**Measuring Attributes of Wilderness Character**

**Bureau of Land Management Implementation Guide**

***Version 2.0***

***January 24, 2020***

This document is intended to be a short guide to *what* gets measured and *how* these measures are aggregated to assess trends in wilderness character in BLM wilderness areas, but not *why* each measure is important, or how it was decided upon. Also included are brief outlines on how the data are processed and stored. This guide assumes the reader has a working knowledge of the general concepts and terms associated with monitoring wilderness character.

This document tiers off of [***Keeping It Wild 2: An Updated Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System (General Technical Report RMRS-GTR-340)***.](https://www.fs.usda.gov/rm/pubs/rmrs_gtr340.pdf)

Table of Contents

**Introduction** 3

**Measures** 9

**Untrammeled** 9

1-1. Authorized actions and persistent structures designed to manipulate plants, animals, etc. 9

1-2. Natural fire starts manipulated within the boundaries of the wilderness 11

1-3. Unauthorized actions that manipulate plants, animals, pathogens, soil, water, or fire 13

**Natural** 15

2-1. Status of native biological communities 15

2-2. Abundance and distribution of non-native plant species 17

2-3. Abundance and distribution of non-native animal species 19

2-4. AUMs of livestock use inside wilderness 21

2-5. Visible air quality, based on average deciview and sum of anthropogenic fine nitrate and sulfate 23

2-6. Ozone air pollution, based on concentration of ozone exposure affecting sensitive plants 23

2-7. Acid deposition, based on concentration of sulfur and nitrogen in wet deposition 23

2-8. Departure from natural fire regimes, averaged over the wilderness 25

**Undeveloped** 27

3-1. Index of physical development for structures or installations 27

3-2. Area and existing or potential impact of inholdings 31

3-3. Administrative use of motor vehicles, motorized equipment, and mechanical transport 33

3-4. Use of motor vehicles, motorized equipment, and mechanical transport in emergency responses 35

3-5. Unauthorized use of motor vehicles, motorized equipment, and mechanical transport 37

**Solitude or Primitive and Unconfined Recreation** 41

4-1. Amount of visitor use 41

4-2. Remoteness inside the wilderness affected by travel routes 43

4-3. Area of wilderness affected by developments near the wilderness 47

4-4. Severity of the effect of developments near the wilderness 49

4-5. Type and number of agency-provided recreation facilities 51

4-6. Type and number of user-created recreation facilities 53

4-7. Type and extent of management restrictions 57

**Unique / Supplemental** 59

5-1. Severity of disturbances to cultural resources 59

5-2. Severity of disturbances to other features of value (optional) 61

**Data Analysis, Storage, and Reporting** 63

**Change Management** 63

***Appendix A* (Monitoring Forms)** 65

***Appendix B* (Measure 4-2)** 96

***Appendix C* (Accounting for Travel Routes in Wilderness)** 100

*To access a measure, hover over its page number in the table above, then* Ctrl + Click*.*

***Introduction***

This monitoring effort is based on the statutory requirements of The Wilderness Act of 1964. In both the Act’s “Statement of Policy” (Section 2(a)) and “Use of Wilderness Areas” (Section 4(b)), managers are directed to “preserve wilderness character.” Although never explicitly defined, “wilderness character” is circumscribed in the Act by four qualities required of wilderness areas, and a fifth quality that includes values the Act says “may” be present (Section 2(c)). The “qualities” of wilderness character are:

1) **Untrammeled:** A “trammel” is literally a net, snare, hobble, or other device that impedes the free movement of an animal. Here, used metaphorically, “untrammeled” refers to wilderness as essentially unhindered and free from modern human control or manipulation*.* The Wilderness Act defines wilderness as, “an area where the earth and its community of life are untrammeled by man,” and is “affected primarily by the forces of nature.” Wilderness is essentially unhindered and free from the intentional actions of modern human control or manipulation.

2) **Natural:** Wilderness ecological systems are substantially free from the effects of modern civilization. It is “protected and managed so as to preserve its natural conditions.”

3) **Undeveloped:** Wilderness has minimal evidence of modern human occupation or modification. It is land “retaining its primeval character and influence,” “without permanent improvements or human habitation,” “with the imprint of man's work substantially unnoticeable,” and “where man himself is a visitor who does not remain.”

4) **Solitude or Primitive and Unconfined Recreation:** Wilderness provides opportunities for people to experience natural sights and sounds, solitude, freedom, risk, and the physical and emotional challenges of self-discovery and self-reliance. It “has outstanding opportunities for solitude or a primitive and unconfined type of recreation” and “shall be administered…in such manner as will leave them unimpaired for future use and enjoyment as wilderness.”

5) **Other Features of Value:** Wilderness areas “may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.” Though these values are not required of any wilderness, where they are present, they are part of that area’s wilderness character, and must be protected as rigorously as any of the four required qualities. They must be site-specific features, integral to wilderness character. These values may or may not overlap with the other four qualities. They are usually identified in the area’s designating legislation, legislative history, original wilderness inventory, wilderness management plan, or at some other time after designation.

An interagency team developed fourteen indicators and suggested possible measures used to monitor trends in wilderness character as described in *Keeping It Wild: an Interagency Strategy to Monitor Trends in Wilderness Character.* A small interdisciplinary team of BLM employees selected the measures for those indicators to be used in BLM wilderness areas, and developed the techniques detailed to generate data for each measure. This version of the BLM Implementation Guide (2.0) incorporates the revised strategy developed from lessons learned and compiled in *Keeping It Wild 2: An Updated Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System* (2015). Significant changes to this version include:

1. Reserves Measure 2-1 for future development
2. Removed Indicator Species Protocol as an optional measure for 2-1: Status of native biological communities,
3. Separated Measure 2-2 into two separate measures: non-native plants and animal species,
4. Other features of value: replaced the previous Measure 5-2 with an optional measure for other features of value, and
5. The Data Analysis, Storage & Reporting section includes information for the online, interagency wilderness character monitoring database.

This Implementation Guide likely will be revised repeatedly over time. Each iteration will adhere to the core commitment to use measures that are adequate yet cost-effective. In meeting this commitment, the BLM must follow two principles:

1) Specific data sources must be referenced in reports, so that departures from baseline conditions can be tracked over many years. It is expected that every Field Office will maintain individual files for each wilderness in its jurisdiction, including inventory maps, data-gathering protocols, or other metadata sufficient for tracking trends.

2) Monitoring the select indicators described in *Keeping It Wild 2* is necessary but not sufficient for the proper stewardship of an individual wilderness. The monitoring described by this framework is part — but **only part** — of the monitoring plan needed for an individual unit of the National Wilderness Preservation System. For instance, it may be essential for some wilderness managers to monitor the stocking of fish in wilderness lakes, but since this is not an issue in most BLM-managed wildernesses, no such measure is included here.

The data used in measures for wilderness indicators necessarily come from multiple sources and cover multiple disciplines. Successful monitoring and detection of trends require that wilderness specialists work closely with staff in practically every other program at BLM. Specialists should confer with archaeologists, fire management specialists, botanists, range conservationists, recreation planners, geologists, and invasive weed specialists, among others. Solid working relationships with Field Office and District staffs are essential to monitoring — and stewardship — of the wilderness resource.

Because of differences between wilderness areas due to geography, biology, legal constraints, and social pressures, these indicators **should not** and **cannot** be used to compare different wildernesses. They are designed to monitor changes at **one** wilderness over time. What can (and will) be compared and aggregated at a regional and national level is simply whether wilderness character is improving, stable, or degrading.

**How to use this Implementation Guide**

This monitoring cannot, by itself, be used to evaluate the success of the BLM’s management of a wilderness. Some of the measures are beyond the control of the manager, and some are not. A decline in wilderness character may reflect an overall decline in the region in which the wilderness is located and have nothing to do with an agency decision affecting the wilderness. Conversely, a stable trend in condition may not reveal that a Section 4(c) prohibited use existing prior to designation has been left unaddressed.

Every effort has been made to include measures that are feasible and significant. Some measures are not entirely within the control of the BLM; a few are almost entirely outside the BLM’s control. They are included as important measures of changes in wilderness character but should not be used to evaluate management effectiveness. Conversely, some important measures largely beyond the BLM’s control are excluded simply because of the infeasibility of gathering data of sufficient refinement for assessing trends at one wilderness (e.g., night sky visibility).

A section in this guidance outlines processes for managing changes to this methodology. Future editions of the Implementation Guide will likely expand the sections on data analysis, reporting, and storage. The details of data handling will largely depend on actions taken by cooperating agencies – both the other wilderness-managing agencies and the United States Geological Survey. These sections are still under development and will be made available to BLM employees once they are complete.

This guidance is intended to help the BLM manage wilderness effectively at both the local and national levels. Information about how actions affect wilderness character should help guide managers in their day-to-day wilderness stewardship. Documentation of trends in wilderness character will help the BLM determine how well it is fulfilling the congressional mandate to “preserve wilderness character.”

The outline on the next page describes the measures the BLM will use to assess change in each indicator. The indicators will be used to answer questions that have been asked in order to determine the trends in each quality of wilderness character. The outline follows this structure:

***Quality of Wilderness Character***

*Monitoring Questions for which answers are necessary to assess changes in each Quality*

Indicators used to answer the Monitoring Questions

Measures applied to each Indicator

Measures that will be tracked by data generated at the state or national level (in other words, measures for which gathering data is not a Field Office responsibility) are indicated by the symbol ●

**Other Monitoring Requirements**

Wilderness character monitoring is not the only monitoring that the BLM must conduct in wilderness. Although wilderness character monitoring forms the core monitoring program for wilderness areas, other monitoring needs remain. The monitoring described in this Implementation Guide is limited to the conditions of wilderness character, not the BLM’s compliance with its wilderness policy or a third party’s compliance with an agency-issued permit. For example, the following types of monitoring are important to preserving wilderness character but cannot be incorporated into this monitoring system:

* outfitter and guide compliance with a Special Recreation Permit (SRP)
* assurance of the fulfillment of water rights associated with the federal wilderness reservation
* inholding owner compliance with a 2920 permit
* permittee compliance with terms and conditions of a grazing permit or lease

Descriptions of specific techniques used to gather data for each measure start on page 9.

**Wilderness Character Outline**

***Untrammeled***

*What are the trends in actions that intentionally control or manipulate the “earth and its community of life” inside wilderness?*

Actions authorized by the federal land manager that intentionally manipulate the biophysical environment

1-1. Number of authorized actions and persistent structures designed to manipulate plants, animals, pathogens, soil, water, or fire

* 1. Percent of natural fire starts that are manipulated within the boundaries of the wilderness

Actions not authorized by the federal land manager that manipulate the biophysical environment

1-3. Number of unauthorized actions by agencies, citizen groups, or individuals that manipulate plants, animals, pathogens, soil, water, or fire

***Natural***

*What are the trends in the natural environment from human-caused change?*

Plants

2-1. Status of native biological communities

2-2. Abundance and distribution of non-native plant species

Animals

2-3. Abundance and distribution of non-native animal species

2-4. AUMs of livestock use inside wilderness

Air and water

2-5. Visible air quality, based on average deciview and sum of anthropogenic fine nitrate and sulfate ●

2-6. Ozone air pollution, based on concentration of N100 (episodic) and W126 (chronic) ozone exposure affecting sensitive plants ●

2-7. Acid deposition, based on concentration of sulfur and nitrogen in wet deposition ●

Ecological processes

2-8. Departure from natural fire regimes, averaged over the wilderness ●

***Undeveloped***

*What are the trends in non-recreational physical development?*

Presence of non-recreational structures, installations, and developments

3-1. Index of physical development for structures or installations

Presence of inholdings

3-2. Area and existing or potential impact of inholdings

*What are the trends in mechanization?*

Use of motor vehicles, motorized equipment, or mechanical transport

3-3. Type and amount of administrative use (but not law enforcement or emergency use) of motor vehicles, motorized equipment, and mechanical transport

3-4. Proportional use of motor vehicles, motorized equipment, and mechanical transport in law enforcement or emergency responses

3-5. Type and amount of use of motor vehicles, motorized equipment, or mechanical transport not authorized by the federal land manager

***Solitude or Primitive and Unconfined Recreation***

*What are the trends in outstanding opportunities for solitude?*

Remoteness from sights and sounds of people inside the wilderness

4-1. Amount of visitor use

4-2. Remoteness inside the wilderness affected by travel routes

Remoteness from occupied and modified areas outside the wilderness

4-3. Area of wilderness affected by developments near the wilderness

4-4. Severity of the effect of developments near the wilderness

*What are the trends in outstanding opportunities for primitive and unconfined recreation?*

Facilities that decrease self-reliant recreation

4-5. Type and number of agency-provided recreation facilities

4-6. Type and number of user-created recreation facilities

Management restrictions on visitor behavior

4-7. Type and extent of management restrictions

***Other Features of Value***

*What are the trends in the unique features that are tangible and integral to wilderness character?*

Deterioration or loss of other integral site-specific features of value

5-1. Severity of disturbances to cultural resources

5-2. Severity of disturbances to other features of value

The table below summarizes the relationship between wilderness character, its five qualities, the monitoring questions used to tease apart various components of these qualities, the indicators chosen to answer the monitoring questions, and the corresponding measures that are detailed in this document.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Wilderness Character** | **Quality** | **Monitoring Question** | **Indicator** |  | | **Measure** |
| **Untrammeled** | Intentional Manipulation | Authorized | 1-1. | Number of authorized actions and persistent structures designed to manipulate plants, animals, etc. | |
| 1-2. | Natural fire starts manipulated within the wilderness | |
| Unauthorized | 1-3. | Number of unauthorized actions that manipulate plants, animals, etc. | |
| **Natural** | Natural Resources | Plants | 2-1.  2-2. | Native biological communities  Non-native plant species | |
| Animals | 2-3. | Non-native animal species | |
| 2-4. | AUMs of livestock inside wilderness | |
| Air & Water | 2-5. | Visible air quality | |
| 2-6. | Ozone air pollution | |
| 2-7. | Acid deposition | |
| Natural Processes | Ecological Processes | 2-8. | Departure from natural fire regimes | |
| **Undeveloped** | Development | Development | 3-1. | Index of physical development for structures or installations | |
| Inholdings | 3-2. | Area and existing or potential impact of inholdings | |
| Mechanization | Motorized /  Mechanical use | 3-3. | Administrative use of motor vehicles, motorized equipment, and mechanical transport | |
| 3-4. | Use of motor vehicles, motorized equipment, and mechanical transport in emergency responses | |
| 3-5. | Unauthorized use of motor vehicles, motorized equipment, and mechanical transport | |
| **Outstanding**  **Opportunities** | Solitude | Remoteness Inside | 4-1. | Amount of visitor use | |
| 4-2. | Remoteness inside the wilderness affected by travel routes | |
| Remoteness from Outside | 4-3. | Area affected by developments near the wilderness | |
| 4-4. | Severity of effect of developments near wilderness | |
| Primitive & Unconfined  Recreation | Facilities | 4-5. | Type and number of agency-provided recreation facilities | |
| 4-6. | Type and number of user-created recreation facilities | |
| Restrictions | 4-7. | Type and extent of management restrictions | |
| **Other Features of Value** | Unique Features | Loss | 5-1. | Severity of disturbances to cultural resources | |
| Loss | 5-2. | Severity of disturbances to other features of value | |

**Monitoring Frequency**

Each measure will be monitored on an annual or five-year schedule as indicated in this summary table. Measures are fully described in the following section.

|  |  |  |  |
| --- | --- | --- | --- |
| Measure | | Annual | 5 year |
| 1-1 | Number of authorized actions and persistent structures designed to manipulate plants, animals, pathogens, soil, water, or fire | X |  |
| 1-2 | Percent of natural fire starts that are manipulated within the boundaries of the wilderness | X |  |
| 1-3 | Number of unauthorized actions by agencies, citizen groups, or individuals that manipulate plants, animals, pathogens, soil, water, or fire | X |  |
| 2-1 | [Reserved.] |  |  |
| 2-2 | Abundance and distribution of non-native plant species |  | X |
| 2-3 | Abundance and distribution of non-native animal species |  | X |
| 2-4 | AUMs of livestock use inside wilderness | X |  |
| 2-5 | *(not reported at the field level)* |  |  |
| 2-6 | *(not reported at the field level)* |  |  |
| 2-7 | *(not reported at the field level)* |  |  |
| 2-8 | [Reserved.] |  |  |
| 3-1 | Index of physical development for structures or installations |  | X |
| 3-2 | Area and existing or potential impact of inholdings |  | X |
| 3-3 | Type and amount of administrative use (but not law enforcement or emergency use) of motor vehicles, motorized equipment, and mechanical transport | X |  |
| 3-4 | Proportional use of motor vehicles, motorized equipment, and mechanical transport in law enforcement or emergency responses | X |  |
| 3-5 | Type and amount of use of motor vehicles, motorized equipment, and mechanical transport not authorized by the federal land manager | X |  |
| 4-1 | Amount of visitor use | X |  |
| 4-2 | Remoteness inside the wilderness affected by travel routes |  | X |
| 4-3 | Area of wilderness affected by developments near the wilderness |  | X |
| 4-4 | Severity of the effect of developments near the wilderness |  | X |
| 4-5 | Type and number of agency-provided recreation facilities |  | X |
| 4-6 | Type and number of user-created recreation facilities | X |  |
| 4-7 | Type and extent of management restrictions |  | X |
| 5-1 | Severity of human-caused disturbances to cultural resources |  | X |
| 5-2 | Severity of disturbances to other features of value *(if applicable)* |  | X |

***The Measures***

**Untrammeled**

**Untrammeled** **Measure 1-1****. *Number of authorized actions and persistent structures designed to manipulate plants, animals, pathogens, soil, water, or fire***

Technique

Each separate action is counted annually. Each persistent structure is counted every year it is in operation.

Definitions

**Action**: the implementation of an intentional decision to manipulate the biophysical environment. The following general rules apply:

If an action spans multiple locations and the action remains the same, only one action would be reported. For example, treatment of a single invasive plant species in several locations within the wilderness = 1 action.

If a continuous action spans multiple fiscal years and the action remains the same, it will be counted once in each year. Example: treatment of a single invasive plant species is initiated in one fiscal year and the action continues into the next fiscal year = 2 actions.

If more than one species is targeted for an action, only one action is recorded for all targeted species. Example: one herbicide treatment is used to reduce populations of two different invasive plants = 1 action; one seed mix of four native seeds is spread at one time = 1 action.

If the type of treatment changes, each type would count as a separate action. Example: mechanical treatment is added to the use of herbicides = 2 actions; post-fire mechanical rehabilitation of dozer lines plus re-seeding disturbed ground = 2 actions.

**Persistent structure**: anything built with the intent of altering the hydrology of “the earth and its community of life” (e.g., fish dam, wildlife guzzler, or stock pond, regardless of size).

If a structure is still present but no longer functions in a way that manipulates plants, animals, pathogens, soil, water, or fire (e.g., a breached stock pond), it is not counted here but is still counted in Measure 3-1.

If a structure still functions, it is counted here even if the reason for its construction no longer applies. Example: a stock pond on a relinquished allotment that still captures water = 1 action. The structure is also counted in Measure 3-1.

Only monitor fences in this measure if they are constructed to control native wildlife (e.g., a fence built to prevent deer from browsing aspen). If a fence functions to control livestock while providing safe passage for wildlife, it is counted in Measure 3-1 only.

Examples

Spraying herbicide to control populations of invasive plants

Spreading seed to rehabilitate an area that burned

Rehabilitating an old travel route

Manipulating wildlife habitat (e.g., existing guzzlers, creating fish barriers)

Removing animals (e.g., predators)

Using management-ignited prescribed fire to reduce accumulated fuels

A functioning stock pond



Sideboards & Notes

Data are collected annually. Over time, an increase in this value is a decrease in this indicator of wilderness character.

This measure tracks the point of implementation of any action, as well as the persistence of functioning structures (i.e., the decision to install a guzzler counts as one action the year the guzzler is installed, and one action each subsequent year it is functioning, regardless of whether the reason for its construction or installation still applies).

Functioning water catchments of any size will be counted in Measure 3-1 as well. If they cease to function (that is, no longer retain water), they would no longer be counted under Measure 1-1, but would remain under Measure 3-1 until they were physically removed or rehabilitated.

This measure does not make a subjective judgment of the value of each action (i.e., it does not decide if one action “trammels” more than another). Actions clearly vary in significance; however, it is neither practical nor reasonable to try to apply a value beyond an equal weight to various actions.

As with many other measures, data can be expected to vary greatly from year to year. Regression analysis will be necessary to determine if any trend is present.

Ancillary data

Maintain consistency in describing “type” (e.g., biological control of non-indigenous plants, chemical control of non-indigenous plants, mechanical control of non-indigenous plants, etc.) and “reason” (e.g., improving natural quality, legislative provision that requires action, etc.) for the actions listed.

To go to the fillable report form for this measure, click [**here**](#measure1_1).

**Untrammeled** **Measure 1-2****. *Percent of natural fire starts that are manipulated within the boundaries of the wilderness***

Technique

The number of natural ignition fires manipulated by fire managers is divided by the total number of natural fire starts; this fraction is multiplied by 100 and recorded as the nearest whole percent. If there are no natural fire starts, the value reported is 0 (zero).

Definition

**Manipulation**: Any action taken inside a wilderness boundary to affect fire behavior.

Example



Sideboards & Notes

Data are collected annually. Over time, an increase in this value is a decrease in this indicator of wilderness character.

While it is true that manipulating fires that are not natural starts (i.e., human-caused ignitions) also decreases the untrammeled quality, these actions are not tracked here as virtually all of those fires are manipulated and their inclusion might mask changes in fire responses over which the BLM has greater discretion.

This measure tracks the trammeling effects of fire management only within wilderness boundaries. The effects of fires suppressed outside the wilderness which would have burned into a wilderness are tracked in **Measure 2-8**.

This information provides a brief rationale behind fire suppressions, but this might not be sufficient to meet the requirements of a Wildland Fire Implementation Plan.

To go to the Fillable report form for this measure, click [here](#measure1_2).

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**Untrammeled** **Measure 1-3****. *Number of unauthorized actions by agencies, citizen groups, or individuals that manipulate plants, animals, pathogens, soil, water, or fire***

Technique

Each separate action is counted annually.

Definitions

**Action**: an intentional decision to manipulate the biophysical environment. The same general rules apply as with authorized actions (**Measure 1-1**).

**Unauthorized**: any action undertaken by any individual, group, or agency without specific approval by the authorized line officer. (Any action that manipulates the biophysical wilderness environment requires such approval.)

Examples

Illegal firewood cutting

Stocking a lake with exotic trout by a “bucket biologist”

Poisoning a lake to kill exotic trout by a “friends” group

Stocking a lake with native trout by a state agency without specific authorization from the BLM

Setting arson fire



Sideboards & Notes

Data will be collected annually. Over time, an increase in this value is a decrease in this indicator of wilderness character.

Changes in this value must be interpreted with care. Reported increases (or decreases) in illegal activities might be the result of changes in time and resources dedicated to enforcement, rather than in the actual character of use.

Unlike **Measure 1-1**, this measure tracks only the decision point, not the persistent evidence of the decision. There should be no persistent unauthorized structures in a wilderness.

To go to the fillable report form for this measure, click [here](#measure1_3).

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**Natural**

**Natural Measure 2-1****.** ***Status of native biological communities***

**[Reserved]**

**This measure is reserved for future development. As a result, it is not currently necessary for Field Offices to collect baseline data for this measure.**

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**Natural** **Measure 2-2****. *Abundance and distribution of non-native plant species***

Technique

Each non-native plant species or non-native pathogen that uses a plant as its primary host is scored by the estimated percent of wilderness acreage that is occupied by that species and by the estimated population density where it is found. Values are assigned according to the table below. Scores are multiplied together for each species monitored under this measure, and the resulting products are summed to generate a total score.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **estimated percent** of the wilderness on which it is found | **Score** |  | **estimated density** in the areas where found | **Score** | **Total** |
|  | Very Low (or Spot) = <1% | 1 | low = <5% of individuals | 1 |  |
| Low = 1-5% | 2 |
| Moderate = 5-20% | 3 | moderate = 5-25% of individuals | 3 |
| High = 20-35% | 4 |
| Very High = 35-65% | 5 | high = >25% of individuals | 5 |
| Extreme = >65% | 6 |

Once data are initially collected, periodic review and updates every 5 years should be sufficient to track changes over time, but more frequent monitoring may be appropriate to prioritize management actions.

Definitions

**Indigenous**: a species which originally inhabited the area now designated as wilderness. In this monitoring protocol, the term nonnative is used interchangeably with non-indigenous.

**Density**: a ratio between the number of individuals of one species and the number of individuals of all the species belonging to the same taxonomic kingdom, class, or order. I.e., a plant species will be compared with all other plants. For aquatic species, use only the aquatic area of the wilderness to estimate density.

Example

A wilderness has cheat grass found throughout the area, usually in densities of 10% to 20% of the plants present; thick stands of tamarisk are found in several spots along most of the washes. Total acreage where tamarisk is present is less than 5%, but probably more than 1% of the wilderness. There is a tree-of-heaven at an old homesite, which does not appear to be reproducing.



Sideboards & Notes

Data will be gathered every five years. Over time, an increase in this value is a decrease in this indicator of wilderness character.

The use of broad categories is a crude measure, but it is unlikely that most wilderness areas have more accurate data on the extent of invasive species. It should be possible to use field experience coupled with professional judgment to assign broad categories. However, initial data collection should be as complete as possible in order to reliably identify trends over time.

This methodology makes no distinction as to the relative threats of the various species present. Such determinations are advisable prior to taking control actions.

Non-indigenous invasive species can spread into a wilderness from human-caused actions not in the wilderness. An increase in the number of non-indigenous species over time could be caused by actions not under the control of a wilderness manager, but it is an impact to naturalness nonetheless.

Ancillary data

The “comments” section should include an indication as to how confident the reporting office is in the classifications and number of species accounted for.

To go to the fillable report form for this measure, click [here](#Form_2_2).

**Natural** **Measure 2-3****. *Abundance and distribution of non-native animal species***

Technique

Each non-native animal species, or non-native pathogen that uses an animal as its primary host, is scored by the estimated percent of wilderness acreage that is occupied by that species and by the estimated population density where it is found. Values are assigned according to the table below. Scores are multiplied together for each species monitored under this measure, and the resulting products are summed to generate a total score.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **estimated percent** of the wilderness on which it is found | **Score** |  | **estimated density** in the areas where found | **Score** | **Total** |
|  | Very Low (or Spot) = <1% | 1 | low = <5% of individuals | 1 |  |
| Low = 1-5% | 2 |
| Moderate = 5-20% | 3 | moderate = 5-25% of individuals | 3 |
| High = 20-35% | 4 |
| Very High = 35-65% | 5 | high = >25% of individuals | 5 |
| Extreme = >65% | 6 |

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Definitions

**Indigenous**: a species which originally inhabited the area now designated as wilderness. In this monitoring protocol, the term nonnative is used interchangeably with non-indigenous.

**Density**: a ratio between the number of individuals of one species and the number of individuals of all the species belonging to the same taxonomic kingdom, class, or order. I.e., a bird species will be compared with all other bird species; a mammal species will be compared with all other mammals. For aquatic species, use only the aquatic area of the wilderness to estimate density.

Example

A wilderness contains non-native chukar, which has spread throughout the wilderness except on the upper slopes of Mt. Robert.



Sideboards & Notes

Data will be gathered every five years. Over time, an increase in this value is a decrease in this indicator of wilderness character.

Part-year residents are counted the same as year-round residents. Do not count species that are only migratory.

Do not include livestock in this measure – they are counted in measure 2-4

The use of broad categories is a crude measure, but it is unlikely that most wilderness areas have more accurate data on the extent of invasive species. It should be possible to use field experience coupled with professional judgment to assign broad categories. However, initial data collection should be as complete as possible in order to reliably identify trends over time.

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Non-indigenous invasive species can spread into a wilderness from human-caused actions not in the wilderness. An increase in the number of non-indigenous species over time could be caused by actions not under the control of a wilderness manager, but it is an impact to naturalness nonetheless.

Ancillary data

The “comments” section should include an indication as to how confident the reporting office is in the classifications and number of species accounted for.

To go to the fillable report form for this measure, click [here](#measure2_2).

**Natural** **Measure 2-4****. *AUMs of livestock use inside wilderness***

Technique

The number of animal unit months (AUMs) of actual livestock grazing in a wilderness is totaled. If more than one allotment exists in the wilderness, add those subtotals together. If an allotment is both inside and outside a wilderness, multiply the allotment’s AUMs by the percentage of the allotment inside the wilderness. If the portion of the allotment inside the wilderness is its own separate pasture, count that pasture as if it were a separate allotment.

Example

One thousand acres of a 5,000-acre allotment is within the wilderness; the allotment is permitted for 800 AUM, but only 500 AUM are being used by the permittee. There is a second allotment of 2,450 acres entirely within the wilderness, permitted (and used) at 425 AUM.



Sideboards & Notes

Data will be gathered every year. Over time, an increase in this value is a decrease in this indicator of wilderness character.

As it is expected that the actual AUMs may well be less than the permitted AUMs and will vary from year to year due to rest/rotation grazing practices, environmental conditions, or market fluctuations, regression analysis must be used to determine if changes are significant.

The use of livestock as a management technique to control exotic vegetation is NOT tracked here but is accounted for in **Measure 1-1**.

This measure does not include AUMs dedicated to wildlife or wild horses and burros

Ancillary data

Many allotments—or even pastures—may cross wilderness boundaries, making interpolation of data necessary. “Comments” section should include description of how such interpolations were derived, to ensure consistency over time.

To go to the fillable report form for this measure, click [here](#measure2_3).

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**Natural** **Measure 2-5****. *Visible air quality, based on average deciview and sum of anthropogenic fine nitrate and sulfate***

**Natural Measure 2-6****. *Ozone air pollution, based on concentration of N100 (episodic) and W126 (chronic) ozone exposure affecting sensitive plants***

**Natural Measure 2-7****. *Acid deposition, based on concentration of sulfur and nitrogen in wet deposition***

**Field Offices do not need to collect baseline data for these measures (see below).**

Technique

The values for these three measures will be gathered nationally for all four wilderness-managing agencies. Extrapolations will address spatial gaps. Details of reporting are unclear at this time.

Sideboards & Notes

Depending upon the distance from a wilderness to the monitoring stations used for each of these measures, data significance will be variable. More refined data methods are currently unavailable.

It is expected that all concerned parties will realize changes in these values are almost entirely outside the purview of the wilderness manager. Nevertheless, changes in air quality are important to track over time as indicative of an essential component of wilderness character.

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**Natural** **Measure 2-8****. *Departure from natural fire regimes, averaged over the wilderness***

**[Reserved]**

**This measure is reserved for future development. As a result, it is not currently necessary for Field Offices to collect baseline data for this measure.**

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**Undeveloped**

**Undeveloped** **Measure** **3-1****. *Index of physical development for structures or installations***

Technique

An index of physical development within the wilderness is derived from the sum of the development levels of various types of infrastructure. This index attempts to capture varying degrees of impacts from different types of structures.

|  |  |
| --- | --- |
| For each **building**, if the building type is: | Assign that building the value: |
| Non-residential: buildings that do not house people, such as toilets and storage sheds, or structures that were intended to house people but can no longer fulfill that purpose *AND are not eligible for the National Register of Historic Places.* | 2 |
| Part-time (seasonal) residential: buildings that are occupied by people for a cumulative total of 6 months or less each year. This may include some lookouts, as well as certain recreation shelters, including buildings that only receive day use. | 5 |
| Full-time (year-round) residential: for buildings that are occupied by people for a cumulative total of more than 6 months each year. This may include crew quarters, outfitter and guide lodges, and certain recreational cabins, including buildings that only receive day use. | 10 |
| For each **Fence Line segment**, if the fence is: | Assign that segment its miles (to nearest tenth) in length multiplied by the value: |
| Primitive: constructed of native materials or native materials and wire | 1 |
| Non-primitive: constructed predominantly of nonnative materials (metal or treated wood posts) | 2 |
| For each **dam**, if the dam type is: | Assign that dam the value: |
| Small dams constructed of native materials (including stock ponds): less than 6 feet high and a maximum storage less than 15 acre-feet. | 3 |
| Medium dams constructed of native materials (including stock ponds): greater than 6 feet high but less than 10 feet high; or a maximum storage greater than 15 acre-feet but less than 25 acre-feet. | 5 |
| Large dams constructed of native materials or any dam constructed of non-native materials: greater than 10 feet high or maximum storage greater than 25 acre-feet that are constructed with native materials; OR any dam constructed with non-native materials (e.g., concrete). | 10 |
| For each **ROW, permit, easement,** or **authorization** for a linear feature: | Assign that segment its miles (to nearest tenth) in length multiplied by the value: |
| Impassable to vehicles. | 1 |
| Not maintained but suitable for high-clearance vehicles. | 3 |
| Suitable and maintained for high-clearance vehicles. | 5 |
| Suitable and maintained for passenger vehicles. | 10 |
| For each piece of **non-linear** **infrastructure** or **site**: | Assign each piece of infrastructure the value: |
| Any small-scale installation or other structure (e.g., a repeater, windmill, stock trough, guzzler, old dump, plane crash, UXO). Count each piece of infrastructure separately (e.g., a windmill and associated stock trough are two pieces of infrastructure). | 2 |
| For each **mine**, if the mine is: | Assign that mine the value: |
| Reclaimed and restored | 0 |
| Small, inactive: mines whose disturbed area is less than or equal to 1 acre and that are no longer actively being worked, including abandoned historical mines that are still apparent. | 2 |
| Small, active: mines whose disturbed area is less than or equal to 1 acre and that are currently under development. | 10 |
| Large, inactive: mines whose disturbed area is greater than 1 acre and that are no longer actively being worked, including abandoned historical mines that are still apparent. | acreage of disturbance (to the nearest acre) \* 2 |
| Large, active: mines whose disturbed area is greater than 1 acre and that are currently under development. | acreage of disturbance (to the nearest acre) \* 10 |

Definitions

**Building**: a structure designed to support, shelter, or enclose persons, animals, or property of any kind.

**Dam:** any artificial barrier which impounds or diverts water, including stock ponds.

**ROW, Permit, Easement, or Authorization:** any granted use, including for vehicle travel and structures such as water pipelines and telephone lines. This includes vehicle routes to livestock developments which have not been rehabilitated, even if route is not maintained and vehicular use is limited to approved maintenance. This does NOT include cherry-stem routes, which are tracked in **Measure 4-3**.

**Non-linear infrastructure:** Pre- or post-designation installations or structures used to support activities such as telecommunications, water development, livestock grazing, or wildlife management. It includes debris such as old dump sites, plane crash sites, or locations of unexploded ordinance. It includes memorials or other monuments other than those placed during land surveys. It also includes unattended measurement device left in place for at least one year for the purpose of recording environmental data, such as meteorology or seismic activity. It does not include recreation infrastructure (accounted for in **Measure 4-4**). Infrastructure placed for temporary use (i.e., less than one year, such as a repeater that is installed to support fire management activities for a specific incident) is not included, nor are mobile installations such as radio collars.

Example

(See next page)



Sideboards & Notes

Data will be gathered every five years. Over time, an increase in this value is a decrease in this indicator of wilderness character.

This index number has no meaning in an absolute sense. An index value of 432 should not be interpreted as having twice the development level of a wilderness with a development level of 216. However, the use of this index is useful in a relative sense for showing increasing or decreasing trends over time at any one wilderness.

The relative values assigned to each development type and to the level of development within each type are highly subjective and may not reflect the actual relative impact of these developments in any one wilderness.

This measure does not track structures eligible for the National Register of Historic Places. Cultural properties are tracked in **Measure 5-1**.

This measure may include developments associated with life-estate occupancies.

Developments primarily made for recreational purposes (e.g., trails, footbridges, campsites, etc.) are tracked under the Solitude or Primitive and Unconfined Recreation quality in **Measure 4-4**.

In most cases, individual adits and shafts are grouped together into a mining area for determining what is monitored as a “mine.” Do not, however, group mining activity based on claim ownership. Mining disturbance groupings should be those that are in close proximity without large undisturbed areas in-between. **NOTE**: **a value for a mine’s size (nearest acre) must be entered in order for that mine’s score to register.**

Ancillary data

It is critical that an adequate base map of these developments be referenced so that changes over time can be reliably determined. Future data input could be arranged so the six individual components of the index could be tracked separately to assess trends in various types of development.

To go to the fillable report form for this measure, click [here](#measure3_1).

**Undeveloped** **Measure 3-2****. *Area and existing or potential impact of inholdings***

Technique

The index of inholdings is calculated by multiplying the acres of each inholding by the value of its development potential from the table below, and summing all the resultant quantities.

|  |  |
| --- | --- |
| For each **inholding**, if its development potential is: | Multiply its acres by: |
| Low – the inholding is owned by an entity that has shown interest in sale or exchange of its land to the BLM; or is party to a legal document (e.g., a conservation easement) that specifically commits the owner to manage the property in a manner compatible with wilderness designation. | 1 |
| Unknown – the inholding owner has expressed no desire to sell, exchange, or develop the inholding, or has indicated a preference for development but the agency believes it infeasible. | 2 |
| High – the inholding owner has shown interest in developing the property. Development is considered feasible by the agency. | 3 |
| Developed – the inholding owner has developed the inholding. | 5 |

Definitions

**Inholding**: non-federal land within the boundary of a wilderness. It does NOT include cherry-stemmed parcels or external edgeholdings that may be acquired. (It DOES include non-federal land at the edge of the wilderness if the wilderness boundary includes that parcel.)

Example

A wilderness includes one State section that the state is interested in exchanging, and an 80-acre parcel held by a wealthy developer who plans to build a fly-in resort.



Sideboards & Notes

Data will be gathered every five years. Over time, an increase in this value is a decrease in this indicator of wilderness character.

Determining the feasibility of development can be problematic. It is better to rate the threat high and lower it as more favorable conditions are confirmed.

This measure does not explicitly include ROWs (part of **Measure 3-1**), though it assumes their status would be evaluated in determining the feasibility of development.

This measure does not include development on adjacent lands (part of **Measure 4-3**).

To go to the fillable report form for this measure, click [here](#measure3_2).

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**Undeveloped** **Measure 3-3****. *Type and amount of administrative use (but not law enforcement or emergency use) of motor vehicles, motorized equipment, and mechanical transport***

Technique

This measure is the sum of the number of motor vehicles, pieces of motorized equipment, and mechanical transport authorized multiplied by the number of days authorized for each piece of equipment. Motor vehicles are weighted twice as much as mechanical transport so that, for instance, an increase in this measure of the Undeveloped quality of wilderness character is gained if a horse-drawn wagon replaces an ATV.

Definitions

**Motor vehicles**: Machines used to transport people or material across or over land, water, or air, and which are powered by the use of a motor, engine, or other nonliving power source. This includes, but is not limited to motor boats, ATVs, snowmobiles and aircraft that either land or drop off or pick up people or material (i.e., not aircraft that merely fly over the wilderness).

**Motorized equipment**: Machines that are not used for transportation but are powered by a motor, engine, or other nonliving source. This includes but is not limited to machines such as chainsaws and generators. It does not include small hand-carried devices such as shavers, wristwatches, flashlights, cameras, stoves, or other similar small equipment.

**Mechanical transport**: Any contrivance for moving people or material in or over land, water, or air, having moving parts, that provides a mechanical advantage to the user, and that is powered by a living or non-motorized power source. This includes, but is not limited to, sailboats, hang gliders, parachutes, bicycles, game carriers, carts, and wagons. It does not include wheelchairs when used as necessary medical appliances. It also does not include skis, snowshoes, rafts, canoes, sleds, travois, or similar primitive devices without moving parts.

Example

First action: two helicopters authorized for five days each. Second action: one horse-drawn fresno plow authorized for two days and a chainsaw authorized for ten days. Both actions were analyzed through a minimum requirements analysis by using the Minimum Requirement Decision Guide.



Sideboards & Notes

Data will be gathered annually. Over time, an increase in this value is a decrease in this indicator of wilderness character.

This measure tracks what is *authorized* for use; this might be different than actual use.

This measure does not track the use of motorized equipment or mechanical transport by law enforcement or in emergencies (**Measure 3-4**), nor unauthorized use (either illegal uses or uses in excess of that which is authorized; both are tracked under **Measure 3-5**). Depending on the availability of data for each wilderness, BLM staff may or may not track the use of motorized equipment or mechanical transport where such use is legal without requiring BLM authorization (e.g., Border Patrol operations). Data sources and assumptions should be consistent over time at any one wilderness and noted in ancillary data.

Ancillary data

Data fields should include: reference to the authorizing minimum requirements analysis as well as the agency authorized to use the equipment. Future data may include actual use, if different from authorized use.

To go to the fillable report form for this measure, click [here](#measure3_3).

**Undeveloped** **Measure 3-4****. *Proportional use of motor vehicles, motorized equipment, and mechanical transport in law enforcement or emergency responses***

Technique

This measure is the sum of the number of motor vehicles, pieces of motorized equipment, and mechanical transport used to respond to each law enforcement incident or emergency (motor vehicles are weighted twice as much as mechanical transport) divided by the total number of emergencies (i.e., including those where no motorized equipment or mechanical transport were used). For the purpose of this protocol, each day of one incident is counted separately.

Definitions

**Law enforcement:** In this context, taken to mean actions by a BLM ranger or other law enforcement official (e.g., county sheriff, Border Patrol agent) for which approval for the use of motorized equipment is not required in advance (e.g., “hot pursuit.”)

**Emergency:** An event that presents an imminent threat to human health and safety, or other event that causes another threat as may be addressed by law, regulation, or policy (e.g., the Congressional Grazing Guidelines).For this measure only, this does not include fire emergencies.

**Motor vehicles, motorized equipment** and **Mechanical transport**: same as in **Measure 3-3**. Search aircraft that do not land are not counted; aircraft that drop or pick up supplies or searchers are counted.

Example

A wilderness has five emergencies in a year. On each of two occasions, a helicopter was called in to pick up injuries; on one occasion, four snowmobiles were dispatched into the wilderness for two days to search for a missing skier who was later found in the local bar; once an injured person was carried out on a wheeled litter; and once an injured person was carried out on horseback.



Sideboards & Notes

Data will be gathered annually. Over time, an increase in this value is a decrease in this indicator of wilderness character.

By counting motorized equipment used to transport people or material as both motorized equipment and mechanical transport, an increase in the Undeveloped quality of wilderness character is gained if rescuers started using a wheeled litter instead of an ATV.

Ancillary data

“Emergency” column should include the agency using the equipment if that is not obvious from the nature of law enforcement action or emergency.

To go to the fillable report form for this measure, click [here](#measure3_4).

**Undeveloped** **Measure 3-5****. *Type and amount of use of motor vehicles, motorized equipment, and mechanical transport not authorized by the federal land manager***

Technique

The use of unauthorized equipment by each of the following categories of users is assigned a score, depending on its frequency of use multiplied by its areal extent. The scores of each type of user are summed to generate a total score reported for this measure. Pick only one “frequency of unauthorized use” and only one “extent of unauthorized use” for each category of user.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **Frequency of unauthorized use** | **Score** | **Extent of unauthorized use** | **Score** | **Total** |
| Public | less than 3x per year | 1 | one or two locations | 1 |  |
| 3x/year to 1x/month | 2 | three to five locations | 2 |
| more than 1x/month | 3 | six or more locations | 3 |
| Permittees | less than 3x per year | 1 | one or two locations | 1 |  |
| 3x/year to 1x/month | 3 | three to five locations | 2 |
| more than 1x/month | 5 | six or more locations | 3 |
| Agencies | less than 3x per year | 1 | one or two locations | 1 |  |
| 3x/year to 1x/month | 3 | three to five locations | 2 |
| more than 1x/month | 5 | six or more locations | 3 |
| **GRAND TOTAL** | | | | |  |

Definitions

**Motor Vehicles,** **Motorized Equipment** and **Mechanical Transport:** same as in **Measure 3-3**, except there is no double-weight of **Motor Vehicles**.

**Public:** members of the general public. The use of motor vehicles, motorized equipment, or mechanical transport by this group is never authorized. Typical prohibited equipment includes OHVs, mountain bikes, and game carts.

**Permittees:** people or organizations with a permit from the BLM to operate on public land, whether within or outside the wilderness (e.g., livestock operators, Special Recreation Permit holders). The use of motor vehicles, motorized equipment, or mechanical transport by some members of this group may be authorized. This measure tracks the use in excess of that which is authorized.

**Agencies:** any governmental body or individual employed by that body engaged in official business. This includes members from all levels of government as well as BLM staff whose use of this equipment is not authorized. The use of motor vehicles, motorized equipment, or mechanical transport by this group is frequently authorized, but the authorization must be explicit and in conformance with the applicable wilderness laws.

***Frequency of use****: the ranges described above (in the darkly shaded cells) should be changed for any one wilderness if the conditions at the time of designation are such that the range described above is not useful.* For instance, a wilderness with an extensive history of OHV intrusions by the public could use the categories in the example below, or any other three-part division that will allow for adequate opportunities to track improvement or degradation over time. *Whatever scale is used, it is essential that each area’s wilderness character monitoring file include the scale used at the time of gathering the baseline dat*a, and that this scale be used for future monitoring. *In addition, if unauthorized use occurs, chose a range of frequency so that the baseline condition has a frequency score of 2. In that way, changes to this measure will be reflected with either more or less unauthorized use.* See the following table for an example of an alternate scale for frequency. Note that the frequency intervals do not have to be the same for each category of user.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **Frequency of unauthorized use** | **Score** | **Extent of unauthorized use** | **Score** | **Total** |
| Public | less than 1x/ month | 1 | one or two locations | 1 |  |
| 1x/month to 1x/week | 2 | three to five locations | 2 |
| more than 1x/week | 3 | six or more locations | 3 |
| Permittees | less than twice per year | 1 | one or two locations | 1 |  |
| 3x/year to 1x/month | 3 | three to five locations | 2 |
| more than 1x/month | 5 | six or more locations | 3 |
| Agencies | less than once per year | 1 | one or two locations | 1 |  |
| 2x/year to 1x/month | 3 | three to five locations | 2 |
| more than 1x/month | 5 | six or more locations | 3 |
| **GRAND TOTAL** | | | | |  |

Example

A wilderness has frequent OHV intrusions along most of its boundary; at the end of his season of use, one of the livestock permittees occasionally drives in to a lookout point to search for cattle; there is no unauthorized agency use of motor vehicles, motorized equipment, or mechanical transport.



Sideboards & Notes

Data will be gathered annually. Over time, an increase in this value is a decrease in this indicator of wilderness character.

See important notes on the development of alternative frequency-of-use ranges (the darkly shaded cells) as detailed in the “Definitions” section above.

Due to the nature of these violations, it is unlikely that land managers could be more precise than the categories of frequency used here.

The frequency scores are weighted to reflect the belief that violations by permittees or agency personnel are more akin to an authorized use and (theoretically, at least) more feasible for the managing agency to control. Weighting gives a greater incentive to do so.

It must be recognized that it may be difficult to assign a user category for a particular unauthorized use. Field staff experience and best judgment must be used.

Changes in this value must be interpreted with care. Reported increases (or decreases) in illegal activities might be the result of changes in time and resources dedicated to enforcement, rather than in the actual character of use.

To go to the fillable report form for this measure, click [here](#measure3_5).

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**Solitude or Primitive and Unconfined Recreation**

**Recreation** **Measure 4-1****. *Amount of visitor use***

Technique

Various. Develop a reliable, valid system for measuring use consistent with the unique situation for the wilderness. Examples include:

* + - trailhead car counts (which might then be adjusted for the average number of people per vehicle)
    - trail counters (which might then be converted to groups by adjusting for average party size)
    - permit systems and trailhead registrations (with checks for compliance)

To reduce cost of collecting data, these data should be gathered during the primary use season. It might be preferable for highly used wilderness areas to track use during both the primary and secondary seasons, to address the point brought up in the sideboard/notes below.

Definitions

**Primary use season**: generally, that portion of the year during which 80% of the use occurs. It is less important that the time span capture exactly this amount of use than that the period be clearly defined so that monitoring can be done consistently over time.

Example



Sideboards & Notes

Data will be gathered annually. Over time, an increase in this value is a decrease in this indicator of wilderness character.

The possibility of differing monitoring techniques for this measure creates an unknown degree of error in compiling the data from multiple wildernesses.

Many wildernesses have not tracked this measure in the past, and the technique chosen under such circumstances might be rather coarse. Use the best information available. This is not necessarily the data supplied to the BLM’s Recreation Management Information System (RMIS). (For example, trailhead car counts may provide a sufficient technique to determine this measure, rather than trying to guess how many people who entered the wilderness).

Wilderness visitation can be highly variable year-to-year, depending on various factors such as the cost of gasoline, wildflower displays, fire activity, and media advertising. While annual data is ideal, it is necessary to “smooth” data over multiple years to draw firm conclusions about trends in visitation.

The measure does not capture the geographic variation in use within a wilderness. It is important for the local manager to know whether the increase in use is occurring at one or two places, or across all wilderness destinations.

The measure does not capture use during the off-peak times of year, and changes there may signal a greater change in opportunities for solitude in locations where visitation during the primary use season is already high.

At the wilderness level, it is strongly recommended that managers track data individually by trailhead or portal. Use typically is uneven across wildernesses, and long-term data show that increases at one trailhead may not correspond to changes at nearby trailheads.

Ancillary Data

The “comments” field should include data collection method (e.g., permit, visitor register, traffic counter, ranger contacts; etc.), area monitored (i.e., all trails or selected trails), or reference other monitoring design.

To go to the fillable report form for this measure, click [here](#measure4_1).

**Recreation Measure 4-2****. *Remoteness inside the wilderness affected by travel routes***

Technique

GIS analysis will be used to compute the number of acres inside the wilderness that are specified distances from managed travel routes including system trails, roads, boatable rivers, airstrips, and other agency managed travel routes that provide access to the wilderness. Acres are calculated for areas less than ½ mile and between ½ and 2 miles from non-motorized, non-mechanized travel routes, and less than 1 mile, and 1 mile to 3 miles for motorized or mechanized travel routes or airstrips. The influence of travel routes inside and within 3 miles of the wilderness boundary are measured through the calculation of acres. The acres calculated are then multiplied by a remoteness zone factor to generate a remoteness score. The scores are summed to generate a total score reported for this measure. Do not double-count overlapping distance areas from two closely located travel routes (see [Appendix B](#AppendixB) for GIS analysis instructions).

If one travel route has two uses (e.g., public use as a system trail and permitted motorized access solely to the owner of an inholding), count only the public use in determining its mechanized or motorized status.

|  |  |  |  |
| --- | --- | --- | --- |
| **For each travel route segment, calculate the number of acres:** | **Calculate number of acres** | **Remoteness Zone**  **Factor** | **Remoteness Score** |
| less than ½ mile from any non-motorized, non-mechanized managed travel route; |  | A = 2 | Acres x 2 |
| less than 1 mile from any motorized or mechanized managed travel route or airstrip; |
| between ½ and 2 miles from any non-motorized, non-mechanized managed travel route |  | B = 1 | Acres x 1 |
| between 1 and 3 miles from any motorized or mechanized managed travel route or airstrip. |
| all other areas of the wilderness (most remote zone) |  | C = 0 | 0 |
|  | **GRAND TOTAL** | |  |

Definitions

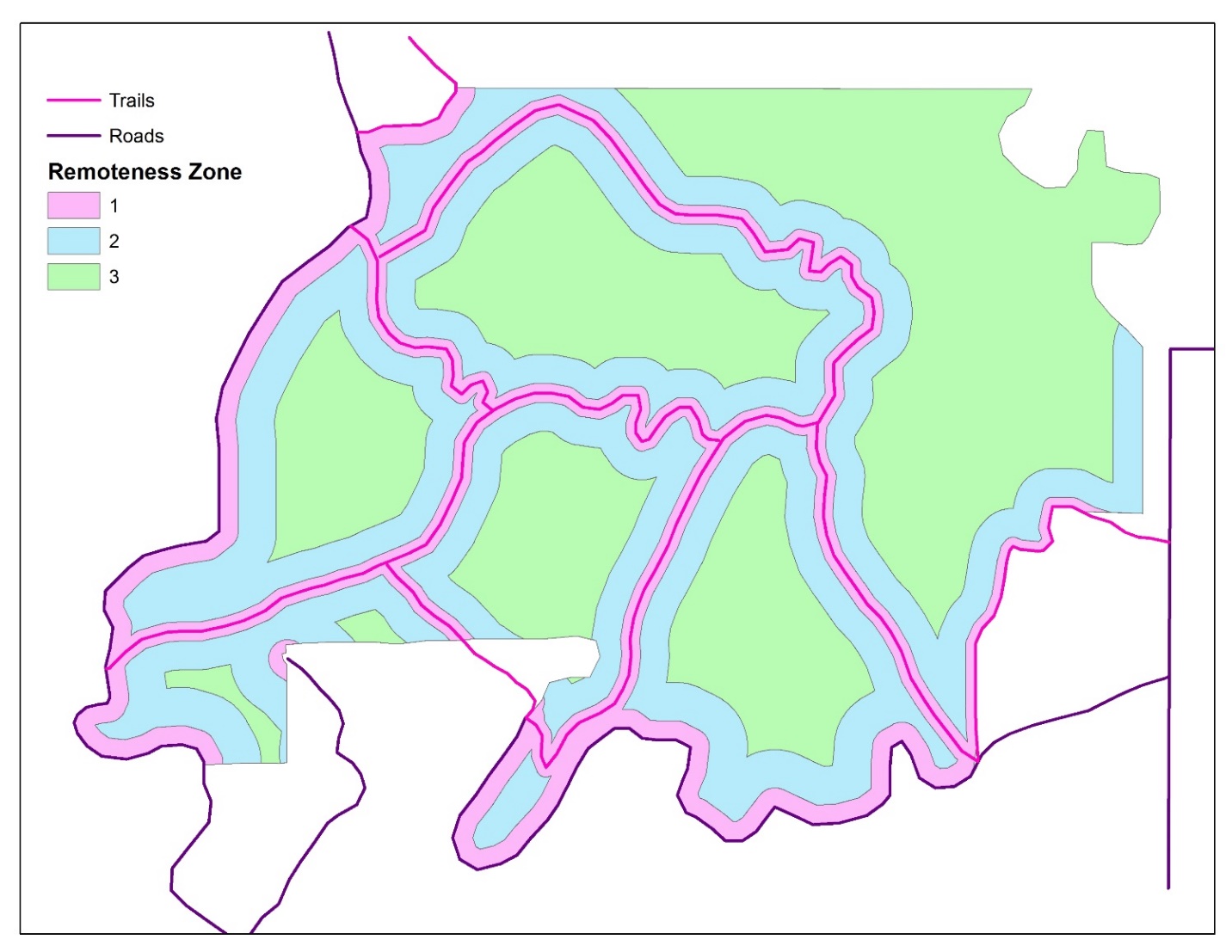
**Managed travel route:** Any linear travel course that the BLM or another entity manages for visitor access by directing visitors to it or managing use due to the volume of public interest. Primarily, this includes system trails, designated roads, and public roads. In addition, boatable rivers, and sandy washes (or similar travel routes) without a surface tread but to which the BLM directs visitors, manages use, or otherwise recognizes as a travel corridor. Do not consider features that only play an insignificant role in visitor access (e.g., rivers that are boated infrequently such as when an unusual flow occurs, common washes that visitors are not directed to through agency materials, or authorized travel routes that do not have travel tread and/or are generally not readily available for hiking or stock use).

**System trail:** a linear feature identified by the BLM for the purpose of allowing the free movement of people or stock. Any trail that the BLM has made available to the public is considered a system trail in this measure; this includes a designation of the trail in a planning document, directing the public to the trail through maps or brochures, or a managed parking area for the purpose of accessing the trail. Non-system trails (i.e., “user-developed” or “social” trails) are not included.

**Airstrip:** a feature supporting established public use of aircraft as provided under Section 4(d)(1) of the Wilderness Act.

Example

|  |  |  |  |
| --- | --- | --- | --- |
| **For each travel route segment, calculate the number of acres:** | **Calculate number of acres** | **Remoteness Zone**  **Factor** | **Remoteness Score** |
| less than ½ mile from any non-motorized, non-mechanized system trail | 16,655 | 2 | 33,310 |
| less than 1 mile from any motorized or mechanized trail, road or airstrip |
| between ½ and 2 miles from any non-motorized, non-mechanized system trail | 34,240 | 1 | 34,240 |
| between 1 and 3 miles from any motorized or mechanized trail, road or airstrip. |
| all other areas of the wilderness (most remote zone) | 45,427 | 0 | 0 |
|  | **TOTAL SCORE** | | 67,550 |



A

B

C

Sideboards & Notes

Data will be gathered every five years. Changes in this measure tracks impacts to “core” areas of solitude which provide remoteness. An increase in this value is a decrease in this indicator’s wilderness character condition.

Although remoteness may also be affected by user-developed trails, such trails are only tracked in **Measure 4-6**. It is expected that when use levels of user-developed trails increase, measures will be taken to control the use, or the route will begin to be managed as a system trail and at that time, it will be recorded in this measure.

This measure does not account for the effects of topography and vegetation cover, private land ownership, or distance from a trailhead. These factors have an influence on remoteness, but incorporation of these factors excessively complicates monitoring models.

Ancillary Data

A map file in which travel routes and remoteness zones are depicted should be included in the data as a reference. This is an important check on data completeness.

To go to the fillable report form for this measure, click [here](#measure4_2).

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**Recreation** **Measure 4-3****. *Area of wilderness affected by developments that are near the wilderness***

Technique

GIS analysis will be used to compute the number of affected acres that are less than:

a) 1 mile from any unpaved motor vehicle route outside the wilderness, including an unpaved cherry-stem; any shoreline accessible by motorboats; any developed campground; any low-power transmission lines

b) 2 miles from any paved motor vehicle route outside the wilderness including paved cherry-stems; residential or commercial development; high-power transmission lines (110 kV or more)

c) 5 miles from any OHV play areas; 4-lane (or more) divided highway; active railroad tracks; private or non-commercial aircraft landing site; the closest edge of any industrial development

d) 10 miles from any commercial or military airstrip

**If measures overlap (e.g., an unpaved boundary route and 4-lane divided highway 3 miles from the boundary), only the area with the effect further into the wilderness will be counted to derive this value. Overlap of acres calculated from different features are not counted twice. For example, see the map on the next page. The “Area Affected” is shown in pink on the top map.**

Definitions

**Residential development:** at least one dwelling occupied a total of at least two months per year. Measure from the actual structure, not the edge of the private property.

**Industrial development:** any commercial use for which large motorized equipment is commonly present (e.g., gravel pits, oil wells, power plants, factories) or visual impacts are highly noticeable (e.g., solar panel array). Measure from the nearest points of actual development (e.g., the actual well pad, rather than the edge of the lease).

Example

|  |  |
| --- | --- |
| Area | Reference |
| **4877** | map: "Little Flat Wilderness - WCM.4-3 - 2010 |

Sideboards & Notes

Data will be gathered every five years. Over time, an increase in this value is a decrease in this indicator of wilderness character.

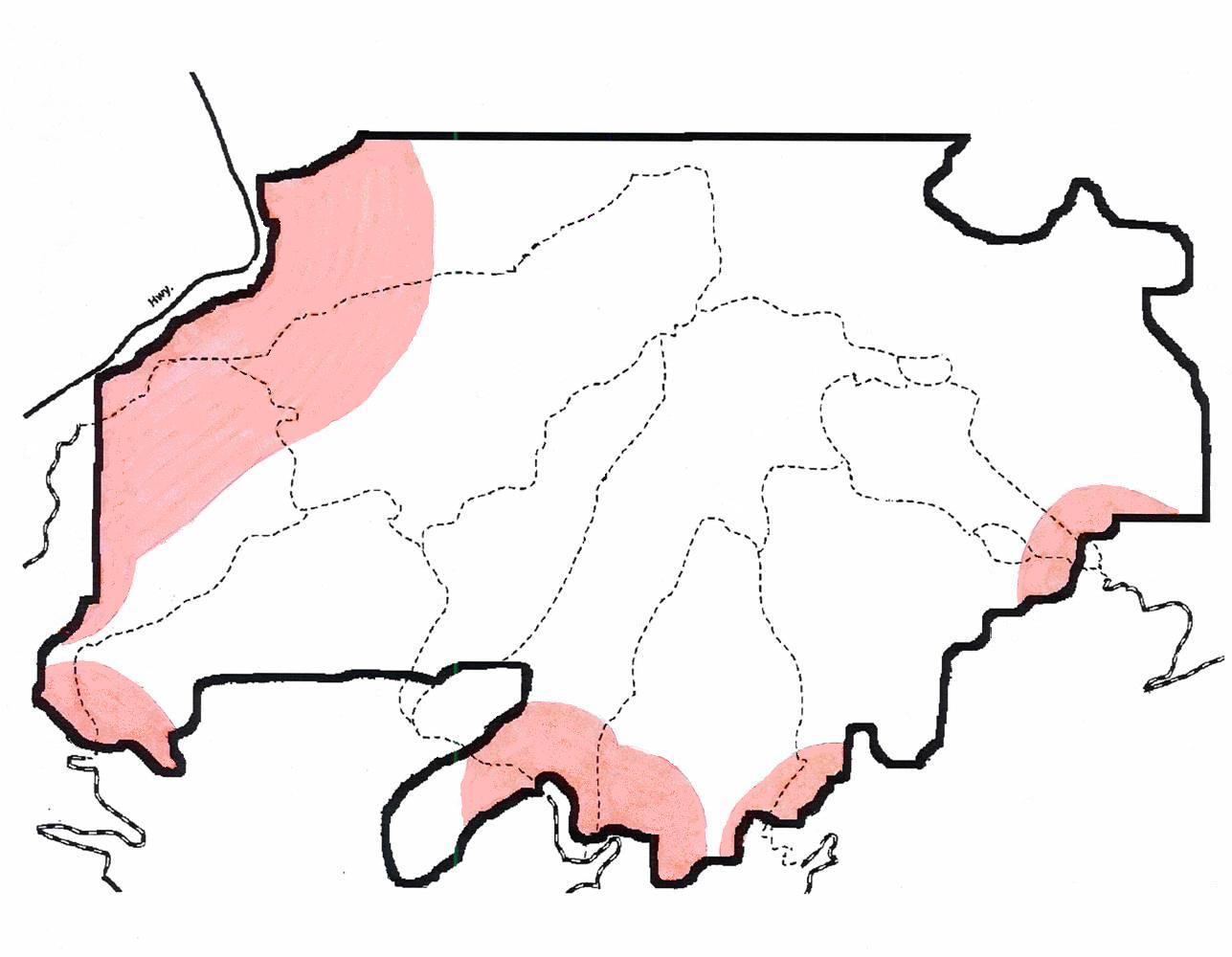
Due to a lack of a feasible method, this measure does not try to monitor the influence from aircraft overflights, a major impact to perception of remoteness.

Changes in the “severity” value tracks improvements in this indicator of wilderness character when developments are removed that are within the impact zone of a greater development (e.g., a dirt two-track paralleling a wilderness boundary is closed and rehabilitated; 1 mile from the boundary is a 4-lane, divided highway).

Changes in the “area affected” measure tracks impacts to the “core” area of solitude (e.g., the dirt two-track is closed, but a solar array is installed 4.5 miles from the other side (previously undeveloped) of the wilderness).

Ancillary Data

“Reference” should include a map file or other description of which specific development impacts are included in the database. This is an important check on data completeness.



“Area Affected”

To go to the fillable report form for this measure, click [here](#measure4_3).

**Recreation** **Measure 4-4****. *Severity of the effect of developments that are near the wilderness***

Technique

GIS analysis will be used to compute the number of acres that are less than:

a) 1 mile from any unpaved motor vehicle route outside the wilderness, including any unpaved cherry-stem; any shoreline accessible by motorboats; any developed campground; any low-power transmission lines

b) 2 miles from any paved motor vehicle route outside the wilderness including paved cherry-stems; residential or commercial development; high-power transmission lines (110 kV or more)

c) 5 miles from any OHV play areas; 4-lane (or more) divided highway; active railroad tracks; private or non-commercial aircraft landing site; the closest edge of any industrial development

d) 10 miles from any commercial or military airstrip

**Irrespective of overlap, all acreages resulting from the analysis will be added to derive this value.**

Definitions

**Residential development:** at least one dwelling occupied a total of at least two months per year. Measure from the actual structure, not the edge of the private property.

**Industrial development:** any commercial use for which motors are commonly present (e.g., gravel pits, oil wells, power plants, factories) or visual impacts are noticeably unnatural (e.g., solar panel array). Measure from the nearest points of actual development (e.g., the actual well pad, rather than the edge of the lease).

Example

|  |  |
| --- | --- |
| Severity | Reference |
| **5693** | map: "Little Flat Wilderness - WCM.4-4 - 2010 |

Sideboards & Notes

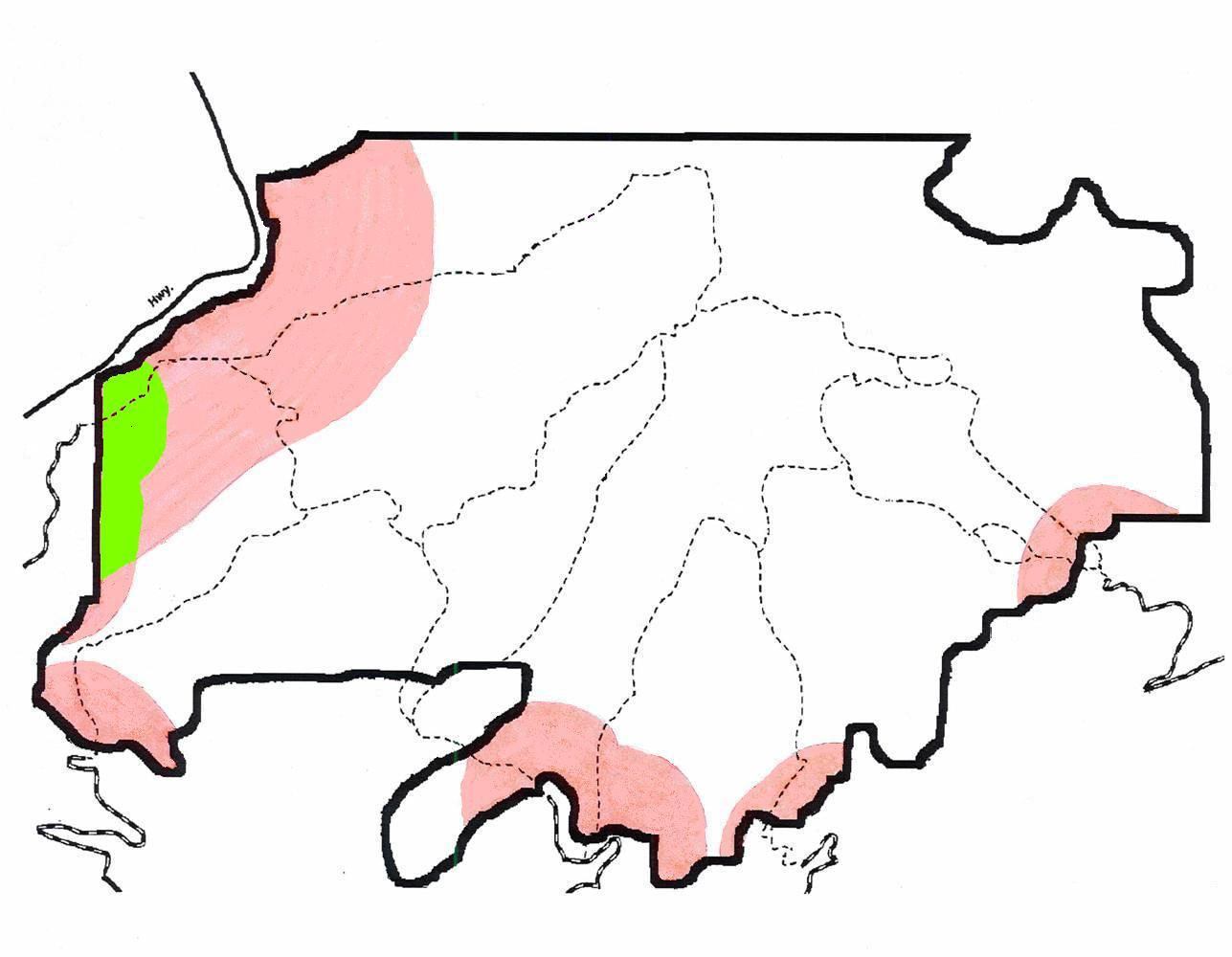
Data will be gathered every five years. Over time, an increase in this value is a decrease in this indicator of wilderness character.

It is possible that the analysis results in a number of acres greater than the acreage of the wilderness (e.g., a wilderness 6 miles wide with a private aircraft landing site on one side and a paved road on the other). The result of the analysis is to identify a numerical representation of the severity of impact to the wilderness, not one that correlates to the wilderness acreage.

Changes in the “severity” value tracks improvements in this indicator of wilderness character when developments are removed that are within the impact zone of a greater development (e.g., a dirt two-track paralleling a wilderness boundary is closed and rehabilitated but a 4-lane, divided highway 2 miles from the boundary continues to influence the wilderness).

Ancillary Data

“Reference” should include a map file or other description of which specific development impacts are included in the database. This is an important check on data completeness.



“Severity”

To go to the fillable report form for this measure, click [here](#measure4_4).

**Recreation** **Measure 4-5****. *Type and number of agency-provided recreation facilities***

Technique

A value of agency-provided recreation facilities is derived from the sum of the development levels of various types of infrastructure. This attempts to capture varying degrees of impacts to the opportunity for self-reliant, primitive recreation from different facilities.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| For each **system trail segment**, if: | Assign that segment its miles (to nearest tenth) in length multiplied by the value: |  | For each trail segment, if the **trail markers** or **signs** are: | | Multiply the Trail Segment value generated to the left by the value: | **Total value for one segment** |
| Single-track | 1 |  | None (trail segment is unmarked) | | 1 |  |
| Double track (e.g., old wagon route) | 2 | Blazes or stone cairns; no signs | | 2 |
| signs made of native materials | | 3 |
| Former road: (i.e., retains evidence of past construction) | 3 | Trail markers of nonnative materials | | 5 |
| For each **major trail feature**, if the feature construction is: | | | | | Assign that feature the value: | | |
| Primitive: built with raw, native materials (e.g., log bridge; notched log ladder). | | | | | 1 | | |
| Constructed with native materials: built with native materials that have been processed to form dimensional materials (e.g., a log stringer bridge with decking; wooden ladder). | | | | | 3 | | |
| Constructed with nonnative materials: for major trail features built using nonnative materials as a primary building component (e.g., a bridge using steel supports; metal ladder). | | | | | 5 | | |
| For each **campsite development**, if it is: | | | | | Assign that site (for each pad or shelter) the value: | | |
| Designated; no construction: no construction other than locator sign | | | | | 1 | | |
| Constructed tent pads: camping area has at least cleared and leveled areas for pitching tents, with or without rock or log borders | | | | | 2 | | |
| Shelters: camping areas with roofed structures, with or without walls | | | | | 10 | | |
| For each **amenity**, if it is: | | | | | Assign that amenity the value: | | |
| Developed water source | | | | | 20 | | |
| Toilet, primitive | | | | | 5 | | |
| Toilet, non-primitive (i.e., walled) | | | | | 20 | | |
| Permanent fire grate (metal, concrete, or cemented stone) | | | | | 5 | | |
| Food storage structure (e.g., bear box, rodent pole) | | | | | 5 | | |
| Hitching post, permanent highline | | | | | 5 | | |
| Corral | | | | | 10 | | |
| Picnic table or bench | | | | | 20 | | |
| The final value of **Type and Number of Recreation Facilities** is calculated as follows:  (Sum of (each system trail segment \* its trail marker or sign value)) +  (Sum of major trail feature assigned values) +  (Sum of campsite development assigned values) +  (Sum of amenity assigned values) =  **Value of Recreation Facilities (Measure 4-5)** | | | | | | | |

Example

Big Mesa Wilderness has one old two-track that is 2.1 miles long; at Mile 2, a steep and rocky trail branches off with a plastic post and sign that says, “Trail to Bald Point.” This trail is 1.7 miles long and has cairns to mark the trail as it nears the top. The only other “amenities” in the wilderness are a hitching post at the trail junction and a bench (an Eagle Scout project) at Bald Point, both of which predate designation.



Sideboards & Notes

Data will be gathered every five years. Over time, an increase in this value is a decrease in this indicator of wilderness character.

In assigning Trail Marker values, do not count trailhead (wilderness portal) signs; for any segment having signs at only one end of the segment, count the higher level of development for the entire segment. Do not use the number of individual cairns, signs, or trail markers to generate a Trail Segment value, nor count them as a Major Trail Feature.

When counting major trail features, the intent is not to count minor constructed elements that may be quite numerous (e.g., water bars, cribbing, or a flight of three or fewer steps).

Although different facilities have different influences on the feeling of primitiveness, the attempt of this protocol to weight them accordingly is subjective.

Other developments unrelated to the immediate recreation experience (such as scientific installations, dams) are monitored under **Measure 3-1**.

Where visitor-caused degradation of system trails exists, except for normal trail maintenance issues, count those areas here and under **Measure 4-6.** For example, on a designated trail where visitors have created a bypass or significant trail braiding, the system trail is counted here, and the degradation is counted as a User-Degraded Trail Segment. Do not count minor issues such as a bypass of a tree fallen across the trail.

Definitions

System trail: a linear feature identified constructed or delineated by the BLM for the purpose of allowing the free movement of people or stock. Any trail that the BLM has made public is a considered a system trail in this measure; this includes a designation of the trail in a planning document or directing the public to the trail through maps or brochures. Non-system trails (“user-developed” or “social” trails) are included in **Measure 4-6**, not here.

Ancillary Data

Additional ancillary data should include a map file or other description of which specific developments are included in the database. This is an important check on data completeness.

To go to the fillable report form for this measure, click [here](#measure4_5).

**Recreation** **Measure 4-6****. *Type and number of user-created recreation facilities***

Technique

A value of user-created recreation facilities is derived from the sum of the development levels of various types of infrastructure, similar to **Measure 4-5.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| For each **user-created trail segment**, if: | Assign that segment its miles (to nearest tenth) in length multiplied by the value: |  | For each trail segment, if the **user-created** **trail markers** or **signs** are: | Multiply the Trail Segment value generated to the left by the value: | **Total value for one segment** |
| Single-track | 1 |  | None (trail segment is unmarked) | 1 |  |
| Double track (e.g., old wagon route) | 2 | Stone cairns | 5 |
| Blazes or trail markers other than cairns | 20 |
| Route that retains evidence of past mechanical construction | 3 |
| For each **user-Degraded trail Segment** | | | | Count the segment length in miles (to the nearest tenth) | |

|  |  |
| --- | --- |
| For each **user-CREATED MAJOR trail feature**, if the feature construction is: | Assign that feature the value: |
| Primitive: built with raw, native materials (e.g., log bridge, notched log ladder). | 5 |
| Constructed with native materials: built with native materials that have been processed to form dimensional materials (e.g., a log stringer bridge with decking, wooden ladder). | 10 |
| Constructed with nonnative materials: for major trail features built using nonnative materials as a primary building component (e.g., a bridge using steel supports, metal ladder). | 20 |
| For each **user-Developed campsite**, if it is: | Assign that site the value: |
| Minimal change to vegetation or soil and no evidence of cut trees or shrubs, but evidence of camping (normally evidenced by rock fire ring, but also could be an open level area clearly identifiable as a camping site by other evidence) | 1 |
| Obvious impact to or clearing of perennial vegetation; or well used or large campfire ring; or fewer than four cut trees or shrubs cut; or, mineral soil exposed, but not highly compacted. | 2 |
| Highly used campsite having caused impact to vegetation and soil: size sufficient to accommodate more than two tents; or unusually large campfire ring or multiple campfire rings; or downed fuelwood sparse due to collection or may have more than four cut trees or shrubs; or, mineral soil exposed and highly compacted. | 3 |
| For each **user-developed campsite,** if it is within 50 feet of another campsite: | multiply **each** campsite score by 2. |
| For each **user-developed amenity**, if it is: | Assign that amenity the value: |
| Toilet, primitive | 10 |
| Permanent fire grate (metal, concrete, or cemented stone) | 20 |
| Food storage structure (e.g., bear box, rodent pole) | 10 |
| Highline (additional effects also tracked below) | 1 |
| “Woodcraft” (e.g., hitching post, corral, picnic table, bench, lean-to), hunting blind or other user-developed amenity, regardless of material | 10 |
| For each **NON-STRUCTURAL User-Developed Recreation Site**, if it is: |  |
| An area with observable impact to or elimination of perennial vegetation to an area less than 25 sq. ft. | 1 |
| An area with obvious impact to or elimination of perennial vegetation to an area greater than 25 sq. ft. but less than 100 sq. ft.; or fewer than 4 cut trees or shrubs. | 3 |
| An area with obvious impact to or elimination of perennial vegetation greater than 100 sq. ft.; or 4 or more cut trees/shrubs; or mineral soil exposed and highly compacted; or areas that are impacted by human waste where sight or smell is at level to cause offense to an average visitor. | 5 |
| The final value of **Type and Number of Recreation Facilities** is calculated as follows:  (Sum of (each user-created trail segment \* its trail marker or sign value)) +  (Sum of user-degraded trail segment assigned values) +  (Sum of user-developed major trail feature assigned values) +  (Sum of user-developed campsite development assigned values) +  (Sum of user-developed amenity assigned values) +  (Sum of non-structural user-developed recreation site assigned values) =  **Value of User-Created Facilities (Measure 4-6)** | |

Definitions

**User-Created Trail Segment:** a linear feature sufficiently present on the ground so as to be followed for recreational travel (e.g., hiking, horseback), but which is not designated as a trail by the BLM, nor appears on any BLM map of the wilderness intended for visitor use. This includes trails worn in by visitor use and vehicle routes present before designation that are now closed to all motor vehicles, but which have not rehabilitated (either through management activity or natural processes). This does not include routes of travel that are not worn through vegetation (e.g. a wash that is regularly hiked), or animal trails. Where motor vehicles are allowed or are expected to be allowed through a ROW, Permit, Easement, or Authorization, record under **Measure 3-1**. Agency-designated trails are tracked under **Measure 4-5**.

**User-Degraded Trail Segment:** a section of either a System Trail or a User-Created Trail where resource degradation is present (trail braiding, trail widening, trail impacts to sensitive resources, or similar effects).

**User-Developed Campsite:** normally evidenced by a rock fire ring or presence of charcoal, but also could be an open level area clearly identifiable as a camping site by evidence of nails in trees, litter, cached gear, or arranged sitting rocks or logs. Areas where camping has occurred (for example, a tent is observed) but where no lasting evidence of the site remains when the visitor leaves (for example, an area in a wash) should not be counted as a campsite.

**Non-Structural User-Developed Recreation Site:** evidence from activities including rock climbing, visiting scenic locations, rapid scouting, fishing, visiting hot springs, etc. normally evidenced by impact to or elimination of perennial vegetation, exposed mineral soil, and other indicators of frequent visitor use which are not immediately within a campsite as defined above.

Example

(See next page)



Sideboards & Notes

Data for this measure will be reported every five years, though proper stewardship will require more frequent monitoring. Over time, an increase in this value is a decrease in this indicator of wilderness character.

There is an indistinct line between an agency-provided trail and a trail that is user-created but not rehabilitated by the agency with the expectation that the route will be used for recreation.

For each user-created trail segment, justify the development score in the “comments” section. Use best judgment, explicitly rationalized, in determining how much the degree of apparent development influences the development score.

Complete campsite inventories along designated trails and at known visitor destination locations. Inventoried areas should be mapped for future monitoring to establish trend. Except in rare instances, a complete inventory of the remote, infrequently visited areas of an entire wilderness is not necessary.

A campsite and an associated nearby problem area with human waste is counted as both a campsite and a non-structural recreation use site.

Changes in this value must be interpreted with care. Reported increases (or decreases) in user-created developments might be the result of changes in time and resources dedicated to on-the-ground patrol, rather than in the actual character of use.

There may be additional user-developed amenities that are not accounted for in this monitoring strategy (e.g., permanent fixed climbing anchors). That they are not included here does not mean they should be ignored or unmanaged.

Ancillary Data

Additional ancillary data should include a map file or other description of which developments are included in the database, with special emphasis on which trails are considered “agency,” and which are considered “user-created.”

To go to the fillable report form for this measure, click [here](#measure4_6).

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**Recreation** **Measure 4-7****. *Type and extent of management restrictions***

Technique

Each of the following types of regulations is assigned a score depending on its degree of restriction. If a wilderness has more than one type of regulation within one of the categories below, assign the score that corresponds to the most restrictive regulation in place.

|  |  |  |
| --- | --- | --- |
| **Category** | **Type of restriction** | **Score** |
| Campfires | No regulation | 0 |
| Designated site; or (non-emergency) seasonal restrictions; or prohibited above (or below) designated elevation; or mandatory setback | 1 |
| Total prohibition | 2 |
| Camping | No restriction | 0 |
| Any mandatory setback | 1 |
| Designated sites | 2 |
| Assigned sites | 3 |
| Overnight use prohibited | 4 |
| Group size limits | No restriction | 0 |
| Group size limits in place | 1 |
| Area closure | No restriction | 0 |
| Area closed to use | 5 |
| Fees | No fees | 0 |
| Fees charged (e.g., charging a parking fee at a popular recreation site) | 1 |
| Fees charged for wilderness entry | 2 |
| Permits (includes *individual* SRPs, but not SRPs for commercial services; excludes permits for research and similar permits) | No permit or registration | 0 |
| Voluntary self-registration | 1 |
| Mandatory, non-limiting permit or registration | 2 |
| Mandatory, use limited | 3 |
| Human waste | No regulation | 0 |
| Pack out required | 3 |
| Length of stay | No restrictions on length of stay (other than standard agency-wide restrictions) | 0 |
| Length of stay limited (in excess of standard agency-wide restrictions) | 1 |
| Stock use | No restrictions | 0 |
| Grazing by stock prohibited | 1 |
| No off-trail stock use | 2 |
| No camping with stock | 3 |
| Stock use prohibited | 4 |
| *Other activity-specific regulations* | No restriction | 0 |
| Limited (other than by area) | 1 |
| Prohibited | 2 |

After the score is assigned for each category of regulation, these scores will be weighted to reflect the geographic coverage of the regulation as follows:

1 = if the regulation applies to a sub-area of wilderness or all of the wilderness for only part of the year

2 = if the regulation applies to an entire wilderness

The value of the Type and Extent of Management Restrictions is the sum of the resulting numbers.

Definitions

**Fees**: count fees that are charged for access even if access to wilderness is not the sole purpose of the fee. For example, a multipurpose recreation site that also serves as a trailhead for a wilderness trail, or an entrance fee to a National Monument which must be paid prior to accessing a wilderness trailhead.

**Other activity-specific regulation**: examples include limitations or prohibitions on swimming, dogs, rockhounding, etc.

Example



Sideboards & Notes

Data will be gathered every five years. Over time, an increase in this value is a decrease in this indicator of wilderness character.

Fees are counted in this measure if they are assessed for a non-wilderness purpose but would be required on wilderness users (e.g., parking fees, area entrance fees)

Do not count emergency closures in this measure.

Direct regulatory actions taken to increase opportunities for solitude will be defined as confining. Consequently, improvements in one opportunity necessarily entail declines in another. This should be explicitly noted where relevant, and ancillary data should track the rationales for actions taken. Similarly, direct regulatory actions taken to improve (or preserve) natural conditions will be defined as confining, and rationales should be noted in the ancillary data.

The value only captures three levels of extent (no regulation, sub-area, and total wilderness). Computing a more precise measure of spatial extent was deferred until some possible future revision in an effort to reduce the burden of reporting such new data.

Regulations imposed outside wilderness may differ in the way they affect the wilderness experience from regulations that govern behavior once a person enters a wilderness. This measure does not take into account whether regulations affect a person before the trip (e.g., use limits) or after they are inside a wilderness (e.g., campfire prohibitions).

To go to the fillable report form for this measure, click [here](#measure4_7).**Unique / Supplemental**

**Unique** **Measure 5-1****. S*everity of disturbances to cultural resources***

Technique

Each monitored cultural resource is classified as to its status, with scores assigned by category. Scores for each resource are summed to generate a total score reported for this measure.

|  |  |
| --- | --- |
| **For each monitored cultural resource, if the status is:** | **Score** |
| good | 1 |
| fair | 2 |
| poor | 5 |
| No Longer Eligible (NLE) | 10 |

Definitions

**Cultural Resources:** for the purpose of this specific monitoring**,** mayinclude *in situ* objects, structures, landscapes, and other ethnographic resources.

**Monitored Cultural Resource:** *Determination of which resources to include will be made by BLM cultural resource specialists in consultation with the State Historic Preservation Officer*. It is expected that the most significant resources (not all cultural resources) will be monitored for this protocol. It is expected that any resource(s) chosen would be either eligible for or listed on the National Register of Historic Places. A wilderness may not have any cultural resources that rise to this level of significance, in which case this measure might not be reported.

**Good:** the following conditions are all met:

a) The object(s), site, or area has been primarily affected only by natural forces over time; or, at the least, there is no evidence of modern human disturbance resulting in any loss of information potential. (Any past excavations must have been carried out in such a way that on-site integrity has been maintained, and any removal to off-site locations has been properly curated.)

b) Natural disturbance is acceptable and within the parameters of the appropriate wilderness or cultural resources plan. (For all status determinations, it is important to take into account that the criteria for preservation in wilderness are different than for non-wilderness settings. Listed properties must be adequately documented, but in general, there will be no interference with the weathering of cultural resources. Decisions to actively preserve them are based on a determination that the cultural resources are an extraordinary feature, and that decision is made in the context of individual wilderness plans, agency policy, the requirements of the Wilderness Act as well as the National Historic Preservation Act, and recent court decisions.)

c) Additional wilderness-specific conditions used to describe “good” conditions are met. These conditions should be agreed upon in consultation between Field Office and State Office cultural and wilderness program leads.

**Fair:** any one of the following conditions is present:

a) There appears to be minor disturbance by modern human activity (e.g., persistent re-arranging of potshards, visitor-created trails to the top of a culturally significant mountain, etc.).

b) Though not apparent to the untrained eye, some material may be missing from undocumented or poorly curated past removals, leading to some loss of information potential.

c) Greater-than-acceptable natural deterioration is threatened but has not occurred.

d) Human-caused deterioration from off-site impacts (e.g., air quality issues threatening rock art, erosion from nearby road cuts, impacts from grazing livestock) is threatened, but has not occurred.

e) Additional wilderness-specific conditions used to describe “fair” conditions are met.

**Poor:** any one of the following conditions is present:

a) There is clear evidence of major disturbance by modern human activity (e.g., pot hunting, graffiti, arson).

b) The site has clearly lost much of its information potential.

c) Unacceptable, irreversible natural deterioration has occurred.

d) Human-caused deterioration from off-site impacts has occurred.

e) Additional wilderness-specific conditions used to describe “poor” conditions are met.

**NLE:** the cultural resource has so deteriorated from human-caused effects that it is deemed no longer eligible for the National Register of Historic places.

Example



Sideboards & Notes

Data for this report will be gathered every five years, though proper stewardship will require far more frequent monitoring. Over time, an increase in this value is a decrease in this indicator of wilderness character.

Note that there are important differences in what might be an acceptable level of natural degradation of cultural resources between those in wilderness and elsewhere. See discussion in the definition of “**good**,” above.

This measure is subjective. Status classification should be documented as completely as possible to ensure adequate comparisons over time with changing staff.

Changes in this reported value must be interpreted carefully. An increase in the value reported for this measure may be the result of adding an additional “significant” site rather than the deterioration of existing sites. It might be necessary that two scores be reported for this measure: the value (and change, if any) from the previous report in only the sites included in the baseline report, and a second value of *all* currently monitored cultural resources. In essence, a new “baseline” might be produced.

**Be careful in the selection of resources to be monitored in this measure. This is an *indicator* of overall condition, rather than a report on the condition of every cultural site within the wilderness.**

To go to the fillable report form for this measure, click [here](#measure5_1).

**Unique** **Measure 5-2****. *Severity of disturbances to other features of value (optional)***

Technique

Each monitored feature is classified as to its status, with scores assigned by category. Scores for each resource are summed to generate a total score reported for this measure.

|  |  |
| --- | --- |
| **For each monitored feature, if the status is:** | **Score** |
| good | 1 |
| fair | 2 |
| poor | 5 |
| lost | 10 |

Definitions

**Other Features:** Other Features of Value may include “ecological, geological, or other features of scientific, educational, scenic, or historical value” (Wilderness Act, Section 2(c)). This quality focuses on tangible features integral to the particular wilderness. Examples: cave formations, dinosaur tracks, lava beds.

**Integral**: necessary to make a whole complete; essential or fundamental. A value that is unique and essential to wilderness character.

**Good:** the following conditions are both met:

a) The feature has been primarily affected only by natural forces over time; or, at the least, there is no evidence of modern human disturbance resulting in any loss of scientific, educational, or historical value.

b) Additional wilderness-specific conditions used to describe “good” conditions are met.

**Fair:** any one of the following conditions is present:

a) There appears to be minor disturbance by modern human activity (e.g., broken cave formations, modern graffiti in caves, visitor-created social trails impacting the feature, etc.).

b) Though not apparent to the untrained eye, some material may be missing, leading to some loss of scientific, educational, or historical value.

c) Human-caused deterioration from off-site impacts (e.g., erosion from nearby road cuts, impacts from grazing livestock) is threatened, but has not occurred.

d) Additional wilderness-specific conditions used to describe “fair” conditions are met.

**Poor:** any one of the following conditions is present:

a) There is clear evidence of major disturbance by modern human activity (e.g., graffiti, theft of resources).

b) The site has clearly lost much of its scientific, educational, or historical value.

c) Human-caused deterioration from off-site impacts has occurred.

d) Additional wilderness-specific conditions used to describe “poor” conditions are met.

**Lost:** the resource has so deteriorated from human-caused effects, or has been removed in its entirety, that it is considered lost.

Example

(See next page)



Sideboards & Notes

This measure is optional. **Carefully consider whether a feature truly defines the wilderness character for a wilderness, and whether the quality of the data about this feature is sufficient to support using it as a measure.**

Determining which, if any, resources to include will be made by wilderness specialists in consultation with BLM resource specialists. It is expected that only the most significant resources (as opposed to all important site-specific geological or other features) will be monitored for this protocol.

Data for this report will be gathered every five years, though proper stewardship will require far more frequent monitoring. Over time, an increase in this value is a decrease in this indicator of wilderness character.

This measure is subjective. Status classification should be documented as completely as possible to ensure adequate comparisons over time with changing staff.

Focus monitoring on the physical condition of select features, not the scientific, educational, or scenic value derived from these features.

Other types of features with unique ecological, scientific, educational, and scenic value are often more appropriately included in one of the other four qualities. New measures of this quality would only be used to capture those values not already addressed elsewhere (e.g., scenic values under the Natural or Undeveloped qualities, wildlife/botanical values under the Natural quality, etc.).

It is worth noting in the comments if the actions that damage or disturb integral geological, paleontological, or other features are authorized or unauthorized actions.

To go to the fillable report form for this measure, click [here](#measure5_2).

***Data Analysis, Storage, and Reporting***

The Wilderness Character Monitoring Database is an online, interagency resource for wilderness character monitoring data entry, data storage, data analysis, and reporting. The database is intended to be used as the source of local, regional, national, and interagency trend reports for wilderness character monitoring.

The Wilderness Character Monitoring Database is located on the Wilderness Connect website. BLM employees responsible for managing a specific wilderness area are responsible for entering that area’s selected measures and keeping up with data entry. In the future, the BLM will form an interagency database steering committee that will have responsibility for database oversight and decision-making. The Bureau will develop a formal mechanism for managing use of the database and will designate one or more data stewards to facilitate its operation.

A separate guide for using the database will be developed and will be updated as the database is finalized for production.

***Change Management***

As the monitoring of wilderness character has never been attempted before, a viable change management process is needed to ensure that this protocol reflects contemporary thinking about wilderness character, that lessons learned during implementation can be used to improve the protocol, and that the protocol uses the best available data.

Minor change management could be conducted every year and includes:

Modification of existing indicators and measures as necessitated by, for example:

* + - Experience gained during the practical implementation of the monitoring protocol
    - Availability of new data sources for existing indicators and measures
    - New research or other perspectives about what constitutes wilderness character

Changes to the Wilderness Character reporting or data storage requirements

Change management requests can be submitted to State Wilderness Program Leads at any time. During the first two years of the collection of baseline data, the requests will be reviewed by the Wilderness Character Monitoring Team monthly. Thereafter, change management requests will be stockpiled for evaluation and resolution once annually. Requests are submitted by any BLM employee, wilderness researchers, or the public. The State Wilderness Lead consolidates the change requests and conducts an initial assessment of the benefits and impacts of implementing the proposed changes, as well as the impacts of not implementing the changes. The collected requests and initial assessments are sent to the Washington Office Wilderness Program, for forwarding to the Wilderness Character Monitoring Team, which will make a final recommendation on the proposed change.

Major change management should be conducted annually during the first five years of collecting baseline data, and every five years thereafter. Major change management is more comprehensive than the process outlined above. It includes evaluation of:

Appropriateness of the currently used wilderness character qualities, questions, indicators, and measures — including the potential for deleting existing measures or adding new ones

Appropriateness of the data analysis and synthesis techniques

As wilderness character monitoring is new, the basic foundation of this protocol needs to be periodically re-evaluated by those directly associated with the protocol, academia, and other users. This “fresh look” should be based on lessons learned after several years of practical implementation, as well as on any new thinking about wilderness character. This process would likely entail conducting an interagency workshop and developing a work plan for the resolution of issues and concerns identified by participants.

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***Appendix A***

***Monitoring Forms***

***Includes***

* ***Wilderness Character Baseline and 5-year Data Report***
* ***Wilderness Character Annual Data Report***
* ***Calculation forms for individual measures***

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**Wilderness Character Baseline and 5-year Data Report 202\_\_**

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
| Measure | | Value |
| [1-1](#measure1_1) | Number of authorized actions and persistent structures designed to manipulate plants, animals, pathogens, soil, water, or fire |  |
| [1-2](#measure1_2) | Percent of natural fire starts that are manipulated within the boundaries of the wilderness |  |
| [1-3](#measure1_3) | Number of unauthorized actions by agencies, citizen groups, or individuals that manipulate plants, animals, pathogens, soil, water, or fire |  |
| 2-1 | [Reserved.] |  |
| [2-2](#Form_2_2) | Abundance and distribution of non-native plant species |  |
| [2-3](#measure2_2) | Abundance and distribution of non-native animal species |  |
| [2-4](#measure2_3) | AUMs of livestock use inside wilderness |  |
| 2-5 | *(not reported at this level)* |  |
| 2-6 | *(not reported at this level)* |  |
| 2-7 | *(not reported at this level)* |  |
| 2-8 | [Reserved.] |  |
| [3-1](#measure3_1) | Index of physical development for authorized or pre-designation structures and developments |  |
| [3-2](#measure3_2) | Area and existing or potential impact of inholdings |  |
| [3-3](#measure3_3) | Type and amount of administrative use (but not law enforcement or emergency use) of motor vehicles, motorized equipment, and mechanical transport |  |
| [3-4](#measure3_4) | Proportional use of motor vehicles, motorized equipment, and mechanical transport in in law enforcement or emergency responses |  |
| [3-5](#measure3_5) | Type and amount of use of motor vehicles, motorized equipment, and mechanical transport not authorized by the federal land manager |  |
| [4-1](#measure4_1) | Amount of visitor use |  |
| [4-2](#measure4_2) | Remoteness inside the wilderness affected by travel routes |  |
| [4-3](#measure4_3) | Area of wilderness affected by developments near the wilderness |  |
| [4-4](#measure4_4) | Severity of the effect of developments near the wilderness |  |
| [4-5](#Form_4_5) | Type and number of agency-provided recreation facilities |  |
| [4-6](#Form_4_6) | Type and number of user-created recreation facilities |  |
| [4-7](#measure4_7) | Type and extent of management restrictions |  |
| [5-1](#measure5_1) | Severity of disturbances to cultural resources |  |
| [5-2](#measure5_2) | Severity of disturbances to other features of value *(if applicable)* |  |

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**Wilderness Character Annual Data Report 202\_\_\_\_**

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
| Measure | | Value |
| [1-1](#measure1_1) | Number of authorized actions and persistent structures designed to manipulate plants, animals, pathogens, soil, water, or fire |  |
| [1-2](#measure1_2) | Percent of natural fire starts that are manipulated within the boundaries of the wilderness |  |
| [1-3](#measure1_3) | Number of unauthorized actions by agencies, citizen groups, or individuals that manipulate plants, animals, pathogens, soil, water, or fire |  |
| 2-1 | [Reserved.] |  |
| 2-2 | Abundance and distribution of non-native plant species |  |
| 2-3 | Abundance and distribution of non-native animal species |  |
| [2-4](#measure2_3) | AUMs of livestock use inside wilderness |  |
| 2-5 | *(not reported at this level)* |  |
| 2-6 | *(not reported at this level)* |  |
| 2-7 | *(not reported at this level)* |  |
| 2-8 | [Reserved.] |  |
| 3-1 | Index of physical development for authorized or pre-designation structures and developments |  |
| 3-2 | Area and existing or potential impact of inholdings |  |
| [3-3](#measure3_3) | Type and amount of administrative use (but not law enforcement or emergency use) of motor vehicles, motorized equipment, and mechanical transport |  |
| [3-4](#measure3_4) | Proportional use of motor vehicles, motorized equipment, and mechanical transport in law enforcement or emergency responses |  |
| [3-5](#measure3_5) | Type and amount of use of motor vehicles, motorized equipment, and mechanical transport not authorized by the federal land manager |  |
| [4-1](#measure4_1) | Amount of visitor use |  |
| 4-2 | Remoteness inside the wilderness affected by travel routes |  |
| 4-3 | Area of wilderness affected by developments near the wilderness |  |
| 4-4 | Severity of the effect of developments near the wilderness |  |
| 4-5 | Type and number of agency-provided recreation facilities |  |
| [4-6](#measure4_6) | Type and number of user-created recreation facilities |  |
| 4-7 | Type and extent of management restrictions |  |
| 5-1 | Severity of human-caused disturbances to cultural resources |  |
| 5-2 | Severity of disturbances to other features of value *(if applicable)* |  |

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**Wilderness Character Measure 1-1 202\_\_**

***Number of authorized actions and persistent structures designed to manipulate plants, animals, pathogens, soil, water, or fire***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Fill out form as each new project is implemented. Double-click on table above to fill out form in Excel. Include one entry for each persistent structure that is in operation at any time during the fiscal year. Insert new rows as necessary.

a. Make sure each project has a unique identifier (e.g., “Three-Spring Guzzler”; “2010.001”). For structures, GPS coordinates are preferable.

b. Briefly describe type of action or structure (e.g., “old guzzler”; “weed-herbicide”; “weed-mechanical”)

c. Briefly describe reason for action or structure (e.g., “support T&E species”; “improve Natural quality”)

d. Reference appropriate specific authorization (e.g., “EA NM-019-90-68”)

2. COUNT should automatically calculate in Excel

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. COUNT the number of actions or structures listed. Enter this result in the Black Box.

4. **Black box**: the total number of actions or persistent structures. Enter this amount as the “Value” for Measure 1-1 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F1_1).

To enter this data on the **Annual Data Report**, click [here](#A1_1).

To return to the **Implementation Guide text** for this measure, click [here](#text1_1).

**Wilderness Character Measure 1-2 202\_\_**

***Percent of natural fire starts that are manipulated within the boundaries of the wilderness***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table to fill out form in Excel. Insert new rows as necessary.

a. Make sure each natural fire start has a unique identifier (e.g., “Big Sage Flat Fire”)

b. If the fire is manipulated within the boundaries of the wilderness, put a “1” in the “manipulation” column; if not, place a “0”

2. Count, Sum, and Percent should all automatically calculate in Excel.

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. SUM the entries in the “manipulation” column

c. Divide the SUM by the number of fires listed, multiply by 100, and round to the nearest whole number. Enter this result in the Black Box.

4. **Black box**: the percent of natural fire starts that are manipulated within the boundaries of the wilderness. Enter this number (do not use the percent sign) as the “Value” for Measure 1-2 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F1_2).

To enter this data on the **Annual Data Report**, click [here](#A1_2).

To return to the **Implementation Guide text** for this measure, click [here](#text1_2).

**Wilderness Character Measure 1-3 202\_\_**

***Number of unauthorized actions by agencies, citizen groups, or individuals that manipulate plants, animals, pathogens, soil, water, or fire***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Fill out form as each new action is discovered. Double-click on table above to fill out form in Excel. Insert new rows as necessary.

a. Make sure each project has a unique identifier (e.g., “T12N, R3W, Sec.5 Chukar Guzzler”)

b. Briefly describe type of action or structure (e.g., “new guzzler”; “fish stocking”)

c. List agency/group/person responsible (e.g., “unknown”; “DOW”)

d. Briefly describe BLM response to each action (e.g., “removed guzzler”; “none”)

2. COUNT should automatically calculate in Excel

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. COUNT the number of actions or structures listed. Enter this result in the Black Box.

4. **Black box**: the total number of unauthorized actions. Enter this amount as the “Value” for Measure 1-3 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F1_3).

To enter this data on the **Annual Data Report**, click [here](#A1_3).

To return to the **Implementation Guide text** for this measure, click [here](#text1_3).

**Wilderness Character** **Measure 2-1 202\_\_**

**[Reserved]**

**Wilderness Character Measure 2-2 202\_\_**

***Abundance and distribution of non-native plant species***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table above to fill out form in Excel. For each species, enter the areal extent score and the density score as explained in the Implementation Guide. Insert new rows as necessary. Make sure the formatting from the “total” column is copied as well.

2. Comments could explain the rationales of the ratings or give locations.

3. The “totals” and SUM should automatically calculate in Excel.

4. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. Multiply the areal extent score by the density score for each species and enter each result in the corresponding “total” column.

c. SUM the “total” column. Enter this result in the Black Box.

5. **Black box**: Abundance and distribution of non-indigenous species. Enter this number as the “Value” for Measure 2-2 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#V5_2_2).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#text2_1).

**Wilderness Character** **Measure 2-3 202\_\_**

***Abundance and distribution of non-native animal species***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table above to fill out form in Excel. For each species, enter the areal extent score and the density score as explained in the Implementation Guide. Insert new rows as necessary. Make sure the formatting from the “total” column is copied as well.

2. Comments could explain the rationales of the ratings or give locations.

3. The “totals” and SUM should automatically calculate in Excel.

4. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. Multiply the areal extent score by the density score for each species and enter each result in the corresponding “total” column.

c. SUM the “total” column. Enter this result in the Black Box.

5. **Black box**: Abundance and distribution of non-indigenous species. Enter this number as the “Value” for Measure 2-2 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#V5_2_3).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#text2_2).

**Wilderness Character** **Measure 2-4 202\_\_**

***AUMs of livestock use inside wilderness***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table above to fill out form in Excel. For each allotment or pasture, enter the AUMs of *actual* use (not *permitted* use, which may be higher). Enter the percent of the allotment or pasture which is within the wilderness (e.g., if ¾ of the allotment is inside the wilderness, enter “75,” not “.75.” Every allotment should have a unique identifier. Insert new rows as necessary. Make sure the formatting from the “score” column is copied as well.

2. If less than 100% of the allotment or pasture is within wilderness, use the “comments” column to describe how the estimated percentage was calculated.

3. Score and Sum should automatically calculate in Excel.

4. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above.

b. Multiply each “AUMs used” by the “% within wilderness,” divide by 100, and enter the result in the “score” column.

b. Add the “scores” together. Enter this result in the Black Box.

5. **Black box**: AUMs of livestock use inside wilderness. Enter this number as the “Value” for Measure 2-3 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F2_3).

To enter this data on the **Annual Data Report**, click [here](#A2_3).

To return to the **Implementation Guide text** for this measure, click [here](#text2_3).

**Wilderness Character Measure 2-5 202\_\_**

through

**Wilderness Character Measure 2-8 202\_\_**

**[Reserved]**

**Wilderness Character** **Measure 3-1 202\_\_**

***Index of physical development for structures or installations***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table above to fill out form in Excel. Insert new rows as necessary. Make sure the formatting from the “score” column is copied as well.

a. Make sure each piece of infrastructure has a unique identifier (e.g., “Big Sage Patrol Cabin”; “corral at T12N R3W, Sec. 34, NENE”). GPS coordinates are preferable.

b. Enter the value of the structure or development from the Implementation Guide in the “value” column.

c. For fences and ROWs, enter the length to the nearest tenth of a mile in the length column (e.g., for a fence 2¼ miles long, enter “2.3”

d. For mines, enter the size to the nearest acre. Round up (e.g., for a mine 1.3 acres enter “2” in the size column). For mines under 1 acre, enter “1”

2. “Scores” and SUM should automatically calculate in Excel.

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter Value and Length or Size (if applicable) for each structure or development as described above

b. For Buildings and Non-linear infrastructure entries, copy Value amount into Score column

d. For Fences and ROWs entries, multiply the Value by the Length, and that product by 10. Enter the result in the Score column

e. For Mines, multiply the Value by the size. Enter the result in the Score column

c. SUM the Score column. Enter this result in the Black Box.

4. **Black box**: the Index of Physical Development. Enter this number as the “Value” for Measure 3-1 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F3_1).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#text3_1).

Go to [Appendix C](#AppendixC) to help determine which travel routes should be recorded in this measure, and if the travel route should also be recorded in other measures.

**Wilderness Character** **Measure 3-2 202\_\_**

***Area and existing or potential impact of inholdings***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table above to fill out form in Excel. Insert new rows as necessary. Make sure the formatting from the “score” column is copied as well.

a. Make sure each inholding includes the legal location

b. Enter the acreage of the inholding in the “Acres” column

c. Enter the development potential rating from the Implementation Guide in the “Development rating” column.

2. “Scores” and SUM should automatically calculate in Excel.

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter Acres and Development rating for each inholding as described above

b. Multiply the Acres by the Development rating. Enter the result in the “score” column.

c. SUM the “score” column. Enter this result in the Black Box.

4. **Black box**: the Inholding Index. Enter this number as the “Value” for Measure 3-2 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F3_2).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#text3_2).

**Wilderness Character** **Measure 3-3 202\_\_**

***Type and amount of administrative use (but not law enforcement or emergency use) of motor vehicles, motorized equipment, and mechanical transport***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table above to fill out form in Excel. Insert new rows as necessary. Make sure the formatting from the “score” column is copied as well.

a. Each action or project should have a unique name

b. Enter the number of motor vehicles, pieces of mechanical transport and items of motorized equipment, as well as the number of days each is authorized, in the corresponding columns.

c. Enter the identifier of the Minimum Requirements Analysis used to authorize these uses, as well as the agency using the equipment (e.g., “BLM”; “DOW”)

2. “Scores” and SUM should automatically calculate in Excel.

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. Multiply the # of motor vehicles by the number of days these are authorized, and multiply that product by 2; multiply the # of pieces of mechanical transport by the number of days these are authorized; multiply the # of pieces of motorized equipment by the number of days these are authorized. Add the three multiplicands together and enter the result in the “score” column.

c. SUM the “score” column. Enter this result in the Black Box.

4. **Black box**: the Index of administrative and non-emergency use of prohibited equipment. Enter this number as the “Value” for Measure 3-3 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F3_3).

To enter this data on the **Annual Data Report**, click [here](#A3_3).

To return to the **Implementation Guide text** for this measure, click [here](#text3_3).

**Wilderness Character Measure 3-4 202\_\_**

***Proportional use of motor vehicles, motorized equipment, and mechanical transport in law enforcement or emergency responses***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table to fill out form in Excel. Insert new rows as necessary. Make sure the formatting from the “score” column is copied as well.

a. Each emergency should have a unique name, including the lead agency

b. Enter the number of motor vehicles, pieces of mechanical transport and items of motorized equipment, as well as the number of days each is authorized, in the corresponding columns.

2. “Scores,” COUNT, SUM, and Black Box should automatically calculate in Excel.

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. Multiply the # of motor vehicles by the number of days these are authorized, and multiply that product by 2; multiply the # of pieces of mechanical transport by the number of days these are authorized; multiply the # of pieces of motorized equipment by the number of days these are authorized. Add the three multiplicands together and enter the result in the “score” column.

c. SUM the “score” column.

d. COUNT the number of emergencies.

e. Divide the SUM by the COUNT. Enter this result in the Black Box.

4. **Black box**: the proportional use of prohibited equipment in emergencies. Enter this number as the “Value” for Measure 3-4 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F3_4).

To enter this data on the **Annual Data Report**, click [here](#A3_4).

To return to the **Implementation Guide text** for this measure, click [here](#text3_4).

**Wilderness Character** **Measure 3-5 202\_\_**

***Type and amount of use of motor vehicles, motorized equipment, and mechanical transport not authorized by the federal land manager***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table above to fill out form in Excel. For each category of user, enter the frequency of unauthorized use score and the extent of unauthorized use score as explained in the Implementation Guide. Insert new rows as necessary. Make sure the formatting from the “total” column is copied as well.

2. Comments could include responsible parties (if known) and BLM actions taken.

3. “Totals” and SUM should automatically calculate in Excel.

4. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. Multiply the frequency score by the extent score for each category and enter each result in the corresponding “total” column.

c. SUM the “total” column. Enter this result in the Black Box.

5. **Black box**: Index of the unauthorized use of prohibited equipment. Enter this number as the “Value” for Measure 3-5 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F3_5).

To enter this data on the **Annual Data Report**, click [here](#A3_5).

To return to the **Implementation Guide text** for this measure, click [here](#text3_5).

**Wilderness Character** **Measure 4-1 202\_\_**

***Amount of visitor use***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Enter the number used to approximate visitor use. In the “comments” section, detail the procedure used to derive this number.

2. **Black box**: Estimated amount of visitor use. Enter this number as the “Value” for Measure 4-1 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F4_1).

To enter this data on the **Annual Data Report**, click [here](#A4_1).

To return to the **Implementation Guide text** for this measure, click [here](#text4_1).

**Wilderness Character Measure 4-2 202\_\_**

***Remoteness inside the wilderness affected by travel routes***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Enter the “Number of Acres” and “Remoteness Zone Factor” as calculated according to the Implementation Guide. The “reference” section should either link to or name the GIS map used to generate this data.

2. **Black box**: Remoteness Score for the Wilderness. Enter these numbers as the “Value” for Measure 4-2 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F4_2).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#I_4_2).

Go to [Appendix B](#AppendixB) for GIS instructions in calculating these values.

Go to [Appendix C](#AppendixC) to help determine which travel routes should be recorded in this measure, and if the travel route should also be recorded in other measures.

**Wilderness Character Measure 4-3 202\_\_**

***Area of wilderness affected by developments that are near the wilderness***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Enter the “Area” as calculated according to the Implementation Guide. The “reference” section should either link to or name the GIS map used to generate this data.

2. **Black box**: Area of the wilderness affected. Enter this number as the corresponding “Values” for Measure 4-3 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F4_3).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#I_4_3).

Go to [Appendix C](#AppendixC) to help determine which travel routes should be recorded in this measure, and if the travel route should also be recorded in other measures.

**Wilderness Character Measure 4-4 202\_\_**

***Severity of the effect of developments that are near the wilderness***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Enter the “Severity” as calculated according to the Implementation Guide. The “reference” section should either link to or name the GIS map used to generate this data.

2. **Black box**: Severity of the effect of nearby developments to the wilderness. Enter this number as the corresponding “Values” for Measure 4-4 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#V5_4_4).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#I_4_4).

Go to [Appendix C](#AppendixC) to help determine which travel routes should be recorded in this measure, and if the travel route should also be recorded in other measures.

**Wilderness Character Measure 4-5 202\_\_**

***Type and number of agency-provided recreation facilities***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table to fill out form in Excel. Insert new rows as necessary. Make sure the formatting from the “total” column is copied as well.

a. Make sure each trail segment has a unique identifier (e.g., “Piñon Trail, trailhead to mile 2.3”; “Piñon Trail, AA to AB”). Major trail features, campsite developments, and campsite amenities should have unique identifiers unless there are several grouped together (e.g., 2 ladders on Angel Arch Trail). GPS coordinates are preferable.

b. For each trail segment, enter the length to the nearest tenth of a mile in the length column (e.g., for a trail segment 2¼ miles long, enter “2.3”)

c. For each trail segment, enter the development score and the signs score from the Implementation Guide in their respective columns.

d. For major trail features, campsite developments, and campsite amenities, enter the value of each as determined in the Implementation Guide. Enter “1” as the number unless you have grouped similar developments together as described above.

e. Comment section should be used to link or reference map or other GIS data to track locations of each specific facility.

2. “Totals” and SUM should automatically calculate in Excel.

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter length, development score, and signs score for each trail segment using the Implementation Guide as described above. Multiply these values together for each trail segment’s “total.”

b. For major trail features, campsite developments, and campsite amenities, enter the value of each as detailed in the Implementation Guide. If you are grouping like developments together, multiply that value accordingly. Enter the value (or the value multiplied by the number of like developments) in each respective cell in the “total” column.

c. SUM the “total” column. Enter this result in the Black Box.

4. **Black box**: Index of agency-provided recreation facilities. Enter this number as the “Value” for Measure 4-5 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F4_4).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#text4_4).

Go to [Appendix C](#AppendixC) to help determine which travel routes should be recorded in this measure, and if the travel route should also be recorded in other measures.

**Wilderness Character Measure 4-6 202\_\_**

***Type and number of user-created recreation facilities***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table to fill out form in Excel. Insert new rows as necessary. Make sure the formatting from the “total” column is copied as well.

a. Make sure each trail segment has a unique identifier (e.g., “old road to windmill,” “trailhead to stock pond,” “Trail 101, segment AA”) User-degraded trail segments, major trail features, campsite developments, campsite amenities, and non-camping recreation sites should have unique identifiers unless there are several grouped together (e.g., “2 campsites at Ladder Canyon Overlook”). GPS coordinates are preferable.

b. For each “trail segment” or “degraded trail segment,” enter the length to the nearest tenth of a mile in the length column (e.g., for a trail segment 2¼ miles long, enter “2.3”)

c. For each trail segment, enter the development score and the signs score from the Implementation Guide in their respective columns.

d. For major trail features, campsite developments, campsite amenities, and non-camping recreation sites, enter the value of each as determined in the Implementation Guide. Enter “1” as the number unless you have grouped similar developments together as described above.

e. Comment section should be used to link or reference map or other GIS data to track locations of each specific facility.

2. “Totals” and SUM should automatically calculate in Excel.

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter length, development score, and signs score for each trail segment using the Implementation Guide as described above. Multiply these values together for each trail segment’s “total.”

b. For each degraded trail segment, enter the length (to the nearest 0.1 mile). Double that amount and enter the result in that segment’s “total” cell.

b. For major trail features, campsite developments, amenities, and non-camping recreation sites, enter the value of each as detailed in the Implementation Guide. If you are grouping like developments together, multiply that value accordingly. Enter the value (or the value multiplied by the number of like developments) in each respective cell in the “total” column.

c. SUM the “total” column. Enter this result in the Black Box.

4. **Black box**: Index of user-created recreation facilities. Enter this number as the “Value” for Measure 4-6 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F4_5).

To enter this data on the **Annual Data Report**, click [here](#A4_5).

To return to the **Implementation Guide text** for this measure, click [here](#text4_5).

Go to [Appendix C](#AppendixC) to help determine which travel routes should be recorded in this measure, and if the travel route should also be recorded in other measures.

**Wilderness Character Measure 4-7 202\_\_**

***Type and extent of management restrictions***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. Double-click on table to fill out form in Excel. For each category of restriction, enter the “restriction score” and “weight” as explained in the Implementation Guide. Insert new “*other activity-specific regulations”* rows as necessary. Make sure the formatting from the “total” column is copied as well.

2. “Totals” and SUM should automatically calculate in Excel.

3. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. Multiply the restriction score by the weight for each category and enter each result in the corresponding “total” column.

c. SUM the “total” column. Enter this result in the Black Box.

5. **Black box**: Index of management restrictions. Enter this number as the “Value” for Measure 4-7 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F4_6).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#text4_6).

**Wilderness Character** **Measure 5-1 202\_\_**

***Severity of disturbances to cultural resources***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. For each cultural resource, enter the condition score as explained in the Implementation Guide. Every cultural resource should have a unique identifier. Insert new rows as necessary. Make sure the formatting from the “score” column is copied as well.

2. Comments could include details on the status or trends of each resource.

3. SUM should automatically calculate in Excel.

4. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. Add the individual condition scores together. Enter this result in the Black Box.

5. **Black box**: Index of severity of human-caused disturbances to cultural resources. Enter this number as the “Value” for Measure 5-1 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F5_1).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#text5_1).

**Wilderness Character** **Measure 5-2 202\_\_**

***Severity of disturbances to other features of value***

Wilderness name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Directions

1. For each feature, enter the status score as explained in the Implementation Guide. Insert new rows as necessary. Make sure the formatting from the “total” column is copied as well.

2. Comments could explain the rationales of the ratings.

3. The “totals” and SUM should automatically calculate in Excel.

4. *If you are not using an active form (with embedded Excel spreadsheet):*

a. Enter data as described above

b. SUM the “total” column. Enter this result in the Black Box.

5. **Black box**: Severity of disturbances to other features of value. Enter this number as the “Value” for Measure 5-2 on the Wilderness Character Data Report form.

To enter this data on the **Baseline & 5-Year Data Report**, click [here](#F5_2).

This data does not appear on the **Annual Data Report**.

To return to the **Implementation Guide text** for this measure, click [here](#text5_2).

***Appendix B***

***Measure 4-2***

What follows are the step-by-step instructions for completing GIS analysis for Measure 4-2.

**Recreation Measure 4-2****. *Remoteness inside the wilderness affected by travel routes***

Step-by-step instructions for completing GIS analysis for Measure 4-2:

**Step 1**

* Secure a GIS layer of all travel routes inside the wilderness and within 3 miles of the wilderness that provide public access to the wilderness.

**Step 2**

* Ensure that all travel routes are public and attributed to either 1) open to motorized or mechanized vehicles, or 2) only open to non-motorized or non-mechanized transportation.

**Step 3**

a. Select only non-motorized/non mechanized roads and trails and run Multiple Ring Buffer (geoprocessing tool) with values of 1/2 mile and 2 miles (allow dissolve).

b. Select only motorized/mechanized roads and trails and run Multiple Ring Buffer (geoprocessing tool) with values of 1 mile and 3 miles (allow dissolve).

c. Add field “Zone” to each resulting geospatial data file, and the value “A” to the ½ and 1 mile distance records, and “B” to the 2 and 3 mile distance records.

**Step 4**

* Run a Union (geoprocessing tool) on the two files resulting from Step 3.

**Step 5**

a. Add a field “Final Zone” to the file resulting from Step 4.

b. Manually select all files that have a value of B in either of the “Zone” fields (the other “Zone” field may be A, B, or have no value).

• Enter the value of “B” into the field “Final Zone”

c. Manually select all the files that do not have a value of “B” in any of the “Zone” fields (the other “Zone” field may be A or have no value).

• Enter the value of “A” into the field “Final Zone”

d. All other areas of the wilderness are zone “C”

**Step 6**

* Run a Dissolve (geoprocessing tool) on the file dissolving on the field “Final Zone.”

**Step 7**

* Run an Identity (geoprocessing tool) using the Wilderness boundary as the Input Feature and the file resulting from Step 6 as the Identity Feature.

**Step 8**

a. Add an “acres” field into the file resulting from Step 7.

b. Calculate geometry for the “acres” field of the preceding bullet, selecting “acres” as the unit type.

c. Enter the acre values calculated in the preceding bullet into the WCM database for Zones A, B and C (Zone A will be the least remote, and Zone C the most remote area within the wilderness).

***Appendix C***

***Accounting for Travel Routes in Wilderness***

The following is a flowchart to aid in identifying the measures under which travel routes used for various purposes are recorded.

**Flowchart to aid in identifying whether travel routes are recorded in Measures 3-1, 4-2, 4-3, 4-4, 4-5, 4-6, or a combination of these measures.**

**A close up of a map

Description automatically generated**

Notes:

* The route types provided above may not be the only examples that fit the group of measures specified.
* Review each measure’s specific instructions to ensure how the route should be recorded in the measure indicated by the flowchart. For example, an interstate freeway would only be recorded in Measure 4-4 if it is within 5 miles of the wilderness boundary.