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Maroon Bells-Snowmass Wilderness

Overnight Visitor Use Management Plan

Aspen - Sopris Ranger District, White River National Forest
Gunnison Ranger District, Grand Mesa, Uncompahgre and Gunnison National Forest
Pitkin and Gunnison Counties, Colorado

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List of Acronyms

CFR	Code of Federal Regulations
EA	Environmental Assessment
FLREA	Federal Lands Recreation Enhancement Act
GAOT	Groups At One Time
GMUG	Grand Mesa Uncompahgre and Gunnison National Forest
LRMP	Land and Resource Management Plan
MA	Management Areas
MBSW	Maroon Bells – Snowmass Wilderness
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
Plan	Maroon Bells – Snowmass Wilderness Overnight Visitor Use Management Plan
ROS	Recreation Opportunity Spectrum
SCORP	Statewide Comprehensive Outdoor Recreation Plan
TH	Trail Head
USFS	United States Forest Service
VIS	Visitor Information Services
VUM	Visitor Use Management
WIS	Wilderness Implementation Schedule
WRNF	White River National Forest

Chapter 1: Introduction

The White River National Forest (WRNF) has formally adopted this Overnight Visitor Use Management Plan (hereafter referred to as 'the Plan' or Plan) for the Maroon Bells-Snowmass Wilderness (MBSW). This Plan was analyzed under an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA). The purpose of the Plan is to provide for comprehensive management of overnight visitor use in the MBSW within the legal framework of the Wilderness Act of 1964, United States Forest Service (USFS) policy and regulations and in conformance with the current direction found in the WRNF 2002, Land and Resource Management Plan (LRMP) and the Grand Mesa, Uncompahgre and Gunnison National Forests – (GMUG) LRMP as amended in 1991. The plan follows Forest Service Manual (FSM) directives and Code of Federal Regulations (CFRs). This Plan is an activity implementing a land management Plan as described in 36 CFR 218 Subparts A and. The Plan addresses overnight visitor use management and stewardship of 181,535 acres within the MBSW.

The Plan provides for comprehensive management of overnight visitor use in order to restore and preserve natural conditions by addressing the biophysical impacts that are occurring due to the increase of use within the MBSW. The Plan's intent is to address overnight visitor use across the entire MBSW with an adaptable, long term strategy to sustain wilderness character qualities of natural and undeveloped. In order to reflect overnight use patterns in the MBSW, the Plan divides the wilderness area into overnight camping zones. The Plan also defines and allocates the total number of "Groups At One Time" (GAOT) per camping zone to meet current LRMP direction. The allocated number of GAOT serves as the primary threshold, which when exceeded will trigger a limited entry overnight permit system for that zone.

This Plan was developed based on input from stakeholders, visitors, public meetings, monitoring, USFS staff expertise, research and knowledge of similar natural resource issues occurring in many "high use" wilderness areas across the country.

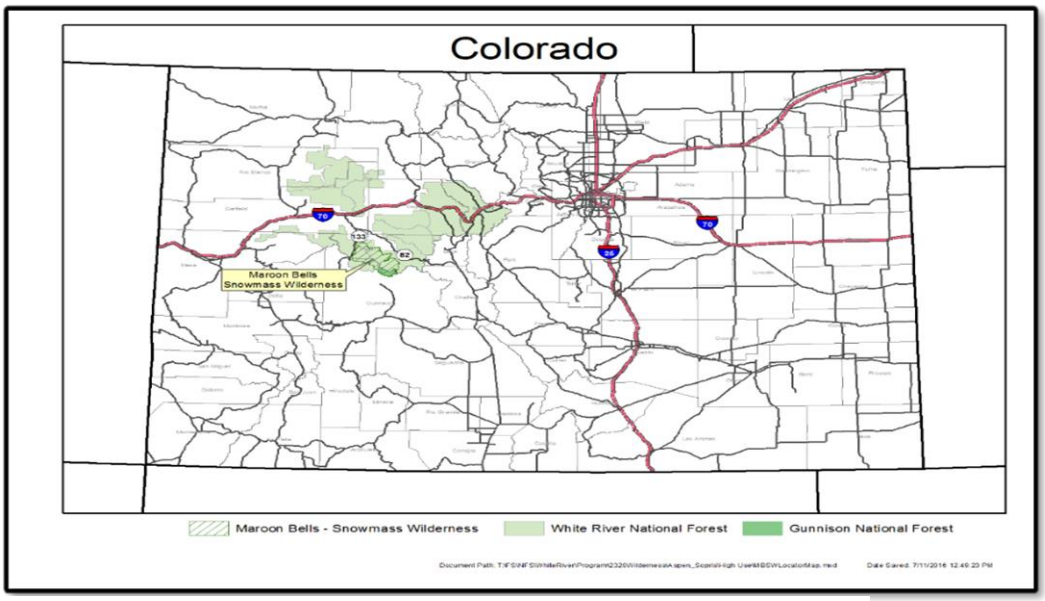


Figure 1. Plan Area

Purpose of the Plan

In response to increasing natural resource degradation issues and management challenges, the purpose of the Plan is to provide for comprehensive management of overnight visitor use within the MBSW. The Plan seeks to balance the preservation of natural conditions by addressing biophysical impacts resulting from overnight use, while continuing to provide opportunities for primitive and unconfined recreation. The Plan includes:

- Description of comprehensive desired conditions including a defined overnight number of GAOT per camping zone in accordance with existing LRMP direction;
- Further management guidance described in indicators and thresholds to implement existing LRMP Management Areas (MAs)(1.11, 1.12, and 1.13) designed to protect wilderness character and preserve the areas biophysical environment (natural and undeveloped);
- Adaptive management strategies and management tools that will monitor physical displacement, biophysical impacts and trigger the implementation of an overnight permit system if the defined overnight GAOT is exceeded for any camping zone in MBSW.

Need for the Plan

Increasing visitor use within the MBSW has been documented as a management concern since 1986 (WRNF LRMP) and was addressed in the 2002 LRMP revision. The need for conducting visitor capacity studies and permitting of use in high use corridors was addressed in the 1986 LRMP as well as a subsequent Wilderness Implementation Schedule (WIS) for the MBSW.

Within certain locations (*Conundrum Hot Springs, Crater Lake and the 4 Pass Loop*) and high use travel corridors use has increased up to 285% from 2006 to 2015. The impacts associated with this level of increase in use are magnified by the relatively short use season in the summer and limited places that users prefer.

Peak crowds from July through September overwhelm the number of available camping sites leading to the creation of new sites. These additional site create additional resource impacts from the increasing and concentrated overnight use. The increases in resource impacts is the primary issue related to visitor use management in the MBSW.

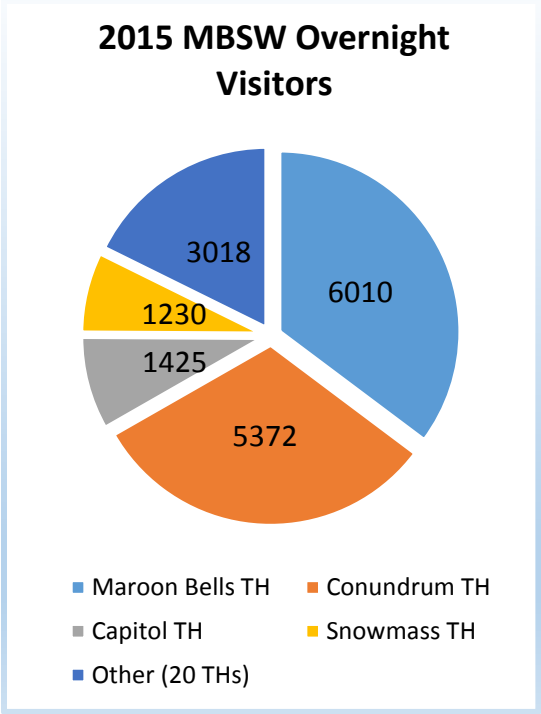


Figure 2. Source: USFS required registration data for overnight visitors

Concentrated use patterns exacerbate social and physical resource degradation. Four of twenty four trailheads account for 82% of all overnight visitors and a disproportionate share of negative resource impacts (see Figure 2). Partners, local communities, visitors and stakeholders have witnessed the impacts and continue to ask the USFS to implement management actions to address degradation occurring to MBSW biophysical resources (disruption to wildlife, tree cutting/fire scars, trash, human waste, campsite hardening and proliferation). Impacts to social resources and opportunities include solitude, lack of ethics, crowding, displacement, and noise.

To date, the Aspen-Sopris Ranger District has taken all available steps to address these issues outside of conducting a capacity analysis that would determine a defined number of overnight GAOT per camping zone and limiting use. Administrative actions that the USFS has implemented already to manage the situation include changes to trailhead parking, requirement for bear canister use, emergency closures in some area.

From 2007 to 2015, overnight visitors on the ten most popular trails increased 115% (Source, USFS required overnight registration data). This more than double increase in visitation in only nine years has a clear, direct correlation to the negative biophysical impacts.
Colorado's population increased by 16.9 percent and the total population was estimated at almost 5.2 million in 2015 (Colorado Demography office). Forecasts estimate that Colorado's population will grow to just under 6 million by 2020 and over 7 million by 2030 (Aldo Svaldi, 2015). Approximately 4 million Colorado residents participate in a form of outdoor recreation annually (Colorado SCORP, 2014).

An inventory completed by the USFS in 2010 documented 729 total campsites within the entire MBSW that impacted an approximate area of 559,000ft² (~35 football fields).

Wildlife conflict (habituation and displacement), search and rescue operations, and rapidly increasing use levels have become significant management challenges. The biophysical impacts continue to cause the most significant degradation to natural conditions.

The WRNF identified the "niche" of the Maroon Scenic Area and has planned for high use visitation to that area. Use has increased substantially in the adjacent MBSW; therefore a management response is needed. "Land managers strive for balance between meeting the demand for use and maintaining the health of the irreplaceable natural resources…" (2014 SCORP, sect. 2, page 2). While increased visitation has resulted in many issues, overnight camping has created the most substantial issues that must be addressed immediately to protect the unique values associated with the MBSW. A complex suite of indirect to direct management actions taken over the past several decades have not been effective at preserving natural conditions in the face of this increasing user pressure. Thirty years of educational messaging focused on outdoor ethics have been implemented followed by special orders when interpretation and education efforts were no longer proving to be successful.

Escalating the management response related to overnight use is needed to prevent further spread of the indiscriminant negative impacts to biophysical and social resources from occurring.

Objective of the Plan

- Reduce biophysical impacts from overnight visitor use.
- Manage the MBSW in accordance with the Wilderness Act and current management prescriptions in the White River and Gunnison National Forests' LRMP's thereby preserving the wilderness character of the MBSW by sustaining the natural and undeveloped qualities.

Background

The MBSW comprises a surface area of 181,535 acres in central Colorado that is managed jointly by the WRNF and GMUG. The WRNF is the lead forest for management of the entire wilderness. The MBSW was established by Congress in 1964 as part of the enabling legislation for the Wilderness Act. It was enlarged to its present size by the 1980 Colorado Wilderness Act. There are 22 trailheads on the WRNF and 5 on the GMUG that access a trail network of 173 miles. Pitkin and Gunnison Counties share joint jurisdiction of the MBSW with the Forest Service.

The MBSW contains 9 trailed passes over 12,000' and 7 peaks over 14,000' and has been known for decades to contain one of the most iconic and picturesque mountain ranges in the country. Maroon Lake and the surrounding area (just outside the Wilderness boundary) was designated as a Scenic Area in an effort to manage the increasing number of visitors, transportation challenges, commercial uses, etc. The Scenic Area sees over 300,000 visitors annually which has escalated visitation into the adjacent Wilderness.

The degradation of natural conditions caused by high overnight use levels has been a longstanding issue. The 1988 MBSW WIS noted that, "Levels of use meet or exceed capacity as a result of excessive overnight visitation use at Conundrum Hot Springs, Snowmass Lake and Capitol Lake on weekend days" (p.13). Direction from this plan stated that overnight use must be reduced or redistributed at these destinations.

Research shows that the main driver to visitor's satisfaction in wilderness areas directly correlates to overnight/campsite encounters (Cole and Hall, 2009). Occupied campsite density has been determined to be a key driver for satisfaction. Research states that to most users having tents right next to their tent is perceived as crowding. It reduces one's satisfaction and effects the overall experience of their trip.

Chapter 2: Current Management Direction

Legislative Direction

Two pieces of legislation guide the management of use and activities in portions of the analysis area. The first, is the Wilderness Act of 1964 which designated 14,843 acres in the MBSW. The second is the 1980 Colorado Wilderness Act which designated an additional 166,682 acres into the MBSW. Both of these pieces of legislation requires that these lands be managed to preserve the wild character of the area.

USFS Regulations and Policies

The most applicable requirements for developing plan content for recreation and designated areas under 36 CFR Part 219 –Planning and Subpart A are found in the sections on sustainability and multiple uses (36 CFR 219.8 and 219.10). Sustainability is defined as "the capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs," incorporating the spheres of ecological, economic, and social sustainability (36 CFR 219.19).

This management Plan was prepared in accordance with the following authorities; National Forest Management Act (NFMA), NEPA and Wilderness Act and other laws and regulations, USFS policies and direction.

Land and Resource Management Plan Direction (LRMP)

A LRMP provides guidance for all resource management activities on a national forest. Through its goals, standards and guidelines, and MA direction, the LRMP provides the overall guidance for management of the MBSW.

The Recreation Opportunity Spectrum (ROS) classification system is designed to characterize and help manage a spectrum or range of recreation opportunities across the forest. ROS is used as guidance for managers when prescribing desired conditions and objectives for management areas as part of forest planning decisions. While ROS is not prescriptive, it serves as a tool to identify and mitigate change.

Table 1. MBSW Forest Plan Management Areas

Management Area	Acres	Acres %
1.11 Pristine (WRNF)	25,776	14.20%
1.12 Primitive (WRNF) (GMUG)	131,642 19,643	83.33%
1.13 Semi-Primitive (WRNF) (GMUG)	3,942 532	2.47%
Total	*181,535	100.00 %

**Note- total acreage discrepancy of +/-10 acres is due to margin of error inherent in geospatial data.*

ROS classes define the level of recreation use, impact, development, and management that an area should experience over the life of a LRMP. While the MBSW is jointly managed by the WNRF and the GMUG, the WRNF is the lead managing Forest for the MBSW and as such, is responsible for subsequent management direction like the development of this Plan or special orders.

The GMUG is scheduled to begin a LRMP Revision in 2018. On the GMUG portion of the MBSW, management descriptions are based on the most recent ROS inventory done in preparation for the LRMP revision process. The ROS inventory reflects the current condition and informs management area prescriptions. The GMUG Record of Decision (ROD) and Final LRMP will finalize MA prescriptions. If any decisions vary from MA prescriptions displayed in this Plan, it may result in an update to this Plan for only the portion of the MBSW on the GMUG.

Specifically, forest wide standards and wilderness MA prescriptions associated with desired conditions, standards and guidelines related to visitor use, visitor encounters, campsite density and campsite condition are included below. Additional LRMP direction can be found in Appendix D.

Forest-wide Standards

General Recreation Standards

- Prohibit camping within 100 feet of lakes and streams and system trails, unless exceptions are justified by terrain or specific design that protects the riparian and aquatic ecosystems.

Wilderness Resource Standards

- *Maximum group size: Maroon Bells Snowmass Wilderness*-no more than 10 people per group with a maximum combination of 25 people and pack or saddle animals in any one group.
- The maximum group size may be lowered where biological and physical resource capability cannot support that level of use.

The following section describes and displays current LRMP wilderness direction for MA prescriptions 1.11, 1.12, 1.13 that is pertinent to this Plan.

Management Area Prescriptions

Table 2 below displays LRMP MA guidelines for the MBSW area. The purpose of this Plan is to refine and implement the existing management direction set forth by the LRMP and focus on impacts specifically related to overnight camping.

1.11 Pristine Wilderness

These areas provide the most outstanding opportunity for solitude and isolation. Structures and facilities are present only as necessary for resource protection when less obtrusive measures have been unsuccessful. User-created trails or game trails may exist but are not maintained or designated on maps or trail guides. Indirect methods of accomplishing management objectives predominate. Exceptions are allowed to insure resource impacts are contained and do not persist. The recreation opportunity spectrum (ROS) for this MA is pristine year-round. Scenery is managed to provide a scenic integrity objective of very high.

1.12 Primitive Wilderness

Some designated campsites may be available. The opportunity exists for a moderate-to high level of risk and challenge. There is a low incidence of contact while traveling cross-country. Somewhat more frequent encounters should be expected when on trails. Concentration of campsites is moderately high at trail junctions and popular destination points. The number of sites accommodates moderate use with no new sites forming over time. Outfitter and range permittee camps may be allowed. Pre-existing rights (such as mineral and water) may exist and be in operation. Maintained trails exist. Trail and bridge construction incorporate natural designs and native materials that complement the surrounding landscape whenever possible.

The minimum number of signs needed to provide for resource protection and direction at major trail intersections is used. The ROS for this MA is semi-primitive non-motorized or primitive year-round. Scenery is managed to provide a range of scenic integrity objectives from high to very high.

1.13 Semi-Primitive Wilderness

Trail and bridge construction incorporate natural designs and native materials that complement the surrounding landscape whenever possible. Pre-existing rights (such as mining and water) may exist and be in operation. Sustaining and protecting natural conditions is emphasized. Day-use opportunities are common within this MA. Camping is restricted to designated sites. Contact with other people is likely. The area provides low-to-moderate opportunities for solitude during the primary use season. Travel is primarily along a well-defined trail system. Trail tread is very evident and trails normally are cleared of downed timber.

There is the opportunity for a moderate level of risk and challenge. The ROS for this MA is semi-primitive non-motorized year-round. Scenery is managed to provide a range of scenic integrity objectives from moderate to high.

Additional Forest LRMP standards and guidelines are described in Appendix D. Standards and Guidelines relative to overnight management are shown in Table 2 below.

Figure 3. Existing Land and Resource Management Plan Direction -Wilderness Management Area Prescriptions

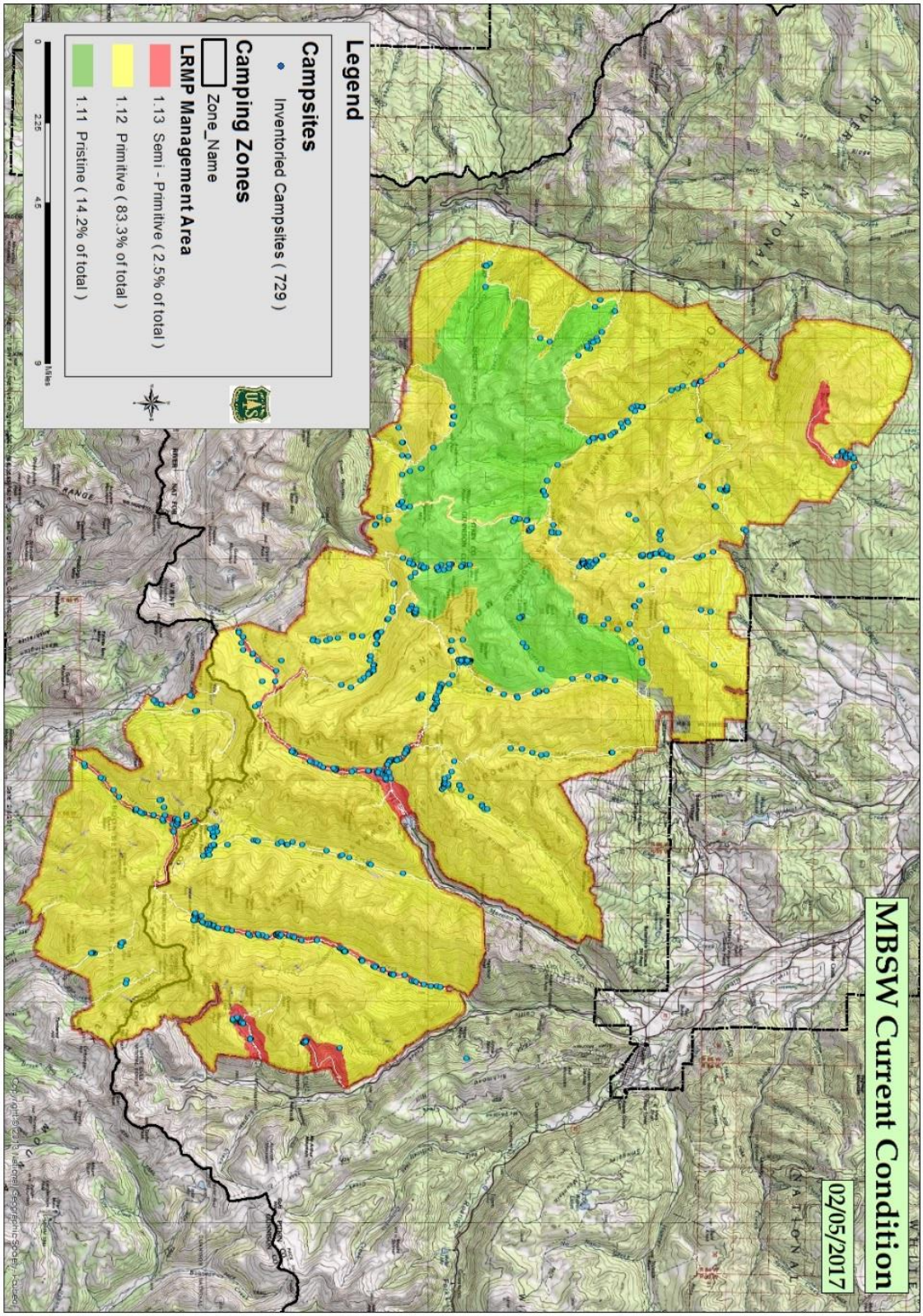


Table 2. 2002 – WRNF Land and Resource Management Plan - Management Area Guidelines

Management Area	**Encounter Guideline**	**Campsite Guideline**	**Campsite Density and Condition**
1.11 Pristine	No more than 2 other parties encountered during cross-country travel per day on 80 percent of the days during each use season.	No other party within sight or sound of campsites should be encountered on 80 percent of the days during each use season.	Density of campsites will be low, not to exceed one site per acre. Most sites will be Cole Condition Class 1 and 2. Very few Class 3 sites will exist. Close and restore all other campsites.
1.12 Primitive	No more than 12 other parties encountered per day on a Forest Development Trail on 80 percent of the days during each use season.	No more than 6 other campsites within sight of sound of campsites on 80 percent of the days during each use season.	Density of campsites will be moderate, not to exceed three sites per acre or six sites per linear mile of trail. Many destination locations will be Cole Condition Class 2 to 3, with some 4. Manage Cole Condition Class 5 sites as either designated sites or rehabilitate to a lower class condition.
1.13 Semi-Primitive	No more than 20 other parties encountered on a Forest Development Trail per day on 80 percent of the days during each use season.	Restrict overnight camping to designated sites.	Concentrate use in Cole Condition Class 3 and 4 sites. Manage Cole Condition Class 5 sites as either designated sites or rehabilitate to a lower condition class.

Other MBSW Management Planning Efforts and Actions

Management challenges in wilderness areas experiencing high amounts of visitation has been a topic of researchers for decades. The MBSW has been at the heart of the conversation both locally and regionally. As early as 1988, the MBSW WIS recognized management issues relating to the increasing number of visitors and the inability of the Forest to meet LRMP desired conditions and to sustain wilderness character as defined in the Wilderness Act. In response to those challenges the 2002 WRNF LRMP added numerous standards and guidelines for each wilderness MA prescription (1.11 Pristine, 1.12 Primitive, and 1.13 Semi-Primitive). Additionally, in response to ongoing management challenges, in 2006-2007 wilderness recreation forums were created with key citizen groups and a statewide core team to address how to mitigate the impacts and manage high recreation use in popular "magnet" Colorado wilderness destinations. Recommendations were on 35 Colorado wilderness areas. The MBSW was identified as one of the three "magnet" areas. Keeping pristine areas pristine, managing to minimize and repair environmental impacts, and the need to research social impacts were considered primary goals. Management "tools" recommended by the Focus Group included:

- PUBLIC EDUCATION
- MORE VOLUNTEERS
- SUSTAINABLE TRAILS
- EASE OF ACCESS
- CONTROLLED PARKING
- OVERNIGHT REGISTRATION
- FIRE RESTRICTIONS
- DOG POLICIES
- DESIGNATED CAMPSITES
- MANAGE HUMAN WASTE
- GROUP SIZE LIMITS
    - *LIMITED ENTRY PERMITS*
    - *LENGTH OF STAY LIMITS*

Implementation of LRMP direction has been occurring since 2002 utilizing the "minimum tool" philosophy. To date the Forest has instituted nearly all of the core team's recommendations as well as the LRMP "suite of tools" available except the use of limited entry permits.

Included in the suite of tools and pursuant 16 U.S.C. § 551 and 36 CFR §§ 261.50(a) and 261.50(b) and other governing Forest Service Regulation, the MBSW Special Order (*see Appendix E*) has required actions or prohibitions for wilderness preservation including: group size limits (*10 or less people),* fire restrictions, dog policies, mandatory food storage (*bear*

canisters), camping restrictions, stock use and feed requirements, required overnight registration, prohibitions on mechanized use and trail etiquette.

In response to ongoing degradation issues and concerns, from 2007-2015 numerous focused studies occurred in the MBSW that looked at high use impacts, wilderness character and campsite inventories (*Massman, Richie, Moore, Larson, etc.).*

Reliable ecological and social data has been collected and analyzed to quantify the correlation between use levels and resource damage. This Plan proposes to implement the final tool available to address resource degradation occurring in some of the MBSW high use corridors; limited entry overnight permits.

Starting in 2012 the forest and other interested parties conducted public outreach regarding the resource degradation issues occurring in the MBSW with the GMUG, local governments, adjacent communities, interested parties, stakeholders and permittees as well as statewide user organizations. As of January 2017, 42 meetings, round- tables, news-paper articles, radio shows, presentations, etc. have occurred. (See appendix B). After 3 years of public outreach the following preliminary issues were identified to frame the planning process.

Public Identified Issues:

1. Visitor demand during peak season, increased crowds, use patterns at popular destinations and routes are causing increased campsite impacts leading to soil compaction, loss of vegetation, etc.
2. Concentrated bio-physical impacts associated with increasing overnight visitation include: campfire impacts, exposed human waste, littering, and wildlife conflicts (habituation and displacement).
3. Perpetually increasing demand for the finite wilderness resource is causing visitor competition, conflict and displacement.
4. Agency management capacity is decreasing as the need for impact mitigating management action is increasing.
5. Current conditions in the MBSW are exceeding LRMP direction relating to visitor use management.

Chapter 3: Existing Conditions and Trends

This chapter presents the current conditions for visitor management related parameters in three themes: social, bio-physical and managerial settings. Conditions and trends are displayed across the entire MBSW. Monitoring data and site specific conditions for each zone will be analyzed in the EA. How the current conditions will be measured as to whether they meet or exceed current management direction will be further discussed in Chapter 4.

Social Setting

General Visitor Characteristics and Trends

The MBSW is a popular recreation destination and is marketed throughout the world by tourism destination providers and local communities. Various recreation modes include: day hiking, backpacking, trail running, mountaineering, hunting, photography, hot springs, horseback riding and skiing. A small minority of non-recreation visitors include: research, rescue, commercial operator, game management and land management personnel. Deep and unstable continental snowpack constrains the primary visitation season to the months of June through October.

Overnight required registration data (observed compliance 98%) between 2006 and 2015 shows an increasing trend on a few popular trails and stable use levels elsewhere.

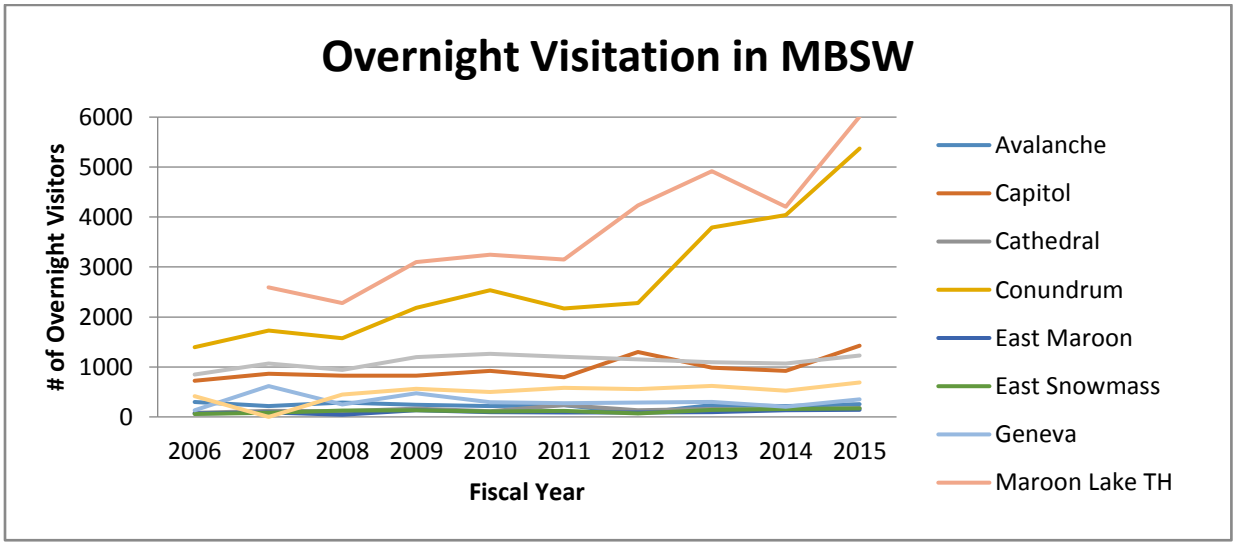


Figure 4. Source: USFS required registration data for overnight visitors

The US Census Bureau estimated Colorado's state population to be 5,456,574 in 2015 (Denver Post, Svaldi). This total ranked Colorado as the second fastest growing state with a growth rate of 1.9%, which is more than double the national average of .79%. Using the census data, the state demographer has estimated the 2040 Colorado Population to reach 7,800,000 (Birkeland and Hubbard). This 43% increase over the next 25 years in the regional visitor base for the MBSW has worrisome implications for visitor impact trends to natural conditions.

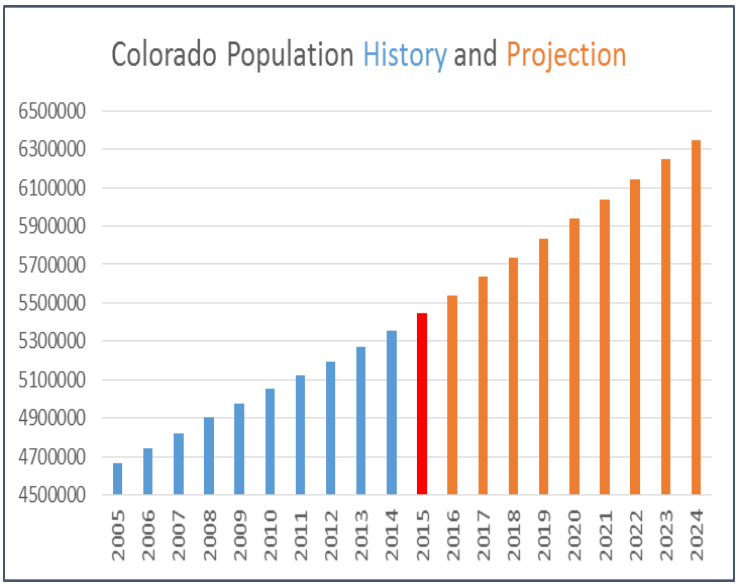
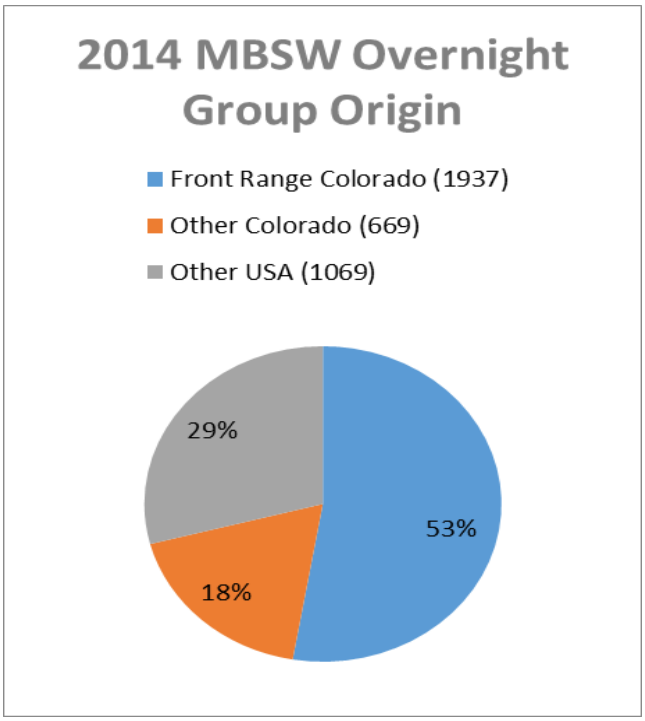


Figure 5. Source: Colorado State Demography Office



Of all overnight visitors to the MBSW, 71% are from Colorado. If regional visitation patterns to MBSW continue unchecked in tandem with regional population growth projections, it can be assumed that negative effects to the natural environment will follow a similar trajectory.

Overnight visitation represents approximately 14% of total use wilderness wide as determined by comparing trail counter and overnight registration data. In 2015, over 17,000 overnight visitors entered the MBSW.

Figure 6. Source: USFS required registration data for overnight visitors

Using this data we can estimate that annual MBSW visitation (day and overnight use) is approximately 121,428 people. The average group size for day visitors is 2.48 and 2.77 for overnight visitors. The average length of stay for overnight groups is 2.94 days. Overnight visitation is largely weekend focused (with 45.81% entering Friday or Saturday) and this trend is even more pronounced in the fall season.

Spring snowpack prevents most parties from accessing backpacking routes and popular destinations until late June while a significant amount of use continues through September into October.

The 2002 White River National LRMP contains standards and guidelines for the management of the MBSW. To monitor opportunities for solitude, daily group encounters guidelines have been set for the different management area classes (See Chapter 4).

Public education has been the primary focus of the Wilderness ranger program for decades. In addition to ranger station visitor information staff, agency websites and trail head kiosks, the broad education campaign includes wilderness rangers who contact thousands of visitors per year in the backcountry with a focused, professional Leave No Trace message.

Trail	% Overnight Use	% Day Use
Avalanche	2	98
Cathedral	1	99
Conundrum	44	56
Capitol	13	87
Snowmass	27	73
Maroon Lake	8	92
Thomas Lakes	14	86
American	1	99
Copper	10	90
Average	**14**	**86**

Table 3. (above) Source: USFS required registration data for overnight visitors and trail counter data

Overnight Visitation by Season	
Summer	73.85%
Fall	25.70%
Winter	.08%
Spring	.38%

Table 4. (above): Source: USFS required registration data for overnight visitors

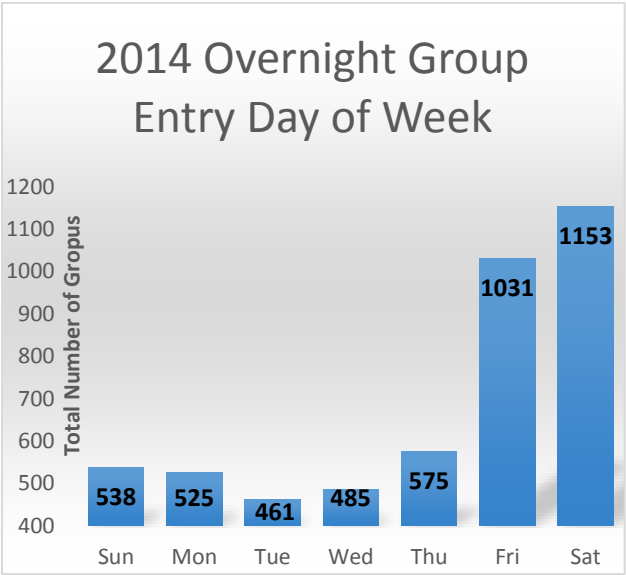


Figure 7. (above) Source: USFS required registration for overnight visitors

2015 MBSW Overnight Group Encounters by Trail

Trail	Encounters Guideline (# of Groups)	Total # Days patrolled	Total # Days Exceeded	% of Days Exceeding Guideline (</= 20% is LRMP compliant)
Capitol Creek	12	10	1	10%
Geneva Lake	12	10	3	30%
North Fork	12	9	2	22%
West Maroon	20	29	2	7%
Maroon Snowmass	20/12	52	3	6%
Conundrum	20	33	19	58%

Table 5. Source: USFS Wilderness ranger patrol logs

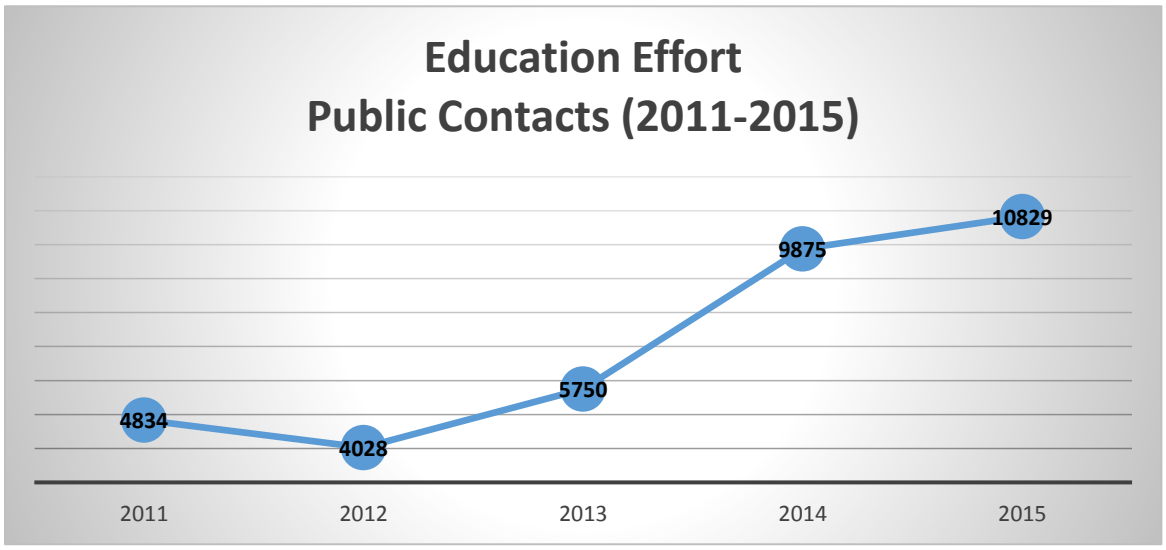


Figure 8. Source: Education contacts- USFS Wilderness ranger patrol logs

Biophysical Setting

General Natural Resource Conditions and Issues

The natural conditions of the MBSW are experiencing a degradation in quality correlated to the visitor trends described above. The primary biophysical resource concerns are campsite impacts including denuded bare soil, hard-pan soil and total loss of vegetation, campfire impacts, trash proliferation and exposed human waste. (See Marion, et al, 2016).

A recreation site inventory was completed for the entire MBSW from the years 2008 through 2010. In total, 729 campsites were documented with an average impact rating of 2.99 on a scale of 0 (trace) to 8 (most heavily impacted). Altogether these sites affect an area of approximately 559,000 ft.^{2} which is about 35 American football fields. The WRNF LRMP prescribed a mandatory standard that campsites must be greater than 100 ft. from system trails, lakes and streams. Of the 729 inventoried sites, only 51% or 374 sites met this standard (see Figure 9). Overcapacity weekend crowds overwhelm available sites, including designated sites, resulting in expansion of existing sites and creation of new sites.

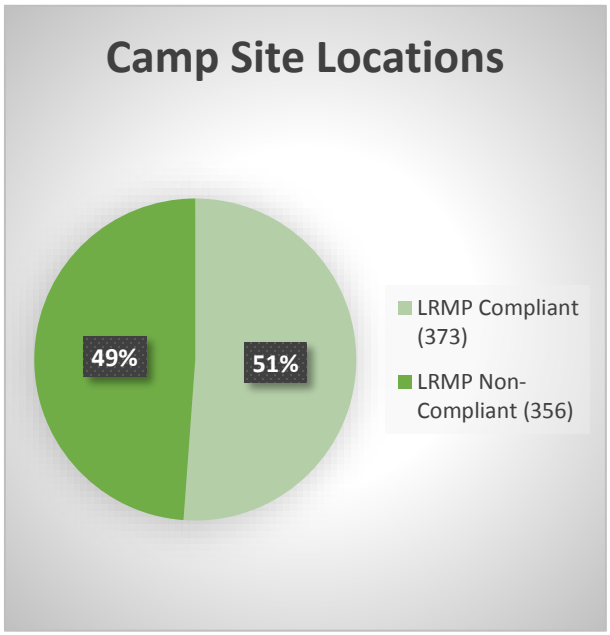


Figure 9. Source: USFS recreation site inventory 2008 – 2010

Long term heavy visitation and campfire use along popular routes and at destinations has exhausted all available firewood. Persistent campfire use despite a regulatory prohibition results in the use of standing green trees as a firewood source. Significant tree damage and forest structure impacts have accumulated as a result of this behavior. The sterilization of soil and scaring of rocks associated with illegal campfire use is also causing negative effects to natural conditions. From 2011 to 2015, rangers removed and naturalized 964 illegal campfire rings in the MBSW.

Campsite impact ratings previously completed with the modified Cole protocol are now done under the Rocky Mountain Region's "Rapid Assessment" campsite monitoring protocols. In summary the Rapid Assessment protocol rates several factors including: disturbance to ground cover, tree damage, and area disturbed by camping activities (tent pads, stock holding areas, etc.). Scoring reflects ratings of all the elements above with a score of zero indicating a trace site and score of eight indicating the highest degree of disturbance.

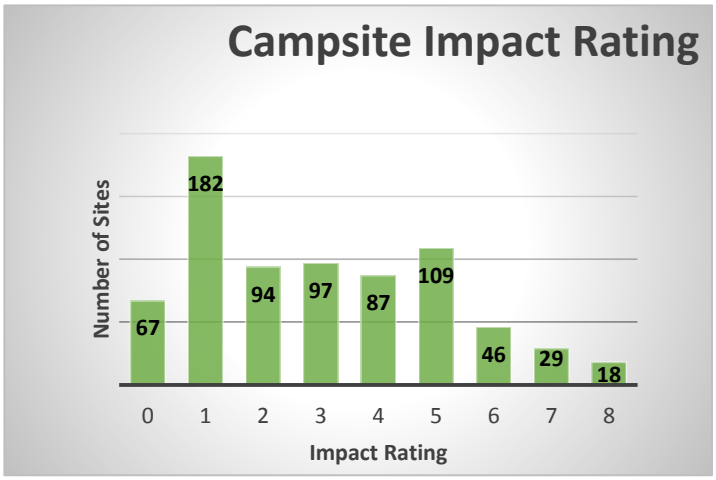


Figure 10. Source: USFS recreation site inventory 2008 – 2010

Littering, accidental or intentional, macro or micro, continues to pile up unnatural waste in the MBSW despite decades of Leave No Trace educational efforts.

Wilderness rangers packed 1,101 lbs. of trash out of the MBSW in 2014 and 2015. Burning trash is still a common practice that releases toxic fumes and results in trash filled fire pits that socially reinforces this behavior. A 2007 study of high use areas within the MBSW (Massman) documented a prevalence of exposed human waste at campsites near several popular destinations.

In 2014 and 2015, rangers buried 512 incidents of exposed human waste. Concentrations of exposed human waste may lead to environmental contamination, human sanitation and wildlife toxicity concerns.

Managerial Setting

Condition and Character of Visitor Management Effort

The high use social setting and correlated impacts to the bio-physical environment have resulted in a complex managerial situation for the MBSW. Management direction was defined most recently in the WRNF LRMP of 2002, incorporating direction found in the Wilderness Implementation Schedule of 1988, the 1980 Colorado Wilderness Act and the Wilderness Act of 1964.

Observations and years of monitoring have shown limited effectiveness of the current management strategy in the face of ever increasing pressure and where conditions are outside of LRMP guidelines. As education actions fail to resolve impactful visitor behavior, the list of special regulations has grown extensive and complex. A bear food storage requirement was added in 2015 to protect bears and humans from habituation. Designated campsites in six destinations attempt to concentrate visitors on sustainable campsites but weekend use levels overwhelm the available sites. Managing the overflow crowds is burdensome. Regular visitor non- compliance with regulations is a significant source of social and resource degradation (see Figure 11).

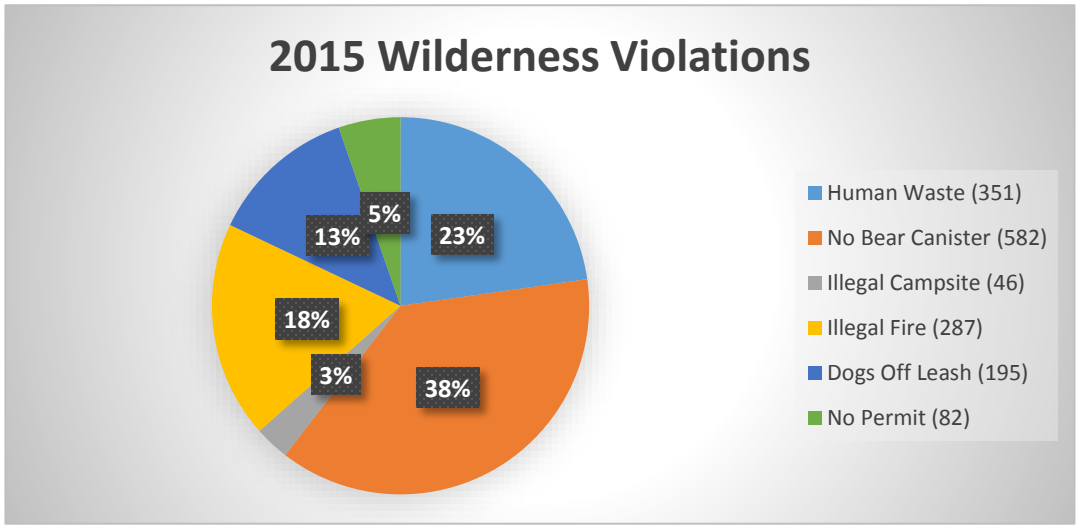


Figure 11. Source: Wilderness Ranger Patrol Logs

Mitigating visitor impacts to high use corridors in the MBSW consumes 80% of management effort on the Aspen-Sopris Ranger District leaving few resources for stewardship of the other four Wilderness areas on the District. An extensive education effort with staff and intern rangers made contact with over 10,400 visitors in the MBSW in 2015. A required registration system has been in place since 2003 and is a central education and monitoring tool.

Free, voluntary use human waste pack-out bags are supplied at two high use trailheads. A large volunteer ranger organization, regular trailhead kiosk updates and a close partnership with local media extend the educational outreach.

Currently there are 20 commercial Outfitters and Guides permitted within the MBSW. Permitted activities include guided hunting, hiking, backpacking, horseback riding, photography, interpretation and education, research and outdoor recreation activities and skills.

Additional visitor management related issues include the escalating incidence of motorized rescue operations, illegal commercial guides and mechanized intrusions.

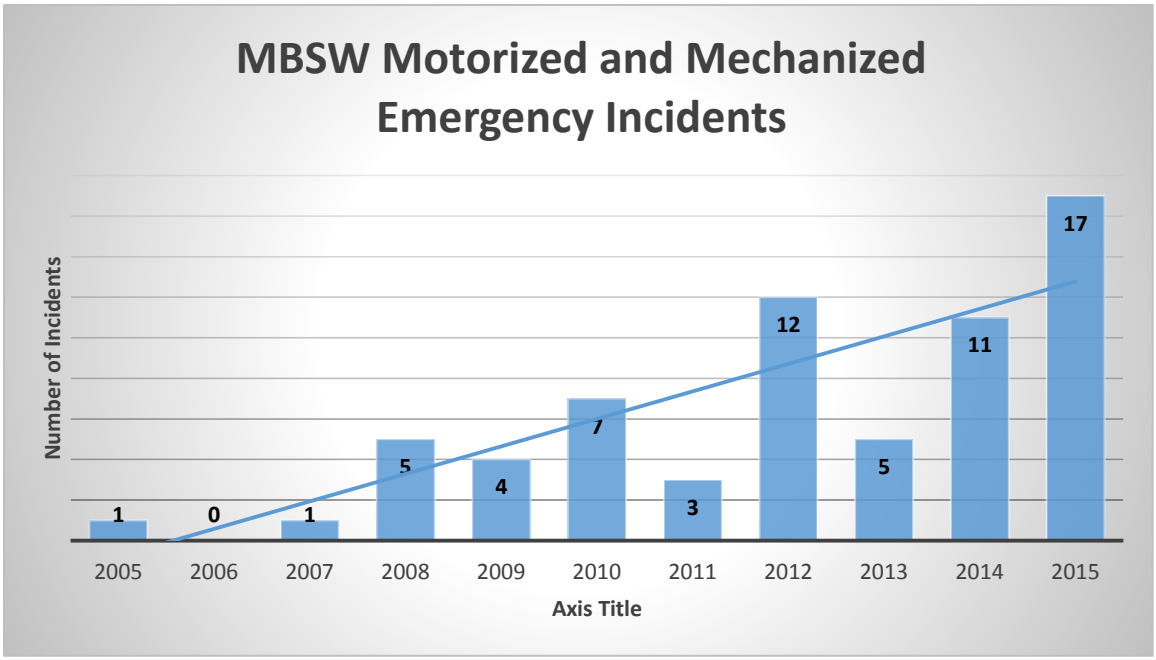


Figure 12. Source: Pitkin County Sheriff's Office

Chapter 4: Overnight Visitor Use Management Plan

In response to increasing biophysical damage occurring from overnight visitation and in conformance with Forest LRMP direction, an overnight visitor use management strategy is needed. As part of the planning process a study was completed that defined the MBSW physical capacity for overnight visitors. The overnight visitor capacity study took into consideration visitor use patterns and trends related to overnight use. The entire MBSW was zoned so as to better define each zone's capacity (see Figure 13). In summary, the Plan incorporated current LRMP desired conditions, standards and guidelines into measurable indicators and thresholds for camping zones.

Current LRMP wilderness MA direction is based on group encounters (referred to as "parties encountered"). The addition of a new indicator to monitor overnight "Groups At One Time" (GAOT) per camping zone was needed in order to specifically address and manage the biophysical impacts in conformance with existing LRMP direction. The GAOT indicator and associated thresholds for overnight use in each MA is supported by years of Aspen-Sopris Ranger District monitoring and campsite inventory data.

The overnight GAOT/zone is the primary and most sensitive indicator for triggering implementation of a limited entry permit system. Once the GAOT threshold is exceeded within a zone, that zone would require a limited entry permit system (see tables 7-9). The Plan includes an adaptive management strategy, so only those zones that exceed thresholds would have a management actions triggered and implemented.

Methodology for Allocation of "Groups At One Time"

A campsite inventory was completed in 2010 that documented 729 impacted campsites across the entire MBSW. Of these, 374 meet 2002 LRMP standards for distance from lakes, streams and system trails. These compliant campsites form the baseline of the overnight Groups At One Time (GAOT) capacity.

The foundational layer for the capacity analysis was the 2002 LRMP MA mapping. Thirty geographically manageable camping zones were developed based on watersheds and visitor use patterns. These 30 zones were merged with the LRMP MA boundaries (see Figure 13). The number of LRMP compliant campsites within each of these 30 zones formed the baseline for overnight GAOT for that zone. These baseline compliant campsites were filtered by desired occupied campsite densities according to MAs (See Chapter 2) to arrive at initial GAOT allocation per zone (see Table 6).

In the semi-primitive MA (1.13) one of the desired conditions is to restrict camping to designated sites. In the primitive (1.12) and pristine (1.11) a lower density of occupied campsites is required to achieve the desired bio-physical, social and managerial setting objectives (desired condition). Thus, the GAOT allocation for zones classified as primitive and pristine is a standardized portion of the baseline compliant campsites.

The capacity analysis resulted in unique GAOT allocations for each of the 30 camping zones (see Table 6). These allocations utilize the minimum tool by proposing the fewest amount of restrictions while preserving LRMP desired conditions. The GAOT allocations address the management issues identified in Chapter 2. See Appendices for individual Camping Zone Maps. Table 6 reflects the total number of inventoried campsites that meet the 2002 LRMP's "forest-wide" standard which states: *"Prohibit camping within 100 feet of lakes and streams and system trails, unless exceptions are justified by terrain or specific design that protects the riparian and aquatic ecosystems."* The total allocation within each camping zone considers LRMP MA prescriptions and applies a percent of compliant campsites in order to meet the desired conditions and guidelines and associated campsite densities.

This resulted in the following: 100% of the inventoried compliant campsites in 1.13 Semi-Primitive MAs are allocated, 75% of the compliant campsites in 1.12 Primitive MA are allocated, and 50% of compliant campsites in 1.11 Pristine MA are allocated. In some areas, there is more than one LRMP MA per overnight camping zone (see Figures 2 & 3 and Appendix E for individual zone maps).

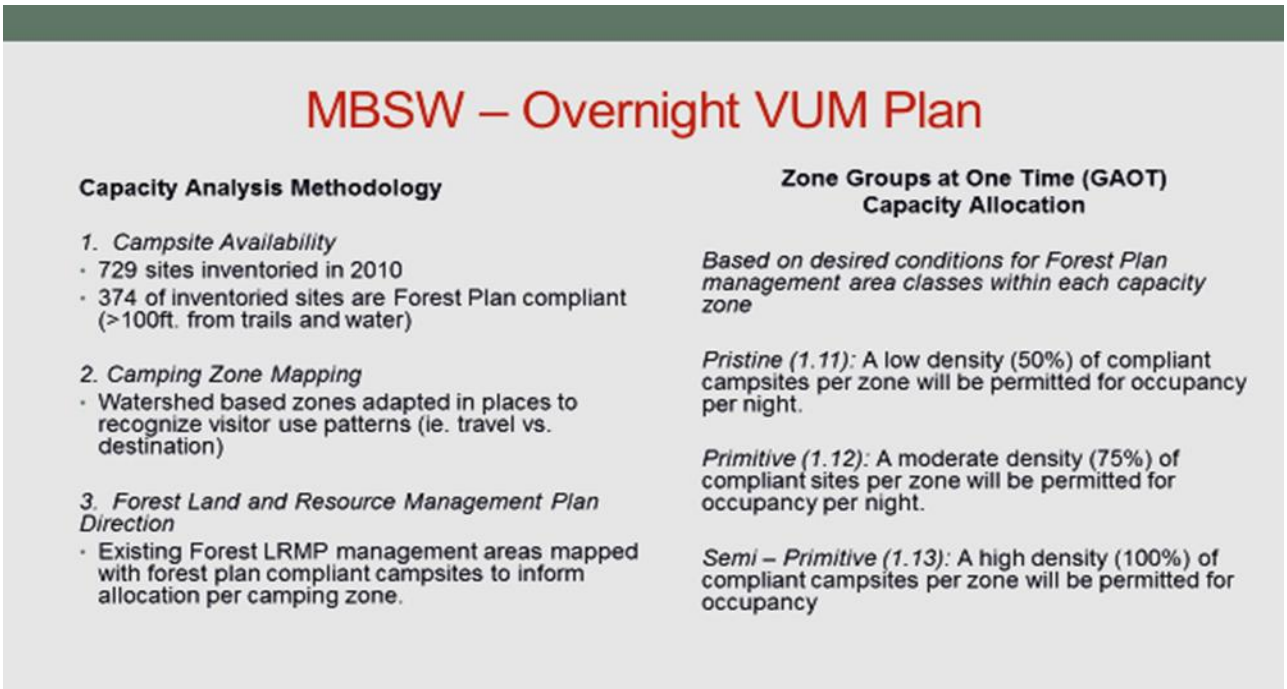


Figure 13. MBSW Camping Zones

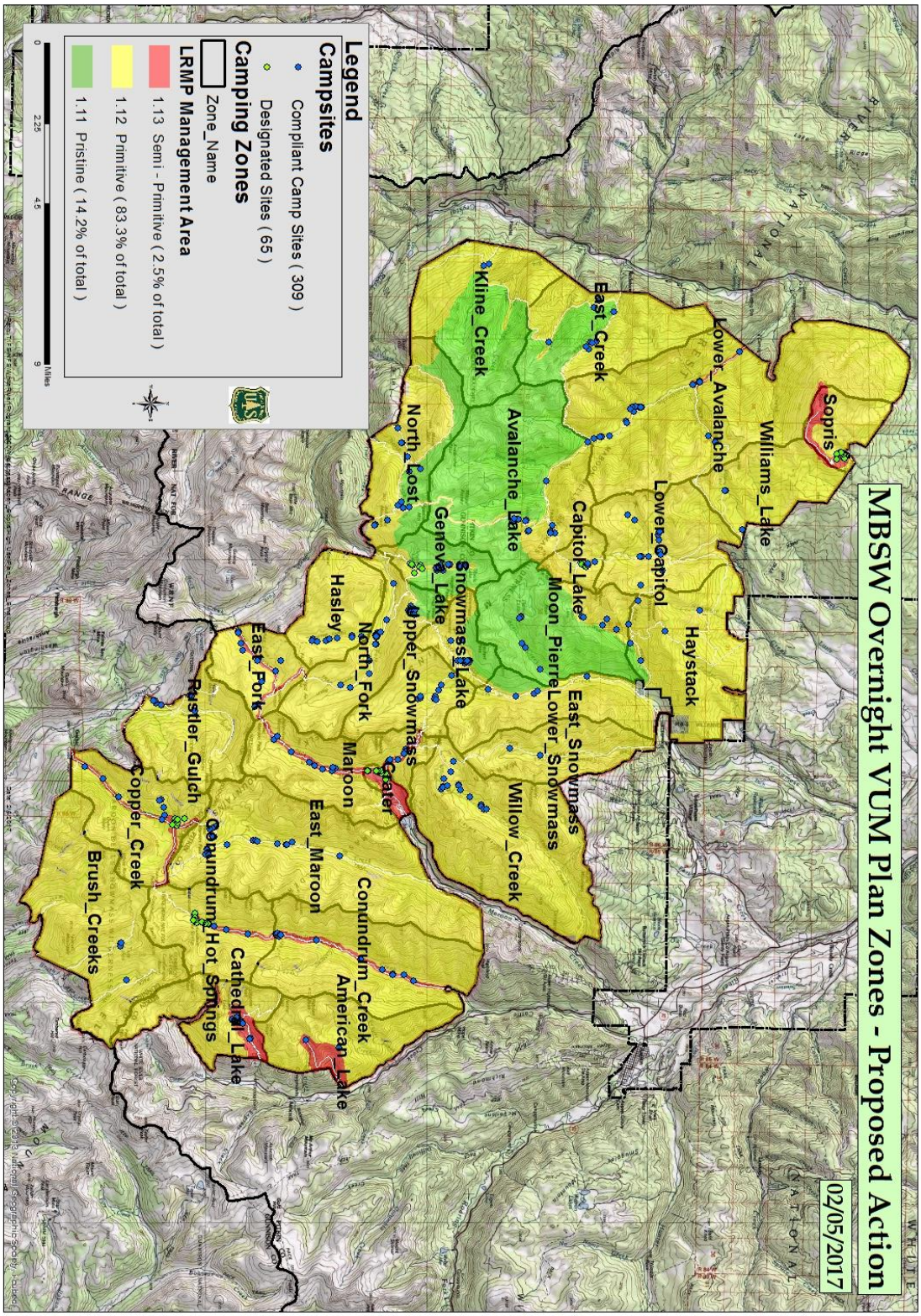


Table 6. GAOT Allocations for Overnight Camping Zones

MBSW Zones	Compliant Campsites	Allocation of GAOT per Camping Zone	GAOT allocations based on MA desired conditions (% = desired campsite density from total compliant sites) 1.11 = 50%, 1.12 = 75%, 1.13=100%,		
			1.11 Pristine	1.12 Primitive	1.13 Semi-Primitive
American_Lake	2	2		1	1
Avalanche Lake	17	11	3	8	
Brush Creeks	4	3		3	
Capitol Lake	12	9		9	
Cathedral Lake	14	14			14
Conundrum Creek	16	16			16
Conundrum_Hot_Springs	22	20		5	15
Copper Creek	16	15		3	12
Crater	11	11			11
East Creek	9	6	1	5	
East Fork	10	9		5	4
East Maroon	21	16		16	
East Snowmass	2	2		2	
Geneva Lake	18	14		14	
Hasley	9	7		7	
Haystack	6	5		5	
Kline Creek	2	2		2	
Lower_Avalanche	26	20		19	1
Lower Capitol	14	11		11	
Lower Snowmass	6	5		5	
Maroon	18	17		2	15
Moon Pierre	11	7	3	4	
North Fork	25	19		19	
North_Lost	13	9	2	8	
Rustler Gulch	7	5		5	
Snowmass Lake	20	15		15	
Sopris	13	13			13
Upper Snowmass	9	7		7	
Williams Lake	4	3		3	
Willow Creek	17	13		13	
Grand Total (30)	**374**	**302**	9	191	102

Adaptive Management

Indicators, Thresholds and Management Actions

This adaptive management strategy defines desired conditions with indicators and thresholds. When thresholds are exceeded for a LRMP MA, management actions are triggered to achieve compliance. These triggered actions are phased so that the least intensive intervention that achieves the desired conditions is utilized (minimum tool). This project is expected to primarily result in temporal displacement and/or distribution of current visitor use by implementing the limited use permit system.

The adaptive management strategy provides a sensitive and proactive mechanism through monitoring to address potential displacement of visitors to other areas (zones) in the MBSW, thus mitigating the potential for unintended negative biophysical, social, and managerial impacts into lower use areas. If monitoring indicates spatial displacement has occurred into other zones and capacity is exceeded in those zones, management actions would be triggered (see Tables 7-9).

Tables 7, 8, and 9 display the Adaptive Management Indicators, thresholds and management actions for each LRMP MA prescription. There are several columns per table; content in the columns is defined as follows:

• **Indicators:** Specific, measures of visitor use levels or impacts that indicate the status of a specific desired condition.

• **Thresholds:** The maximum acceptable conditions for indicators, which triggers management action when exceeded.

• **Management Actions:** Responses taken to restore desired conditions, generally in phases, after monitoring documents that a threshold is exceeded.

Indicators

The indicators were selected to be explicit, quantitative, sensitive, directly related to desired conditions, and be responsive to management actions. Existing data and feasibility of monitoring are also important considerations. Encounter indicators will be used as proxies for biophysical impact, i.e. the density and number of overnight groups is directly related to campsite impacts.

- **Overnight GAOT/zone** is the primary indicator *(Highlighted in Orange)*, and the most sensitive indicator for triggering implementation of a limited entry permit system. Once the GAOT threshold is exceeded within a zone, that zone would require a limited entry permit system (Table 7-9). Each zone's allocated number of GAOT is displayed in Table 6. Camping zones' GAOT would be monitored through the MBSW's current required

registration system that requires all overnight visitors to register at trailheads prior to entering the wilderness. Zones that have triggered an allocation (permit system) would be monitored for the other indicators. If thresholds are exceeded a suite of management actions will be triggered to bring conditions back in compliance, including adjusting the GAOT/zone allocation numbers.

- **Campsite encounters, campsite impacts, trail encounters and cumulative campsite impact ratings** will be monitored to determine if desired conditions are being achieved for a zone that has moved to a permitting system. Data will be obtained through current monitoring protocols that include mandatory wilderness registrations for overnight use, wilderness ranger campsite inventories and patrol logs. Once a GAOT is implemented these indicators will inform subsequent adjustments (up or down). Campsite impact guidelines and inventory protocols reflect current Rocky Mountain Region (Region 2) standards and monitoring protocols. Campsite inventory was completed using Region 2's "Rapid Assessment" protocol.

Thresholds

Thresholds serve as the minimum acceptable condition for indicators and triggers for management action when exceeded. Thresholds are used to assure that management of the area is in compliance with LRMP desired conditions.

Management Actions

Management actions are implemented in phases, utilizing the minimum tool. The intent of minimum tool is to phase management actions beginning with the least restrictive action then monitoring to see if conditions come back to meeting indicator thresholds (desired conditions). If not, then the next phases of management actions would be implemented.

Assumptions

- Current special orders will stay in place until such a time they may be modified or changed as part of implementation of this plan (See Appendix D). Current special orders and prohibitions that deal with visitor use management including but limited to: group size, stay length, stock use, campfires, dogs, food storage, campsite location, weed free hay, etc.
- Overnight groups (≤10 people) will occupy only one campsite per night. Average group size is 2.8 people (Source: overnight required registration).
- While the inventoried compliant campsites per zone form the baseline GAOT capacity, visitors will not be restricted to these sites within the primitive and pristine zones.
- The campsite inventory represents a near census of available sites.
- Professional judgement was exercised to adjust the GAOT overnight capacity where the GAOT capacity was deemed too low or high to achieve desired conditions in recognition of visitor use patterns (West Maroon, Hasley).

- For the purposes of GAOT capacity analysis, all (100%) of the compliant campsites, including existing designated sites, within MA 1.13 were included in the GAOT allocation for a zone. Compliant campsites meet LRMP standards of water and trail setbacks but differ from designated sites in that visitors are not required to camp at a posted site.
- All regulatory management actions, including a limited entry permit system, would be in effect year round.
- Prior to implementation of new designated sites, site specific analysis would be required to determine which sites can be adopted and still meet the desired conditions for the area.
- American, East Creek, Kline Creek and Williams Lake zones will be resurveyed in 2017 and baseline GAOT capacity may be revised upward.

It is not anticipated that the Plan will negatively affect existing permitted outfitter and guide operations or displace them to other parts of the MBSW. Within 1.13 MA prescription (Semi-Primitive), a number of overnight campsites would be reserved for existing commercial outfitters based on current permitted use. Within the 1.12 (Primitive) and 1.11 (Pristine) MA's existing permitted days were considered in the development of allocation ratios such that they could be accommodated without adjustment to public GAOT allocations and without negatively affecting desired conditions or standards. Outfitter and guide permits are issued for 10 year periods. Allocated number of use days (service days) and permit area are specified in each permit. Changes in service day allocations for outfitter and guide permits require NEPA analysis to ensure conformance with LRMP direction and direction contained in this Plan. Those decisions are outside the scope of this Plan.

The following tables display the adaptive management strategy for overnight visitor use in the MBSW. Indicators, thresholds and management actions are displayed by LRMP wilderness MA's (Pristine, Primitive, and Semi-Primitive). Overnight GAOT/zone is the primary indicator *(Highlighted in Orange)*, and the most sensitive indicator for triggering implementation of a limited entry permit system. Once the GAOT threshold is exceeded within a zone for any 3 years in a 5 year running period, that zone would require a limited entry permit system (Table 7-9). Each zone's allocated number of GAOT is displayed in Table 6.

Table 7. Adaptive Management Strategy Table for Pristine Management Area (MA 1.11)

LRMP Mgt. Area	Indicator	Threshold	Management Actions
1.11 **Pristine**	GAOT/Zone	Overnight GAOT capacity does not exceed 50% of compliant, inventoried campsites for any one zone (Table 6)	*Data will be obtained from required registration for overnight visitors.*
			Management Action Phase 1: Initiate an education campaign to temporally and geographically redistribute use. Utilize traditional and net multi-media outreach, VIS, volunteers and trailhead materials. Collaborate with partners to expand education outreach.
			Management Action Phase 2: - NONE
			Management Action Phase 3: If a GAOT capacity threshold for any zone is exceeded in any 3 years of a 5 year running period, implement a GAOT capacity allocation (permit) system. Initial GAOT capacity allocations are displayed in Table 6.
	Campsite Encounters	No other party within sight or sound of an occupied campsite should be encountered on 80 percent of observed days	*Data will be obtained through Wilderness ranger patrol logs.*
			Management Action Phase 1: Initiate education campaign to temporally and geographically redistribute use. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab select campsites in close proximity. Sign rehabbed campsites as closed if use continues.
			Management Action Phase 3: Implement site specific campsite closures, length of stay limits, dog prohibitions and/or campfire prohibitions. Decrease zone GAOT allocation. Utilize any of these tools for an adjacent MA if conditions are incompatible.
	Campsite Impact Rating	Average Rapid Assessment (RA) site impact rating per zone does not exceed 2.5	*Data will be obtained through Rapid Assessment campsite inventories completed for every zone on a 5 year rotation.*
			Management Action Phase 1: Initiate education campaign focused on LNT principles regarding campsite selection and use. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab campsites that exceed a rating of 2.5. Sign rehabbed campsites as closed if use continues. Encourage human waste pack out by providing free waste bags.
			Management Action Phase 3: Implement site specific campsite closures, seasonal closures, length of stay limits, group size limits and/or campfire prohibitions. Restrict stock use and/or numbers. Require human waste pack out. Restrict camping to designated campsites. Decrease zone GAOT allocation. Decrease Campsite and travel encounter thresholds.
	Travel Encounters	No more than two other overnight parties encountered during cross-country travel per day on 80 percent of observed days.	*Data will be obtained through Wilderness ranger patrol logs*
			Management Action Phase 1: Initiate an education campaign to temporally and geographically redistribute use. Encourage one way travel through zones and alternate access routes. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab user created trails. Destroy way marking cairns/duckies. Reach out to 3rd party information providers to discourage or distribute use.
			Management Action Phase 3: Implement site specific or area closures, seasonal closures, length of stay limits, group size limits, dog prohibitions and/or campfire prohibitions. Restrict stock use and/or numbers. Decrease zone GAOT allocation. Utilize any of these tools for an adjacent MA if conditions are incompatible.
	Cumulative Campsite Impact Rating	Cumulative campsite impact rating for all inventoried campsites within a zone show no more than 5% gain at 5 year review from baseline data	*Data will be obtained through Rapid Assessment campsite inventories completed for every zone on a 5 year rotation (20% of zones inventoried annually) according to campsite monitoring protocol.*
			Management Action Phase 1: Initiate education campaign focused on LNT principles regarding campsite selection and use. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab campsites that exceed a rating of 2.5 for 1.11 Pristine Areas. Sign rehabbed campsites as closed if use continues. Encourage human waste pack out by providing free waste bags.
			Management Action Phase 3: Implement site specific campsite closures, seasonal closures, length of stay limits, group size limits and/or campfire prohibitions. Restrict stock use and/or numbers. Require human waste pack out. Restrict camping to designated campsites. Decrease zone GAOT allocation. Decrease Campsite and travel encounter thresholds.

Table 8. Adaptive Management Strategy Table for Primitive Management Area (MA 1.12)

LRMP Mgt. Area	Indicator	Threshold	Management Actions
1.12 **Primitive**	GAOT/Zone	Overnight GAOT capacity does not exceed 75% of compliant, inventoried campsites for any one zone (Table 6)	*Data will be obtained from required registration for overnight visitors.*
			Management Action Phase 1: Initiate an education campaign to temporally and geographically redistribute use. Utilize traditional and net multi-media outreach, VIS, volunteers and trailhead materials. Collaborate with partners to expand education outreach.
			Management Action Phase 2: None
			Management Action Phase 3: If a GAOT capacity threshold for any zone is exceeded in any 3 years of a 5 year running period, implement a GAOT capacity allocation (permit) system. Initial GAOT capacity allocations are displayed in Table 6.
	Campsite Encounters	No more than six occupied campsites within sight or sound should be encountered on 80 percent of observed days	*Data will be obtained through Wilderness ranger patrol logs.*
			Management Action Phase 1: Initiate education campaign to temporally and geographically redistribute use. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab select campsites in close proximity. Sign rehabbed campsites as closed if use continues.
			Management Action Phase 3: Implement site specific campsite closures, length of stay limits, dog prohibitions and/or campfire prohibitions. Restrict camping to designated sites. Decrease zone GAOT allocation. Utilize any of these tools for an adjacent MA if conditions are incompatible.
	Campsite Impact Rating	Average Rapid Assessment (RA) site impact rating per zone does not exceed 3.5	*Data will be obtained through Rapid Assessment campsite inventories completed for every zone on a 5 year rotation.*
			Management Action Phase 1: Initiate education campaign focused on LNT principles regarding campsite selection and use. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab campsites that exceed a rating of 3.5. Sign rehabbed campsites as closed if use continues. Encourage human waste pack out by providing free waste bags.
			Management Action Phase 3: Implement site specific campsite closures, seasonal closures, length of stay limits, group size limits and/or campfire prohibitions. Restrict stock use and/or numbers. Require human waste pack out. Restrict camping to designated campsites. Decrease zone GAOT allocation. Decrease Campsite and travel encounter thresholds.
	Travel Encounters	No more than 12 other overnight parties encountered per day on a system trail on 80 percent of the days during each use season.	*Data will be obtained through Wilderness ranger patrol logs*
			Management Action Phase 1: Initiate an education campaign to temporally and geographically redistribute use. Encourage one way travel through zones and alternate access routes/destinations. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab user created trails. Destroy way marking cairns/duckies. Reach out to 3rd party information providers to discourage or distribute use. Change access conditions.
			Management Action Phase 3: Implement site specific or area closures, seasonal closures, length of stay limits, group size limits, dog prohibitions and/or campfire prohibitions. Restrict stock use and/or numbers. Restrict travel to one-way. Restrict trailhead parking. Decrease zone GAOT allocation. Utilize any of these tools for an adjacent MA if conditions are incompatible.
	Cumulative Campsite Impact Rating	Cumulative campsite impact rating for all inventoried campsites within a zone show no more than 5% gain at 5 year review from baseline data	*Data will be obtained through Rapid Assessment campsite inventories completed for every zone on a 5 year rotation (20% of zones inventoried annually) according to campsite monitoring protocol.*
			Management Action Phase 1: Initiate education campaign focused on LNT principles regarding campsite selection and use. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab campsites that exceed a rating of 3.5 for 1.12 Primitive MA's. Sign rehabbed campsites as closed if use continues. Encourage human waste pack out by providing free waste bags.
			Management Action Phase 3: Implement site specific campsite closures, seasonal closures, length of stay limits, group size limits and/or campfire prohibitions. Restrict stock use and/or numbers. Require human waste pack out. Restrict camping to designated campsites. Decrease zone GAOT allocation. Decrease Campsite and travel encounter thresholds.

Table 9. Adaptive Management Strategy Table for Semi-Primitive Management Area (MA 1.13)

LRMP Mgt. Area	Indicator	Threshold	Management Actions
1.13 Semi-Primitive	GAOT/Zone	Overnight GAOT capacity does not exceed 100% of compliant, inventoried campsites for any one zone (Table 6)	*Utilizing current data, zone GAOT will be analyzed in NEPA and then monitored through the annual required registration system.*
			Management Action Phase 1: Initiate an education campaign to temporally and geographically redistribute use. Utilize traditional and net multi-media outreach, VIS, volunteers and trailhead materials. Collaborate with partners to expand education outreach.
			Management Action Phase 2: None
			Management Action Phase 3: If a GAOT capacity threshold for any zone is exceeded in any 3 years of a 5 year running period, implement a GAOT capacity allocation (permit) system. Initial GAOT capacity allocations are displayed in Table 6.
	Campsite Encounters	No more than six occupied campsites within sight or sound should be encountered on 80 percent of observed days or Camping restricted to designated sites only	*Data will be obtained through Wilderness ranger patrol logs.*
			Management Action Phase 1: Initiate education campaign to temporally and geographically redistribute use. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach. Provide coordinates of "recommended" campsites.
			Management Action Phase 2: Rehab select campsites in close proximity. Sign rehabbed campsites as closed if use continues.
			Management Action Phase 3: Implement site specific campsite closures, length of stay limits, dog prohibitions and/or campfire prohibitions. Implement designated sites where none currently exist by adopting sustainable, appropriate user created sites. Reduce the number of designated sites. Decrease zone GAOT allocation.
	Campsite Impact Rating	Average Rapid Assessment (RA) site impact rating per zone does not exceed 4.5	*Data will be obtained through Rapid Assessment campsite inventories completed for every zone on a 5 year rotation.*
			Management Action Phase 1: Initiate education campaign focused on LNT principles regarding campsite selection and use. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab campsites that exceed a rating of 4.5. Sign rehabbed campsites as closed if use continues. Encourage human waste pack out by providing free waste bags.
			Management Action Phase 3: Implement site specific campsite closures, seasonal closures, length of stay limits, group size limits and/or campfire prohibitions. Restrict stock use and/or numbers. Require human waste pack out. Restrict camping to designated campsites. Decrease zone GAOT allocation. Decrease Campsite and travel encounter thresholds.
	Travel Encounters	No more than 20 other overnight parties encountered per day on a system trail on 80 percent of the days during each use season.	*Data will be obtained through Wilderness ranger patrol logs*
			Management Action Phase 1: Initiate an education campaign to temporally and geographically redistribute use. Encourage one way travel through zones and alternate access routes/destinations. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab user created trails. Destroy way marking cairns/duckies. Reach out to 3rd party information providers to discourage or distribute use. Change access conditions.
			Management Action Phase 3: Implement site specific or area closures, seasonal closures, length of stay limits, group size limits, dog prohibitions and/or campfire prohibitions. Restrict stock use and/or numbers. Restrict travel to one-way. Restrict trailhead parking. Decrease zone GAOT allocation.
	Cumulative Campsite Impact Rating	Cumulative campsite impact rating for all inventoried campsites within a zone show no more than 5% gain at 5 year review from baseline data	*Data will be obtained through Rapid Assessment campsite inventories completed for every zone on a 5 year rotation (20% of zones inventoried annually) according to campsite monitoring protocol.*
			Management Action Phase 1: Initiate education campaign focused on LNT principles regarding campsite selection and use. Utilize traditional and net multi-media outreach, VIS, volunteers, trailhead materials and staff ranger patrols. Collaborate with partners to expand education outreach.
			Management Action Phase 2: Rehab campsites that exceed a rating of 4.5. Sign rehabbed campsites as closed if use continues. Encourage human waste pack out by providing free waste bags.
			Management Action Phase 3: Implement site specific campsite closures, seasonal closures, length of stay limits, group size limits and/or campfire prohibitions. Restrict stock use and/or numbers. Require human waste pack out. Restrict camping to designated campsites. Decrease zone GAOT allocation. Decrease Campsite and travel encounter thresholds.

Monitoring

This Plan is data driven and adaptive which requires long term monitoring of selected indicators for the MBSW. Monitoring for the indicators shown in tables 7-9 will measure the effectiveness of management actions and track the status of desired conditions over time. Monitoring data will be recorded annually after the final decision and implementation of this Plan. Monitoring data will be available to the public.

Annual Monitoring

Data collection for each indicator will be completed every year under a variety of different instruments (see Table 10). Annual monitoring is sensitive to change in indicator condition and is incorporated into regular programmatic operations. A GAOT/Zone analysis will be completed on required registration data for each zone, every year. Staff and partner patrol logs will monitor camp and travel encounter observations. An annual sample of encounter observations will be collected for all zones with MAs 1.13. MAs 1.12 will be monitored at a minimum of biennially and MAs 1.11 will be monitored as workload permits. Rapid Assessment campsite data will be collected for 20% of camping zones annually.

Long Term Monitoring

Comprehensive (all 30 zones) campsite inventory and encounter monitoring is a time consuming process. This plan will initiate a five year schedule to complete a census re-survey of all likely campsites for every camping zone in the MBSW according to the campsite monitoring protocol. A five year period is also necessary to gather an adequate sample size of encounter observations for all MAs within every zone. At the 5 year review, an in-depth analysis of all monitoring data will be completed to gain a comprehensive understanding of desired condition status. A running three to five year history of indicator status will be used to determine if implementing Phase 3 management actions is appropriate (see Table 11).

Verification and Effectiveness Monitoring

If monitoring determines that a threshold has been exceeded but there is significant uncertainty with the data or no other data corroborates the results, a subsequent focused monitoring effort may be necessary to verify the non-compliance determination prior to initiating a management action. Similarly, a more focused monitoring effort may be necessary to determine if management actions have been effective at restoring desired conditions or, if escalating to the subsequent phase of action is required to achieve objectives.

Changes may be made if the monitoring schedule and trigger timelines are not meeting the objectives that were established in this Plan. A USFS interdisciplinary team will meet on an annual basis to review the monitoring data to determine whether any management actions are needed (Table 10) and/or if previous implementation of actions has moved the area toward the

desired conditions. The team will also review implementation activities and document compliance.

Table 10. Monitoring Guidelines

Indicator	**Data Source**	**Monitoring Schedule**	**Threshold Non-Compliance Determination**
GAOT/Zone	Required registration	Annual	3 or more nights/year*
Campsite Encounters	Patrol logs	Annual	>20% of observations/year
FP (travel) Encounter Guideline	Patrol logs	Annual	>20% of observations/year
Campsite Impact Rating	Rapid Assessment site inventory	5 Year rotation (20% annually)	Average "Overall Impact Rating" of all inventoried sites for any MA within a zone
Cumulative Campsite Impact Rating	Rapid Assessment site inventory	5 Year rotation (20% annually)	No more than 5% gain from baseline data at 5 year review

*In conjunction with the three year trigger timeline (Table 11), designed to buffer outliers in the annual GAOT analysis and not inadvertently trigger a permit system.

Adaptive Management Action Implementation

This MBSW adaptive visitor use management strategy is an iterative process of informed decision making with the purpose of preserving/restoring desired conditions as stated in the LRMP. Decisions to implement tailored management actions are informed by sensitive monitoring data and desired conditions quantitatively defined by indicator thresholds. Actions are evaluated for effectiveness and adapted to optimize the achievement of resource objectives. Adaptive management actions will be implemented to preserve or restore desired conditions in phased order as described in Tables 7 – 9 as administrative capacity allows if monitoring data determines conditions exceed thresholds.

Phase 1 and 2 management actions can be operationally implemented with no further process if indicator thresholds are exceeded on an annual basis. These education and engineering actions include multi-media outreach efforts, campsite rehab projects, ranger patrols, enhanced signage. Table 10 defines how conditions are determined to exceed thresholds based on monitoring data. Any combination or order of Phase 1 actions may be implemented after an exceedance or non-compliance determination is made (see Table 11). Monitoring data and the results of some types of education approaches will also help provide learning opportunities regarding what actions work best to influence behavior of forest users. If subsequent monitoring determines that Phase 1 actions failed to achieve desired conditions, implementation of Phase 2 actions is justified. Not every Phase 1 action must be implemented to move to Phase 2. Similarly, not every Phase 2

action must be implemented to move to Phase 3. Monitoring data and the results of some adaptive management actions and approaches can also be used as a learning tool to help inform future management decisions not covered in this plan.

Phase 3 management actions are regulatory and must be implemented through the issuance of a Forest Supervisor Special Order. To justify these actions, Phase 1 and 2 actions must have failed to achieve desired conditions and thresholds must be exceeded for any three years in a running five year period (see Table 11). Regulatory or direct management actions in Phase 3 include a limited entry permit system, prohibitions, restrictions and closures. When implementation of phase 3 actions in one zone is expected to displace overnight visitors to an adjacent travel corridor zone and cause negative resource impacts, phase 3 actions may also be implemented in the adjacent zone. Additional management actions or tools not currently listed could be used as long as they are meeting the desired condition of the LRMP MAs, the defined indicators and thresholds. Adjusting indicator thresholds and capacity allocations are also included in Phase 3 actions. If Phase 3 actions fail to achieve desired conditions then GAOT allocations may be decreased.

Table 11. Adaptive Management Implementation Guidelines

Adaptive Management Actions – Trigger Timeline			
Indicator	Phase 1	Phase 2	Phase 3
GAOT/Zone	Annual	Annual after Phase 1 Mgt Actions implemented	Any 3 years within a running 5 year period
Campsite Encounters	Annual	Annual after Phase 1 Mgt Actions implemented	Any 3 years within a running 5 year period
Travel Encounters	Annual	Annual after Phase 1 Mgt Actions implemented	Any 3 years within a running 5 year period
Campsite Impact Rating	After zone RA inventory completed	After zone RA inventory completed and after Phase 1 Mgt Actions implemented	At 5 year review
Cumulative Campsite Impact Rating	After zone RA re-inventory completed	After zone RA re-inventory completed and after Phase 1 Mgt Actions implemented	At 5 year review

Decreasing GAOT allocations or encounter (camp and travel) thresholds must be reasonably expected to achieve desired conditions and is warranted if the appropriate (see Tables 7-9) thresholds are exceeded. Increasing GAOT allocations may be warranted if a GAOT/Zone threshold is near or exceeding threshold yet verification monitoring determines that no other threshold is at risk of being exceeded and desired conditions would not be compromised by doing so.

Management actions will be implemented in escalating order until annual or effectiveness monitoring determines that desired conditions are being met (thresholds not exceeded). Implementation of management actions found within the Plan will follow the phase schedule in Tables 7-9. Before adjusting management actions, the Forest will ensure the probable cause of the issue has been identified and whether or not previously identified management actions would address the issue. It is not necessary to use all available actions in a phase before moving on to the next phase. Actions taken prior to the implementation of this plan will also be considered when deciding which phase of actions is necessary. Rationale for escalating actions will be documented but no further analysis will be done.

Chapter 5: Next Steps

Final Maroon Bells-Snowmass Wilderness Overnight Visitor Use Management Plan

The MBSW VUM Plan is an activity implementing a Forest Land and Resource Management Plan and was subject to the objection process described in 36 CFR 218 Subparts A and B. The final decision to adopt this plan and herby authorizes implementation of the management tools contained therein but does not decide if or how a fee may be charged.

This Final MBSW Overnight Visitor Use Plan describes final; zones, indicators, thresholds and management actions that will provide for comprehensive management of overnight visitor use.

Implementation of Permit System

An affirmative decision on the adoption of this plan authorizes implementation of the management tools contained therein but does not dictate implementation methods or associated fees if a permit system is triggered. The Authorized Officer will consider implementation methods based on; legal authorities, feasibility, technical logistics and USFS physical and financial capabilities. A limited use camping permit system could be implemented in phases starting with zones that are already exceeding the GAOT overnight stay allocation and applying later to other zones as they exceed their prescribed overnight stay capacity.

There is a suite of implementation tools and methods that the USFS can utilize to implement a limited use camping permit. The following is a brief description of some methods but it is not limited to the following:

1. Utilize rec.gov to issue reservations for limited campsites thru the National Recreation Reservation Service, just like USFS campgrounds. Rec.gov charges a reservation fee which does not come back to the site for management. Nor does enactment of a reservation service fee require any FLREA process.
2. Manage allocation and issue permits out of local USFS or partner offices for no charge.
3. Enact an overnight limited use camping permit fee as a Special Recreation Permit under authority of the Federal Lands Recreation Enhancement Act (FLREA) that would result in revenue available for on-site program management. This would require following national and regional process for a Regional Forester decision and would include a separate public participation process, documentation of responses and WO/RO reviews through the process.

List of Preparers

Maroon Bells-Snowmass Wilderness Overnight Visitor Use Management ***Planning Team***		
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Glossary of Terms

Adaptive Management: An adaptive management strategy defines desired conditions with indicators and thresholds. When thresholds are exceeded for a Land and Resource Management Plan (LRMP) Management Area (MA), management actions are triggered to achieve compliance. It is outcome focused planning and implementation done to ensure that defined conditions are met or achieved.

Cole Condition Class: Campsite inventory and monitoring protocol.

Federal Lands Recreation Enhancement Act (Title VIII) (FLREA): Act that allows federal agencies to establish, modify, charge, and collect recreation fees at Federal recreational lands and waters as provided based on specific criteria and public involvement.

Land and Resource Management Plans (LRMP): National Forest Land and Resource Management Plans (Forest Plan) are developed to guide all natural resource management activities and establish standards/guidelines. The purpose of the Plan is to provide for the use and protection of Forest resources, fulfill legislative requirements, and address local, regional, and national issues and concerns.

Management Areas: "Management Areas (MA's) are designated mapped areas prescribed in forest Land and Resource Management Plans (LRMP) that provide desired conditions, objectives and specific direction for all management actions.

Group's At One Time (GAOT): Primary Indicator in the *Maroon Bells- Snowmass Overnight Visitor Use Management Plan* referring to the total number of "Groups At One Time" recommended per zone in order to meet LRMP management area prescriptions.

Guideline: LRMP guidelines are a preferred or advisable course of action or level of attainment designed to meet the LRMP overall goals, objectives as well as specific "management area" prescriptions.

Indicator: Specific, measurable variables that are indicative of condition.

Management actions: What will be implemented, generally in phases, after a threshold is exceeded, based on monitoring.

National Environmental Policy Act (NEPA): The National Environmental Policy Act of 1969 (NEPA) is the mandate of any federal Agency or department for the protection of the environment.

Recreation Opportunity Spectrum (ROS): ROS classification system is designed to characterize and help manage a spectrum or range of recreation opportunities. ROS is used as guidance for managers when prescribing desired conditions and objectives for management areas as part of forest planning decisions.