



<b>UNTRAMMELED QUALITY</b>			
Wilderness is essentially unhindered and free from modern human control or manipulation			
<b>MONITORING QUESTION</b>	<b>INDICATOR</b>	<b>MEASURE</b>	<b>DATA SOURCES</b>
What are the trends in actions that control or manipulate the "earth and its community of life" inside wilderness?	Actions authorized by the Federal land manager that manipulate the biophysical environment	Number of actions to manage plants, animals, pathogens, soil, water, or fire	<ul style="list-style-type: none"><li>▪ Agency data systems (if available)</li><li>▪ Local data entry by resource specialists</li><li>▪ Minimum Requirements analyses</li></ul>
		Percent of natural fire starts that received a suppression response	<ul style="list-style-type: none"><li>▪ Agency data systems</li><li>▪ National fire data systems</li><li>▪ Local data entry by resource specialists</li></ul>
		Number of lakes and other water bodies stocked with fish	<ul style="list-style-type: none"><li>▪ Agency data systems (if available)</li><li>▪ State agencies</li><li>▪ Local data entry by resource specialists</li></ul>
	Actions not authorized by the Federal land manager that manipulate the biophysical environment	Number of unauthorized actions by agencies, citizen groups, or individuals that manipulate plants, animals, pathogens, soil, water, or fire	<ul style="list-style-type: none"><li>▪ Law enforcement data systems (if available)</li><li>▪ Other federal and state agency data systems</li><li>▪ Record cards from other staff and volunteers</li><li>▪ Local data entry by resource specialists</li></ul>

## NATURAL QUALITY

Wilderness ecological systems are substantially free from the effects of modern civilization

MONITORING QUESTION	INDICATOR	MEASURE	DATA SOURCES
What are the trends in terrestrial, aquatic, and atmospheric natural resources inside wilderness?	Plant and animal species and communities	Abundance, distribution, or number of indigenous species that are listed as threatened and endangered, sensitive, or of concern	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> <li>▪ State agencies and other partners (e.g., NatureServe data)</li> <li>▪ Record cards from staff and volunteers</li> </ul>
		Number of extirpated indigenous species	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> <li>▪ State agencies and other partners (e.g., NatureServe data)</li> </ul>
		Number of non-indigenous species	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> <li>▪ State agencies and other partners (e.g., NatureServe data)</li> <li>▪ National FIA data</li> </ul>
		Abundance, distribution, or number of invasive non-indigenous species	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> <li>▪ State agencies and other partners (e.g., NatureServe data)</li> <li>▪ National FIA data</li> <li>▪ Record cards from staff and volunteers</li> </ul>
		Number of acres of authorized active grazing allotments and number of animal unit months (AUMs) of actual use inside wilderness	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> </ul>
		Change in demography or composition of communities	<ul style="list-style-type: none"> <li>▪ National FIA data</li> <li>▪ Remote sensing (satellite imagery, aerial photography)</li> <li>▪ Photopoints (for particular places of concern)</li> <li>▪ Local data entry by resource specialists</li> </ul>
		Physical resources	Visibility based on average deciview and sum of anthropogenic fine nitrate and sulfate
		Ozone air pollution based on concentration of N100 episodic and W126 chronic ozone exposure affecting sensitive plants	<ul style="list-style-type: none"> <li>▪ National EPA AIRS data</li> <li>▪ National CASTNET data</li> </ul>
		Acid deposition based on concentration of sulfur and nitrogen in wet deposition	<ul style="list-style-type: none"> <li>▪ National NADP/NTN data</li> </ul>
		Extent and magnitude of change in water quality	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Water quality monitoring stations</li> </ul>
		Extent and magnitude of human-caused stream bank erosion	<ul style="list-style-type: none"> <li>▪ Photopoints</li> <li>▪ Record cards from staff and volunteers</li> </ul>

## NATURAL QUALITY

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MONITORING QUESTION	INDICATOR	MEASURE	DATA SOURCES
		Extent and magnitude of disturbance or loss of soil or soil crusts	<ul style="list-style-type: none"> <li>▪ Remote sensing (aerial photography, satellite imagery)</li> <li>▪ Photopoints</li> <li>▪ Record cards from staff and volunteers</li> </ul>
What are the trends in terrestrial, aquatic, and atmospheric natural processes inside wilderness?	Biophysical processes	Departure from natural fire regimes averaged over the wilderness	<ul style="list-style-type: none"> <li>▪ National LANDFIRE modeling program</li> </ul>
		Extent and magnitude of global climate change	<ul style="list-style-type: none"> <li>▪ National RAWs data stations</li> <li>▪ National MODIS satellite imagery</li> <li>▪ National SNOTEL data stations</li> <li>▪ Photopoints</li> <li>▪ Historical/recent photo pairs</li> <li>▪ Remote sensing (aerial photography, satellite imagery)</li> </ul>
		Area and magnitude for pathways for movement of non-indigenous species into the wilderness	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> <li>▪ State agencies and other partners</li> </ul>
		Area and magnitude of loss of connectivity with the surrounding landscape	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> <li>▪ State agencies and other partners</li> <li>▪ Remote sensing (aerial photography, satellite imagery)</li> </ul>

### UNDEVELOPED QUALITY

Wilderness retains its primeval character and influence, and is essentially without permanent improvement or modern human occupation

MONITORING QUESTION	INDICATOR	MEASURE	DATA SOURCES
What are the trends in non-recreational development inside wilderness?	Non-recreational structures, installations, and developments	Index of authorized physical development	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> </ul>
		Index of unauthorized (user-created) physical development	<ul style="list-style-type: none"> <li>▪ Record cards from staff and volunteers for unauthorized structures and developments</li> <li>▪ Record cards and photopoints</li> </ul>
	Inholdings	Area and existing or potential impact of inholdings	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> </ul>
What are the trends in mechanization inside wilderness?	Use of motor vehicles, motorized equipment, or mechanical transport	Type and amount of administrative and non-emergency use of motor vehicles, motorized equipment, or mechanical transport	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> </ul>
		Type and amount of emergency use of motor vehicles, motorized equipment, or mechanical transport	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> </ul>
		Type and amount of motor vehicle, motorized equipment, or mechanical transport use not authorized by the Federal land manager	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> <li>▪ Record cards from staff and volunteers</li> </ul>
What are the trends in cultural resources inside wilderness?	Loss of statutorily protected cultural resources	Number and severity of disturbances to cultural resources	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> <li>▪ Photopoints</li> <li>▪ Record cards from staff and volunteers</li> </ul>

<b>SOLITUDE OR PRIMITIVE AND UNCONFINED RECREATION QUALITY</b>			
Wilderness provides outstanding opportunities for solitude or primitive and unconfined recreation			
<b>MONITORING QUESTION</b>	<b>INDICATOR</b>	<b>MEASURE</b>	<b>DATA SOURCES</b>
What are the trends in outstanding opportunities for solitude inside wilderness?	Remoteness from sights and sounds of people inside the wilderness	Amount of visitor use	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> </ul>
		Number of trail contacts	<ul style="list-style-type: none"> <li>▪ Record cards from staff and volunteers</li> </ul>
		Number and condition of campsites	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Record cards from staff and volunteers</li> </ul>
		Area of wilderness affected by access or travel routes that are inside the wilderness	<ul style="list-style-type: none"> <li>▪ Agency GIS data systems, aerial photography</li> </ul>
	Remoteness from occupied and modified areas outside the wilderness	Area of wilderness affected by access or travel routes that are adjacent to the wilderness	<ul style="list-style-type: none"> <li>▪ Agency GIS data systems, aerial photography</li> </ul>
		Night sky visibility averaged over the wilderness	<ul style="list-style-type: none"> <li>▪ National night sky visibility maps</li> </ul>
		Extent and magnitude of intrusions on the natural soundscape	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> </ul>
What are the trends in outstanding opportunities for primitive and unconfined recreation inside wilderness?	Facilities that decrease self-reliant recreation	Type and number of agency-provided recreation facilities	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> </ul>
		Type and number of user-created recreation facilities	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> <li>▪ Record cards from staff and volunteers</li> </ul>
	Management restrictions on visitor behavior	Type and extent of management restrictions	<ul style="list-style-type: none"> <li>▪ Agency data systems (if available)</li> <li>▪ Local data entry by resource specialists</li> </ul>