficient utilization of resources in producing goods and services from the Blue Mountain national forests. Efficiency can be examined at a variety of different scales including a single firm or to society as a whole.

**DESIRED CONDITION:** The Blue Mountain national forests operate efficiently and cost-effectively in producing goods and services from the stewardship of the Blue Mountain national forests.

**INDICATOR 3.4.1 – *Net Rent*** (Are revenues from the Blue Mountain national forests’ activities greater than costs?)

**EXPLANATION OF INDICATOR:** Net rent is the extent to which total production (harvesting and management) revenues exceeds production costs with respect to the long-term.

**DESIRED CONDITION:** Efficiency of the allocation of costs and benefits is understood at a variety of different scales.

Measure	Sub-Category	Data Element	Scale	Reference Value	Existing Condition	Desired Condition
Allocation and tradeoffs of the costs and benefits of projects			Forest-wide			