

APPENDIX B

2012 Needs Assessment

Changes Between Draft and Final Environment Impact Statement

- Added as an Appendix.
- Updated visitor use information.
- Recalculated Minimum Extent Necessary Determination.
- Corrected and improved display of calculations.
- Made numerous, minor editorial and spelling corrections.

APPENDIX B

2012 NEEDS ASSESSMENT

Determination of Need and Extent Necessary for Commercial Services (Outfitters and Guides) in the Pasayten Wilderness and Lake Chelan- Sawtooth Wilderness Okanogan-Wenatchee National Forest August 27, 2012

INTRODUCTION

The 1964 Wilderness Act (P.L. 88-577) prohibits commercial enterprises in wilderness. Section 4 (d)(6) provides an exception allowing commercial services within wilderness areas “to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.” Wilderness purposes are defined as recreational, scenic, scientific, educational, conservation, and historical use.

Three determinations must be made to authorize commercial services (outfitter-guides) in a wilderness area. First, the Forest Service must decide that the commercial service is necessary for realizing the recreational or other purposes of the wilderness area. Second, if a need is identified, decision makers must determine the ‘extent necessary’, or what amount of service is needed to achieve the purposes of the Act. While need refers to whether visitors require a commercial service to access and experience wilderness to meet agency objectives, the ‘extent necessary’ must show why the amount or extent of services is necessary for realizing the public purposes of Wilderness. Third, once an amount of commercial use is determined to be the extent necessary, it must be determined that this level of use does not impair wilderness character.

The Forest Service Handbook (FSH) 2709.11, 41.53d defines needs assessment as “an assessment of public or agency need for authorizing outfitting or guiding activities on NFS lands.” Forest Service policy on outfitting and guiding provides direction to conduct a needs assessment to determine the public or agency need for authorized outfitting and guiding activities (FSH 2709.11, 41.53e, 1). There is further direction provided for wilderness areas:

When conducting a needs assessment for outfitting and guiding activities in a wilderness area, assess whether these activities are necessary for realizing the recreational or other wilderness purposes of the area and the extent to which the activities may be authorized consistent with maintaining the wilderness character of the area (FSH 2709.11, 41.53e, 1a).

FSH 2709.11 also directs units to conduct a resource capacity analysis “when monitoring demonstrates that impacts associated with use may exceed desired conditions” (41.53e, 2).

PROCESS

This needs assessment follows the process necessary to meet legal and policy requirements by answering key questions when deciding to authorize a commercial service in wilderness:

- What types of commercial services are needed to meet management objectives, or in wilderness, the public purposes of wilderness?
- What amounts of these commercial services are needed to meet management objectives or purposes in an area?
- Can the amount of needed commercial services be sustained while protecting wilderness character?

The outcome of this process is intended to be an informed, defensible decision on the type, amount, location, and timing of commercial services authorized. The steps of this process are:

1. Determine needed services or activities
2. Evaluate public use and trends
3. Evaluate current outfitter-guide services
4. Determine recreation capacity and effects on wilderness character
5. Calculate the extent necessary for commercial services and the allocation of use to commercial services
6. Develop a monitoring plan

BACKGROUND

There are currently several companies providing outfitting and guiding services in the Pasayten and Lake Chelan-Sawtooth wilderness areas on the Okanogan-Wenatchee National Forest. The combined number of service days is approximately 26% of overall use in the Pasayten and 6% in the Lake Chelan-Sawtooth (refer to Figure * on page * and Figure * on page *). These companies have been operating for many years, one group of companies offering stock trips (with horses, mules, llamas, and burros), and another offering hiking, backpacking, mountaineering, survival skills instruction, environmental and wilderness education.

A needs assessment was completed for the Pasayten and Lake Chelan-Sawtooth wilderness areas in 1996, and is documented in the *Assessment of Need for Outfitting/Guiding Assistance, Okanogan National Forest, Chelan Ranger District Portion of the Wenatchee National Forest North of Lake Chelan, 1996* (USDA Forest Service 1996a). The Assessment used a criteria-based perspective to determine the need for outfitter-guides.

The 1996 Needs Assessment did not determine the “extent necessary” for outfitters in wilderness. The purpose of this 2012 Needs Assessment and Extent Necessary Determination document is to build on the analysis completed in 1996, updating and adding documentation of the extent of services needed to achieve the designated purposes in each wilderness. It also describes a methodology for evaluating future proposed services in the Pasayten and Lake Chelan-Sawtooth Wildernesses on the Okanogan-Wenatchee National Forest. This methodology may be useful during second-level screening of proposed uses (36 CFR 251.54(5)). It is intended to help the line officer determine if the proposed use would be in the public interest.

1. NEEDED SERVICES

This step determines the types of outfitter-guide services needed to meet the public purposes of wilderness and what commercial services are available nearby.

Finding of Necessity for Outfitted Services

The Forest Service has a need for outfitter-guides to assist in teaching people about wilderness practices and wilderness management, for those activities dependent on wilderness. Existing and proposed commercial services must be evaluated to determine if they meet this need, and are therefore consistent with the limitations put on commercial services in wilderness by the Wilderness Act.

The 1996 Needs Assessment found there was a high need for outfitter-guides for stock and extended backpacking trips. This finding was confirmed using an updated method of evaluating need, described below.

The traditional method for evaluating need (used in the 1996 Needs Assessment) gave a rating of high, medium, or low, sometimes converted to a numerical score, for each activity. The results of this method were sometimes vague in determining if an activity met the agency need, and should therefore be available for outfitting and guiding.

The evaluation process was revised to produce a narrative evaluation of several criteria, and to reach a consensus decision about an activity meeting the need, meeting the need with modification, or failing to meet the need. This revised process is described below, followed by the results of the evaluation of the existing outfitter-guide services. This process will be used to document any new proposed activities in the future.

The first step was to determine if the activity is allowed in wilderness, then to evaluate it in terms of meeting the components of the Wilderness Act. The following questions were addressed:

1. Are services or activities legally allowed in wilderness and do services or activities support management objectives or general wilderness direction in forest management plans?

Identifying activities that are legal in wilderness is the first, and usually the easiest, step in the process. Does the Wilderness Act allow a proposed activity to occur in a wilderness area? Is there other legislation that explicitly allows the proposed activity?

The existing commercial services (pack and saddle stock and backpacking outfitter-guides) are allowed under the Wilderness Act since they are non-motorized and non-mechanized.

2. Do services facilitate outstanding opportunities for solitude or a primitive and unconfined type of recreation as specified by Section 1 (c) of the Wilderness Act?

Are commercial services essential to some visitor's ability to realize this intended experience in wilderness? Are solitude and primitive or unconfined recreation major components of the activity?

The existing services educate clients about wilderness, and facilitate solitude, or primitive and unconfined recreation. Solitude and primitive or unconfined recreation are major components of the activities. Some visitors would not experience this type of recreation without the services due to lack of knowledge or skill required for wilderness camping. Stock trips do not use the packing opportunity to diminish the primitive nature or recreation with deluxe camp furniture, meals that require specialized cooking methods or equipment, or other modern equipment.

3. Do activities meet a public purpose defined in Section 4 (b) of the Wilderness Act?

There are 6 public purposes identified in the Wilderness Act: recreational, scenic, scientific, educational, conservation, and historical use.

Educational needs are addressed below. In this assessment the focus is on recreational purposes and specifically on personal limitations or specialized knowledge, equipment and skills. Scenic, scientific, conservation and historic purposes can also be met by commercial services.

Do people need commercial services due to a limitation that restricts their ability to experience the wilderness, or are individuals traveling with others who have such limitations? Does the proposed use require specialized knowledge, skills or equipment that would allow a wilderness visit that would otherwise not be possible?

The existing services provide predominately recreational purposes, however clients also benefit from scenic, conservation, and historic aspects of the trips. The services are essential to some visitors who cannot hike extended distances, are not familiar or experienced with pack and saddle stock handling, or are not experienced backpackers.

The next step was to use the following categories to determine the need for the commercial services. Each category has criteria specified to articulate a specific need. The services were analyzed to determine if they met, partially met, or failed to meet the criterion statements.

Meets – The activity completely meets the criterion statements.

Partially Meets: The activity largely meets the criterion statements, or could be modified to completely meet.

Fails: The activity does not meet the stated criterion.

The following figure includes the categories and criteria. More information about the categories follows the figure.

Figure B-1. Categories of Need and Criteria to Determine Need

Category	Criteria
Education of Wilderness Practices and Wilderness Management	Teaching clients about wilderness practices and wilderness management are an integral objective of the activity. Examples include (but are not limited to) leave-no-trace techniques, courses teaching wilderness ethics, and regular instruction on wilderness regulations.
	The outfitter-guide lists teaching as an integral objective in advertising and other literature.
	The outfitter-guide models appropriate wilderness behavior and is an ambassador for wilderness.
Skill	The activity requires the participant to master unique, technical skills.
	The activity requires considerable time and/or talent to master the skills.
	Use of a guide is almost a prerequisite for a novice to participate in the activity.
Equipment	Specialized equipment needed for the activity is expensive to the point of being beyond the reach of many people that might otherwise try the activity. Equipment costs exceed \$1,000.
Knowledge	Outfitter offers unique knowledge about methods to access and use an activity area that would reduce resource damage.
	Outfitter offers unique knowledge about methods to access and use an activity area that would reduce user conflicts.
Safety	Without a guide's assistance, novice participants could seriously endanger their health or lives or the lives of others.
Demand	The activity is very popular and there is a demonstrated demand for commercial services.

Education of Wilderness Practices and Wilderness Management

The Chief's 10-Year Wilderness Challenge gives agency-wide management objectives for wilderness. Element #7 of the Challenge specifically addresses education and the roll outfitter-guides play in teaching people about wilderness values. It directs outfitters to model appropriate wilderness practices and incorporate awareness for wilderness values in their interaction with clients and others. The outcome for this element is that;

[o]utfitters and guides will serve as ambassadors for wilderness. Their clients will leave with appreciation and knowledge that they may use in future self-guided trips to wilderness areas. Outfitters will provide a direct benefit to the wilderness they operate in by providing needed opportunities for visitors and education about wilderness. (Chief's 10-Year Wilderness Challenge)

The existing services meet the need to educate clients about wilderness. The backpacking outfitters include wilderness education as part of their course descriptions, and teach leave-no-trace camping and traveling techniques. The pack and saddle stock outfitters also follow leave-no-trace techniques and model the behavior to their clients and other stock users.

Skill

The activity requires learning technical skills which may or may not be easily learned without assistance. This criterion also evaluates the amount of time it may take to master the skills.

The existing services meet the need in the skill category. Both activities require a mastery of unique technical skills. Mastering skills in stock handling takes years of experience, and people with little to no experience cannot take extended pack and saddle stock wilderness trips without an outfitter-guide. Backpacking skills are learned more quickly, but still require a certain amount of time to acquire the skills necessary for extended, rugged backpacking trips.

Equipment

The activity requires specialized equipment that may be more expensive than a novice would be willing to pay without some assurance that they may enjoy and continue pursuing the activity.

The pack and saddle stock services meet the need in this category, while the backpacking services partially meet the need. Pack and saddle stock equipment, including all the costs associated with the animals in addition to the gear required, is very expensive, from the initial investment to the ongoing costs. Quality backpacking equipment can be expensive, although reasonably priced equipment is available. There are generally no ongoing costs once backpacking equipment is purchased.

Knowledge

In order to enjoy recreational opportunities in a manner that reduces resource damage and user conflicts, outfitter knowledge of the recreational resource and the activity area is needed by the public. This includes knowing where and by what method to best access and use an area.

The existing services also meet this need. Backpacking outfitter-guides have knowledge of lesser-used portions of the wilderness, and their activities reduce user conflicts and protect solitude by minimizing time spent in areas popular with the non-outfitted public. Improper stock handling techniques can cause substantial resource damage, so the pack and saddle stock outfitter-guides help minimize impacts from clients, and model behavior to the non-outfitted public.

Safety

An outfitter-guide's special skills and equipment are needed for a reasonable level of safety for the participants. Without a guide's assistance, some members of the public could seriously endanger their health or lives in certain recreational activities. Some activities, such as horseback riding and stock handling are dangerous if a person is inexperienced. Safety needs to be evaluated considering the inherent risk and hazard in any wilderness setting, and the intent that these be part of the wilderness experience.

The pack and saddle stock services meet this need, while the backpacking services partially meet it. Novice backpackers could endanger their lives by getting lost, running out of water or food, not being prepared for changing weather, or any number of other situations. The risk of serious injury is low, and the backpacking skills can be learned relatively quickly. Safe stock handling skills take a considerable amount of time to learn, and novice users are at a much higher risk of serious injury or death.

Demand

There is a demonstrated demand for the service.

The existing services meet this need. There is a demonstrated, continuing demand for both services, however the demand for stock services has been on a downward trend for the past decade. It is unclear if this trend will continue because it is likely a result of wildfires, the downturn in the economy, and some businesses failing. The trend may reverse as burned areas recover and remaining businesses fill the void left by those who went out of business.

These findings are displayed in the following figure.

Figure B-2. Analysis of Need

Category	Backpacking/Wilderness Education/Mountaineering	Pack & Saddle Stock Trips
Education of Wilderness Practices and Wilderness Management	Meets Criteria: Education about wilderness practices and management is an integral part of the services offered	Meets Criteria: Outfitters model proper stock handling techniques, and practice leave-no-trace camping techniques.
Skill	Meets Criteria: activity requires time to master skills	Meets Criteria: Activity requires mastering skills that take a considerable amount of time to learn
Equipment	Partially Meets Criteria: Specialized equipment could have a combined cost of over \$1,000, although less expensive equipment available	Meets Criteria: Cost of stock and necessary equipment far exceeds \$1,000
Knowledge	Meets Criteria: Outfitter has knowledge of landscape to allow groups to avoid more popular locations, thus reducing user conflicts and impacts to solitude	Meets Criteria: Proper stock handling techniques substantially reduce impacts to resources
Safety	Partially Meets Criteria: Novice participants could endanger their lives, however activities can be relatively easily learned	Meets Criteria: Stock can be dangerous and cause serious injury or death to riders and handlers. Novice participants could endanger their lives or the lives of others.

2. PUBLIC USE AND TRENDS

Pasayten Wilderness

The 531,541-acre Pasayten Wilderness spans the Methow Valley and Tonasket Ranger Districts. The western-most portion of the Pasayten is located on the Mt. Baker-Snoqualmie and administered by the Methow Valley Ranger District.

There are about 18,700 annual visitor days (one visitor day equals one person for one day) in the Pasayten. This number was calculated by converting the number of annual

visits reported in the National Recreation Use Monitoring completed on the Okanogan National Forest in 2005 to visitor days. The number of annual visits was 11,000, and the average length of stay was 40.7 hours (averaged for the Pasayten and Lake Chelan-Sawtooth together). Multiplying these numbers gives the total number of hours spent in the Pasayten. Dividing this product by 24 hours converted 11,000 visits to 18,654, rounded to 18,700 visitor days.

This figure is supported by data gathered on registration permits. Wilderness visitors are required to fill out a registration permit prior to entering the wilderness. Data from these permits was compiled and averaged for 2001 through 2011, showing an average of * visitor days annually.

National Visitor Use Monitoring was completed again in 2010, with a report compiling the data issued in 2011. This reported that there were 5,000 visits to the Pasayten that year with an average stay of 12 hours. This calculates out to 2,500 visitor days, which is substantially lower than the 2005 data, and the average of the registration permits. Therefore, the 2010 data for wilderness visitation was determined to not be reliable enough to use, and the 2005 data to be the most reliable information available.

About 70% are backpacking, and 30% are stock visitor days. This breakdown was developed by analyzing trailhead registrations, wilderness permits, and the professional judgment of the wilderness manager and wilderness rangers on the Methow Valley Ranger District.

Lake Chelan-Sawtooth Wilderness

The 153,129 acre Lake Chelan-Sawtooth Wilderness is divided between the Methow Valley and Chelan Ranger Districts.

There are about 36,600 annual visitor days (one visitor day equals one person for one day) in the Lake Chelan-Sawtooth. This number was generated by the National Recreation Use Monitoring completed on the Okanogan and Wenatchee National Forests in 2005 to visitor days. The number of annual visits was 21,600 (USDA, 2006c & 2006d). This was converted to visitor days in the same method described above. The average length of stay was 40.7 hours, so the 21,600 visits were converted to approximately 36,630 visitor days, rounded to 36,600 visitor days.

Registration permits are not required for the Lake Chelan-Sawtooth, however trailhead registration boxes are at each trailhead. Some people fill out the registration information, but since it is not a requirement, many do not register, therefore data compiled from the registrations is not a reliable source for determining visitation. Since the 2010 NVUM data had questionable reliability for the Pasayten Wilderness, and to use a consistent data source for both wilderness areas, the 2005 NVUM data was used for the Lake Chelan-Sawtooth also.

About 65% are backpacking and 35% are stock visitor days. This breakdown was developed by analyzing trailhead registrations, wilderness permits, and the professional judgment of the wilderness manager and wilderness rangers on the Methow Valley Ranger District.

Trends

There will be increasing demand for recreation in the coming years. The technical report *Outdoor Recreation in the Pacific Northwest and Alaska: Trends in Activity Participation* (Hall et al, 2009), predicts that since the population of Washington will increase, the number of people recreating will also increase, all other factors being even. There will be increases in population in all age groups, and younger people are still showing strong interest in outdoor recreation. The popularity of recreation activities near water is expected to grow, as is the use of popular day use areas. Word-of-mouth recommendations and media exposure will spread interest in these popular areas, and crowding and conflict will likely increase (Hall et al, 2009).

In 2003, the Washington State Recreation and Conservation Office (RCO) completed a report that projected participation rates of nature-based activities in Washington State over a 10-year and 20-year period based on participation data from the 1999-2000 RCO survey (IAC 2003). These projections, shown in Figure *, took into account NSRE data and projections for the Pacific Northwest Region, demographic trends in Washington State, the local supply of lands available for recreation activities, and other factors.

Figure B-3. RCO Recreation Participation Projections as a Percent of Change in the Number of People Participating in the Future Compared to 1999-2000 Survey Results (IAC 2003)

Activity	Projected % growth in # of participants (2010-2020)
Hiking & Backpacking	+13%
Equestrian	+3%

These projections were used to estimate the number of people who will be recreating in the Pasayten and Lake Chelan-Sawtooth ten years from now.

Figure B-4. Current Number of Visitor days by User Group in the Pasayten, Estimated Increase, and Future Number of Visitor Days.

User Group	Current Visitor Days*	Estimated Future Increase	Estimated Number of Visitor Days in 2022
Backpackers	13,090	13%	14,792
Stock Users	5,610	3%	5,778
TOTAL	18,700		20,570

*Includes current outfitter-guide service days

Figure B-5. Current Number of Visitor days by User Group in the Lake Chelan-Sawtooth, Estimated Increase, and Future Number of Visitor Days.

User Group	Current Visitor Days*	Estimated Future Increase	Estimated Number of Visitor Days in 2022
Backpackers	23,790	13%	26,883
Stock Users	12,810	3%	13,194
TOTAL	36,600		40,077

*Includes current outfitter-guide service days

3. EXISTING COMMERCIAL SERVICES

Currently, there are two major categories of outfitter-guide commercial services in the Pasayten and Lake Chelan-Sawtooth wildernesses. One is for backpacking/mountaineering/wilderness education (hereafter referred to as “backpacking”), and the mode of transportation is foot travel. The other category is pack and saddle stock (hereafter referred to as “stock”). Most stock clients ride horses, but some hike while pack animals carry their supplies.

The existing outfitter-guide companies have been operating in the wilderness areas for at least 20 years, and have had a variety of types of special use permits. Among the stock outfitter-guides, some operated under five-year term permits for years. Others operated under short-term, annual permits that were reissued year after year. All the five-year term permits expired over the past ten years, so every stock company has been issued short-term permits annually, waiting completion of a NEPA analysis of issuing ten-year permits. One of the backpacking companies is currently operating under a 10-year permit, while the others have short-term permits. The Forest Service is working on the NEPA analysis for 10-year permits for these companies also.

The current permits include a specified a number of service days (usually called “priority use days”). The Forest Service has also established a pool of service days. Outfitters can request days from the pool if they are going to exceed their allotment of priority use days, or if they want to operate in an area where they have no assigned days. The pool days are returned to the pool each season, and assigned on a first-come first-served basis the following year. This allows for fluctuations in the number of people needing outfitter-guide services in any given year.

Pasayten

The current number of service days available for both priority and temporary use was used to calculate the percentage of overall outfitter use. Approximately 24% of the 13,058 backpackers are clients of the outfitters, and approximately 32% of the stock users are outfitted. Overall, outfitter-guide service days represent 26% of the visitor days in the Pasayten.

Figure B-6. Current Number of Visitor days by User Group in the Pasayten, and Number of Outfitter-Guide Service Days in Current Permits

User Group	Total Visitor days*	Outfitter-guide Service Days	% of Total Visitor Days
Backpackers	13,090	3,150	24%
Stock Users	5,610	1,800	32%
TOTAL	18,700	4,945	26%

*Includes outfitter-guide service days

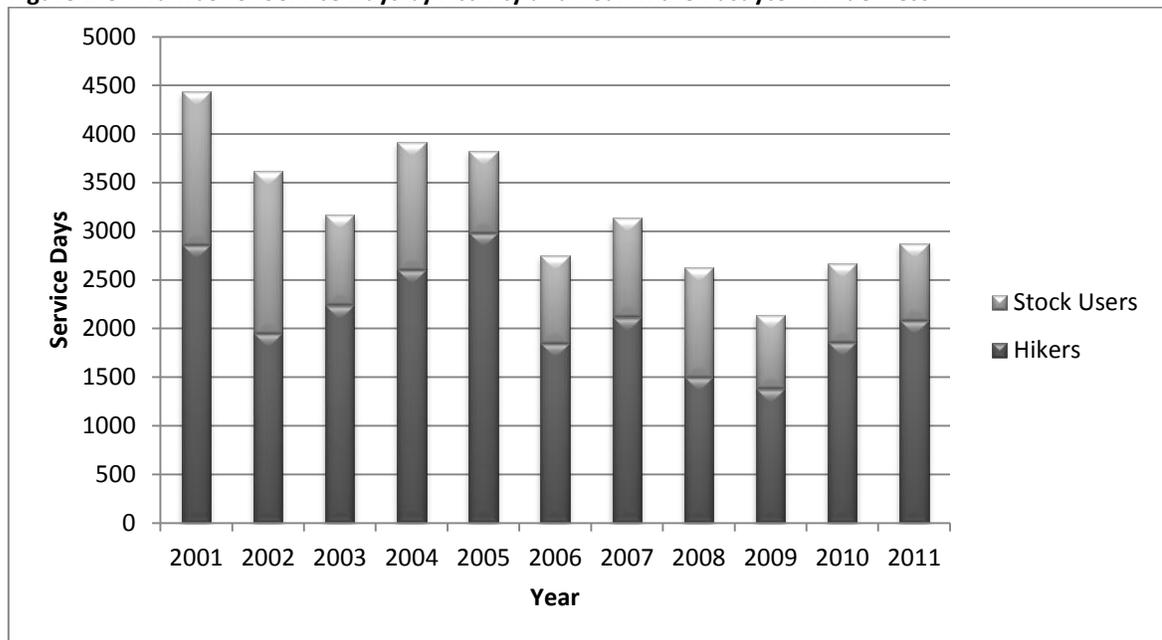
The number of service days varies from year to year, as does the number of non-outfitted recreationists, so these percentages are approximate. The following chart lists the actual number of service days used by year, and by activity, for years ranging from 2001 to 2011.

Figure B-7. Number of Outfitter-Guide Actual Use Service Days by Year and Activity in the Pasayten

Year	Activity	Outfitter-Guide Service Days (Actual Use)
2001	Backpackers	2,861
	Stock Users	1,580
	TOTAL	4,441
2002	Backpackers	1,950
	Stock Users	1,677
	TOTAL	3,617
2003	Backpackers	2,242
	Stock Users	929
	TOTAL	3,171
2004	Backpackers	2,605
	Stock Users	1,316
	TOTAL	3,921
2005	Backpackers	2,984
	Stock Users	842
	TOTAL	3,826
2006	Backpackers	1,846
	Stock Users	899
	TOTAL	2,745
2007	Backpackers	2,118
	Stock Users	1,018
	TOTAL	3,136
2008	Backpackers	1,503
	Stock Users	1,123
	TOTAL	2,626
2009	Backpackers	1,380
	Stock Users	760
	TOTAL	2,140
2010	Backpackers	1,854
	Stock Users	810
	TOTAL	2,664
2011	Backpackers	2,084
	Stock Users	793
	TOTAL	2,887

The following figure displays the data in graph form.

Figure B-8. Number of Service Days by Activity and Year in the Pasayten Wilderness.



There is an overall downward trend in the number of service days the existing outfitters are providing. The reason for this is unknown, but is likely a result of several factors. The first factor could be a simple decrease in the popularity of the activity. Two other factors have likely been wildfires and that some of the existing companies operating in the early 2000s ceased operations, or substantially reduced the number of service days reported. Another effect may have been the down-turn in the economy.

Approximately 130,000 acres have burned in the Pasayten since 2001. The major fires have included:

- Thirtymile Fire (2001)
- Farewell Fire (2003)
- Tatoosh Buttes and Tripod (2006)

These fires have affected the outfitters' ability to use traditional areas and decreased the number of people coming to the Methow Valley, likely decreasing the number of clients seeking service. The effects of the fires have continued into the years following the fires - trails have been closed, or have become much more difficult to travel, established campsites have been burned, and the character of the land has changed. These factors have all contributed to a decline in clients.

The total number of service days has also decreased because fewer outfitters are operating. Two outfitters who operated in the early 2000s stopped operating in the mid-2000s. Another company was sold in the mid-2000s, and the new owner reported reduced numbers of service days for the first few years of operation. Another outfitter took non-use in 2009. Some of the clients of these outfitters may have shifted to active outfitters, requested trips in the Lake Chelan-Sawtooth Wilderness or other areas where shorter trips are offered, or simply stopped hiring an outfitter.

The other factor possibly affecting the outfitter-guide business may have been the downturn in the economy, however there was not a corresponding decrease in the number of service days in the Lake Chelan-Sawtooth (see following section).

Lake Chelan-Sawtooth

The current number of service days available for both priority and temporary use was used to calculate the current percentage of overall use outfitter. Approximately 6% of the stock users are outfitted, and 6% of backpackers. Overall, outfitter-guide service days represent 6% of the visitor days in the Lake Chelan-Sawtooth.

Figure B-9. Current Number of Visitor Days by User Group in the Lake Chelan-Sawtooth, and Number of Outfitter-Guide Service Days in Current Permits

User Group	Total Visitor days*	Outfitter-guide Service Days	% of Total Visitor Days
Backpackers	23,790	1,400	6%
Stock Users	12,810	715	6%
TOTAL	36,600	2,115	6%

*Includes outfitter-guide service days

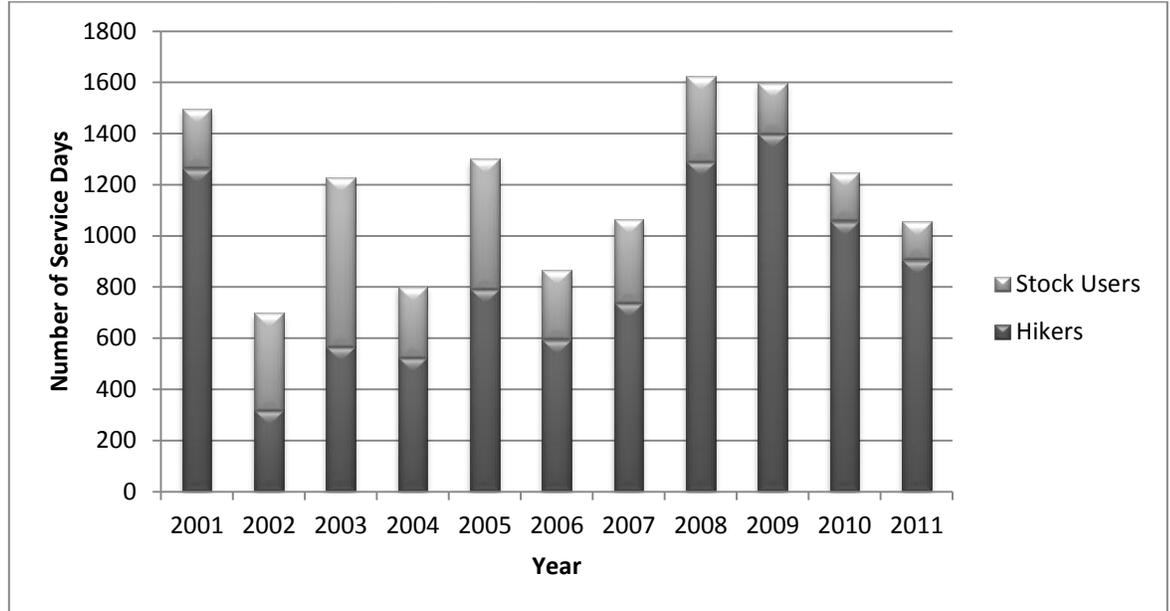
The number of visitor days and the number of service days varies from year to year. The following chart lists the number of service days by year, and by activity.

Figure B-10. Number of Outfitter-Guide Service Days by Year and Activity in the Lake Chelan-Sawtooth

Year	Activity	Outfitter-Guide Service Days (Actual Use)
2001	Backpackers	1,263
	Stock Users	234
	TOTAL	1,497
2002	Backpackers	318
	Stock Users	380
	TOTAL	698
2003	Backpackers	566
	Stock Users	662
	TOTAL	1,228
2004	Backpackers	522
	Stock Users	279
	TOTAL	801
2005	Backpackers	792
	Stock Users	508
	TOTAL	1,300
2006	Backpackers	594
	Stock Users	271
	TOTAL	865
2007	Backpackers	736
	Stock Users	327
	TOTAL	1,063
2008	Backpackers	1,290
	Stock Users	336
	TOTAL	1,626
2009	Backpackers	1,397
	Stock Users	200
	TOTAL	1,597
2010	Backpackers	1,057
	Stock Users	190
	TOTAL	1,247
2011	Backpackers	907
	Stock users	149
	TOTAL	1,056

The following figure displays the data in graph form.

Figure B-11. Number of Service Days by Activity and Year in the Lake Chelan-Sawtooth.



The number of service days the existing outfitters have provided has remained somewhat steady, with a drop in numbers in the mid-2000s, most likely due to wildfires, and drop in business for two of the major backpacking companies.

Approximately 36,000 acres have burned in the Lake Chelan-Sawtooth since 2000. Some of the larger fires are listed below:

- Rex Creek, 2001
- Flick Creek, 2006

These fires burned in the portion of the wilderness in the Chelan watershed, and kept the stock outfitters out of some of their traditional use areas. In addition to the fires listed above, major fires outside the Lake Chelan-Sawtooth Wilderness, most notably the Thirtymile Fire in 2001, Deer Point in 2002, the Farewell and Needle Creek fires in 2003, and the Tripod and Tatoosh fires in 2006 caused an overall decrease in the number of people coming to the valley as a result of smoke and concern about the fires. This is reflected in the demand for service days in the Lake Chelan-Sawtooth. Use levels rebounded in the year or two following the fires, although some outfitter-guide traditional use camps were burned over.

The down-turn in the economy does not seem to have affected service days in the Lake Chelan-Sawtooth. It may be that trips into the Lake Chelan-Sawtooth tend to be shorter, and less expensive from the Methow Valley Ranger District trailhead starting points. In addition, the hiker/backpacker outfitter-guides have shifted some of their business from the Pasayten to the Lake Chelan-Sawtooth and other portions of their permit area outside wilderness where trips are shorter and resupply logistics are simpler.

Authorized Service Days Verses Actual Use

The number of authorized days in any given year is the sum of all priority use days (whether used or not) plus actual number of temporary or pool days used. This total is the amount of service days that could have conceivably been used, and is the number that was authorized for that year.

Actual service days are the total of service days actually used, regardless of whether they were priority, temporary, or pool. Unused priority use days are not included in actual use. To determine the number of authorized service days, the number of unused priority use days for any given year was added to the actual use for that year.

The following figures show the relationship between actual and authorized use. In the Pasayten, actual use was lower than authorized use for both backpacking and stock outfitting and guiding. In the Lake Chelan-Sawtooth, stock actual use was lower than the authorized every year, while actual use equaled authorized use for the backpacking outfitters five out of the eleven years.

Figure B-12. Comparison of Actual Use to Authorized Use by Activity and Year in the Pasayten

Year	Activity	Actual Outfitter-Guide Service Days	Authorized Outfitter-Guide Service Days
2001	Backpackers	2,861	3,645
	Stock Users	1,580	1,945
	TOTAL	4,441	5,590
2002	Backpackers	1,950	3,605
	Stock Users	1,677	2,059
	TOTAL	3,617	5,664
2003	Backpackers	2,242	3,105
	Stock Users	929	1,746
	TOTAL	3,171	4,851
2004	Backpackers	2,605	3,353
	Stock Users	1,316	1,888
	TOTAL	3,921	5,241
2005	Backpackers	2,984	3,003
	Stock Users	842	1,532
	TOTAL	3,826	4,535
2006	Backpackers	1,846	2,706
	Stock Users	899	1,635
	TOTAL	2,745	4,341
2007	Backpackers	2,118	2,916
	Stock Users	1,018	1,665
	TOTAL	3,136	4,581
2008	Backpackers	1,503	2,815
	Stock Users	1,123	1,911
	TOTAL	2,626	4,726
2009	Backpackers	1,380	2,635
	Stock Users	760	1,589
	TOTAL	2,140	3,931
2010	Backpackers	1,854	3,167
	Stock Users	810	1,799
	TOTAL	2,664	4,966
2011	Backpackers	2,084	3,267
	Stock Users	793	1,799
	TOTAL	2,887	5,966

The following figure displays this information in chart form. Pack and saddle and hiking service days are combined into the total actual and authorized use by year.

Figure B-13. Outfitter-Guide Actual Use and Authorized Use in Pasayten

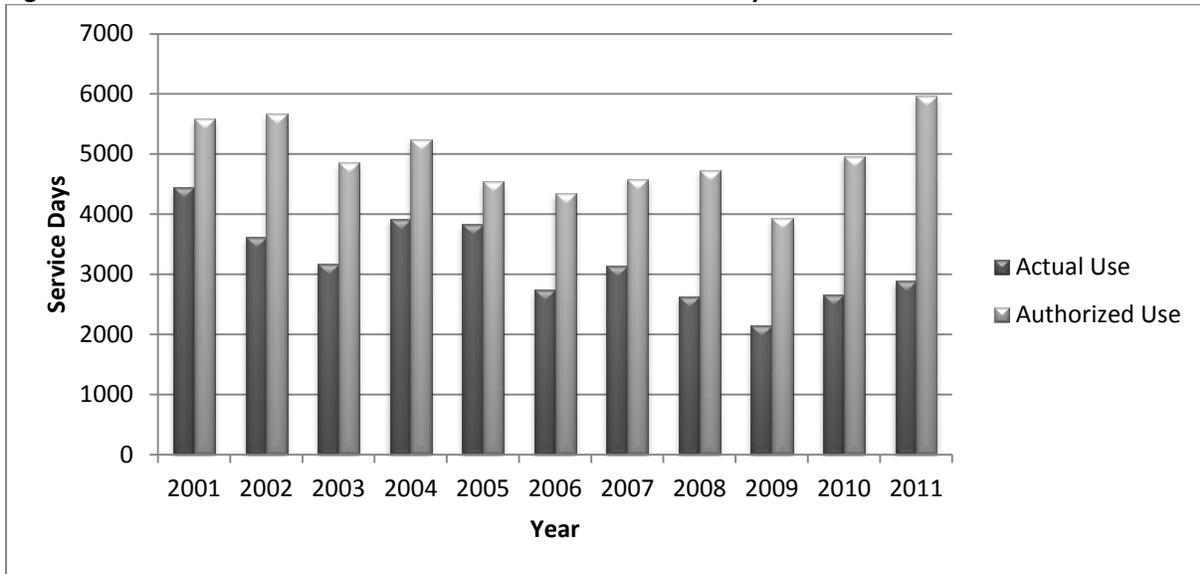
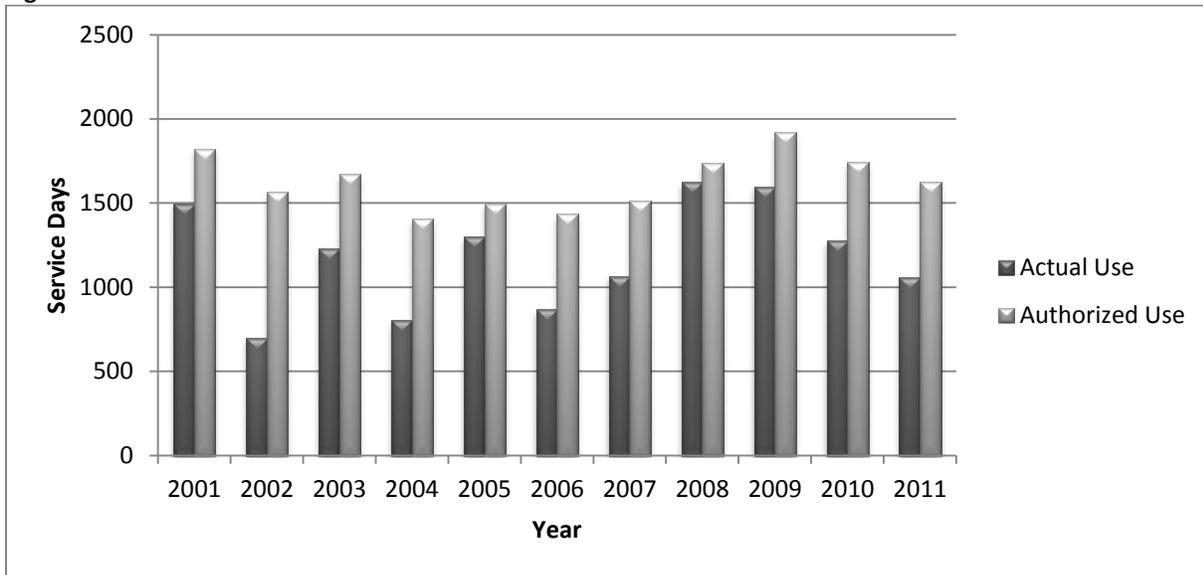


Figure B-14. Comparison of Actual Use to Authorized Use by Activity and Year in the Lake Chelan-Sawtooth

Year	Activity	Actual Outfitter-Guide Service Days	Authorized Outfitter-Guide Service Days
2001	Backpackers	1,263	1,263
	Stock Users	234	588
	TOTAL	1,497	1,821
2002	Backpackers	318	937
	Stock Users	380	628
	TOTAL	698	1,565
2003	Backpackers	566	838
	Stock Users	662	832
	TOTAL	1,228	1,670
2004	Backpackers	522	824
	Stock Users	279	581
	TOTAL	801	1,405
2005	Backpackers	792	792
	Stock Users	508	687
	TOTAL	1,300	1,497
2006	Backpackers	594	900
	Stock Users	271	534
	TOTAL	865	1,434
2007	Backpackers	736	838
	Stock Users	327	677
	TOTAL	1,063	1,515
2008	Backpackers	1,290	1,290
	Stock Users	336	445
	TOTAL	1,626	1,735
2009	Backpackers	1,397	1,397
	Stock Users	200	570
	TOTAL	1,597	1,921
2010	Backpackers	1,057	1,207
	Stock Users	190	567
	TOTAL	1,247	1,774
2011	Backpackers	907	1,057
	Stock Users	149	567
	TOTAL	1,056	1,624

The following figure displays this information in chart form. Pack and saddle and hiking service days are combined into the total actual and authorized use by year.

Figure B-15. Outfitter-Guide Actual Use and Authorized Use in Lake Chelan-Sawtooth



Commercial Services Available to the Public Nearby

There are few commercial services offering extended trips into a wilderness setting in the vicinity. The Pasayten and Lake Chelan-Sawtooth sit in the northern-most stretch of the North Cascades in Washington State. The Ross Lake National Recreation Area and North Cascades National Park are adjacent to the south and west of the areas, and provide wilderness experiences. There are also non-wilderness areas on the Methow Valley Ranger District, specifically the Sawtooth Backcountry and the Harts Pass/Pacific Crest Trail area which offer opportunities to travel in undeveloped areas. The existing outfitter-guides take clients into these areas. Outfitter-guides also operate in the National Recreation Area and North Cascades National Park, but their trips often cross boundaries between the public lands managed by the two different agencies (Park Service and Forest Service).

Commercial outfitting and guiding is offered in wilderness areas across Washington. The following chart lists the wilderness areas within a 300 mile drive of the Pasayten and Lake Chelan-Sawtooth wilderness areas, their annual visitation, and the sub-regions served by the areas.

Figure B-16. Wildernesses in Washington State within 300 driving miles of the Pasayten and Lake Chelan-Sawtooth wilderness areas.

Wilderness Areas	Type of setting	Acres	Annual Visitation (from NVUM data)	Sub-regions Served
Alpine Lakes	Low-elevation forest to alpine. Over 800 lakes. Extensive trail system and off trail opportunities.	362,798	297,756 visits	Seattle area NW Washington NE Washington
Boulder River	Low-elevation forest to alpine. Limited trail system. Low elevation	48,674	9,192 visits	Seattle area NW Washington

Wilderness Areas	Type of setting	Acres	Annual Visitation (from NVUM data)	Sub-regions Served
	trails have long season of use.			
Buckhorn	Low-elevation forest to alpine. Adjacent to Olympic National Park.	44,258	11,926 visits	Seattle area NW Washington
Clearwater	Low-elevation forest to subalpine. Limited trail system. Off trail opportunities. One lake.	14,192	2,789 visits	Seattle area
Colonel Bob Wilderness	Low-elevation forest to subalpine. Adjacent to Olympic National Park.	11,961	not available ¹	Seattle area NW Washington
Glacier Peak	Low-elevation forest to alpine. Extensive trail system and off trail opportunities. Glacier Peak is a glaciated volcano. Scattered lakes.	570,573	22,072 visits	Seattle area NW Washington NE Washington
Glacier View	Subalpine and alpine, with views of Mt. Rainier. Adjacent to Mt. Rainier National Park.	3,123	not available ²	Seattle area NW Washington
Goat Rocks	Mid-elevation forest to alpine with a well-known meadow system and a few small lakes. Extensive trail system.	107,018	3,714 visits (Wenatchee NF portion only. See footnote regarding Gifford Pinchot NF)	Seattle area SW Washington
Henry M. Jackson	Mid-elevation forest to subalpine with dozens of lakes. Extensive trail system that connects to Glacier Peak Wilderness. Off trail opportunities.	100,356	19,338 visits	Seattle area NW Washington NE Washington
Indian Heaven	Forested volcanic plateau with many	20,960	Not available. See footnote regarding	Seattle area SE Washington

¹ For the Olympic National Forest, NVUM lumped wilderness use for all but the Buckhorn Wilderness. Combined visits to the Colonel Bob, Mt. Skokomish, The Brothers, and the Wonder Mountain Wildernesses are estimated to be 11,849 visits per year.

² For the Gifford Pinchot National Forest, NVUM data lumped wilderness use for all but the Mt. Adams Wilderness. Visits to the Glacier View, Indian Heaven, Trapper Creek, Tatoosh, and the Gifford Pinchot National Forest portions of the Goat Rocks, and William O. Douglas Wildernesses are estimated to be 13,600 visits per year.

Wilderness Areas	Type of setting	Acres	Annual Visitation (from NVUM data)	Sub-regions Served
	small lakes and cinder cones.		Gifford Pinchot NF.	
Juniper Dunes	Sand dunes with small groves of juniper. Managed by BLM.	7,140	No legal public access. 600 visits	Spokane area SE Washington
Mt. Adams	Mid-elevation forest to alpine. Mt. Adams is a glaciated volcano.	46,353	6,300 visits	SE Washington
Mt. Baker	Mid-elevation forest to alpine. Mt. Baker is a glaciated volcano. Adjacent to North Cascades National Park.	117,528	20,459 visits	Seattle area NW Washington
Mount Rainier	Mid-elevation forest to alpine. Mt. Rainier is a glaciated volcano.	228,480	28,000 user nights plus 11,000 climbers	Seattle area NW Washington SE Washington
Mount Skomish	Low elevation forest to alpine. Adjacent to Olympic National Park.	13,015	Not available. See footnote for Olympic National Forest.	Seattle area NW Washington
Noisy-Diobsud	Low-elevation forest to subalpine. Less accessible with few trails. Adjoins North Cascades National Park.	14,133	1,470 visits	Seattle area NW Washington
Norse Peak	Low elevation forest to subalpine. Proximate to Mt. Rainier National Park and the William O. Douglas Wilderness.	52,180	9,119 visits	Seattle area SW Washington
Olympic	Low elevation forest to alpine. Extensive trail system and off trail opportunities.	876,669	40,000 visits	Seattle area NW Washington
Salmo-Priest	Mid elevation forest to subalpine.	41,335	7,625 visits	Spokane area NE Washington
San Juan Wilderness	Maritime islands comprised of 81 separate parcels. Managed to protect wildlife habitat values.	353	4,096 visits Public access only allowed on one small island.	Seattle area NW Washington
Stephen Mather	Mid elevation forest to alpine. Scattered lakes. Extensive trail system and off trail opportunities.	634,614	Approximately 20,000 overnight visits. No data for day use visits.	Seattle area NW Washington NE Washington

Wilderness Areas	Type of setting	Acres	Annual Visitation (from NVUM data)	Sub-regions Served
Wenaha-Tucannon	Low to mid elevation forest and meadows.	177,423	Not available ³	Spokane area SE Washington
Wild Sky	Low elevation forest to subalpine. Scattered lakes. Portions are adjacent to Henry M. Jackson Wilderness.	106,577	Not available ⁴	Seattle area NE Washington
William O. Douglas	Mid elevation forest to alpine. Scattered lakes. Adjacent to Mt. Rainier National Park.	168,232	19,373 visits (Wenatchee NF portion only)	Seattle area SE Washington
Wonder Mountain	Mid elevation forest to subalpine. Adjacent to Olympic National Park.	2,349	Not available. See footnote regarding Olympic NF.	Seattle area NW Washington

4. WILDERNESS CAPACITY AND EFFECTS TO WILDERNESS CHARACTER

This step examines the condition and trends of the biophysical resources and determines the capacity of each wilderness area.

Conditions and Trends of the Social and Biophysical Resource

The biophysical resource conditions in the Pasayten and Lake Chelan-Sawtooth wilderness areas have been stable or on an upward trend since the areas were designated as part of the Wilderness Preservation System. In order to understand this, it is important to consider the historic use of the areas. Human activities altered the biophysical condition of the resources prior to designation. Commercial livestock grazing and wildfire suppression had altered plant communities over much of the landscape, and fish stocking of high elevation lakes changed the aquatic ecosystems and recreation use patterns. Recreation activities (including outfitting and guiding), livestock herders, and mining activities created a network of trails, campsites, and scattered buildings in both wilderness areas. Some of the effects of these past activities are still evident today.

Commercial livestock grazing declined and eventually ceased not long after these wilderness areas were designated. This, coupled with recreation party size controls and other standards and guidelines from the forest plans, began, and is perpetuating the upward trend in the untrammeled, natural, and undeveloped qualities of the wilderness character. Tungsten was mined in the Pasayten Wilderness in one location, but there has been no mining activity since the mid-1900s. Some buildings remain at the mine site, and it is a destination for some

³ For the Umatilla National Forest, NVUM lumped wilderness use for all wilderness. Combined visits to the Wenaha-Tucannon, North Fork Umatilla, and North Fork John Day Wildernesses are estimated to be 62,573 visits per year.

⁴ Wild Sky was established in 2008 and no visitation data had been compiled at the time of this Assessment.

recreationists. This has degraded the undeveloped quality in the immediate vicinity, but is having a very minor impact to the overall undeveloped quality of the Pasayten.

People have been using stock to travel into the backcountry for nearly a century. Stock outfitter-guides have been operating in the areas for decades, since before the Pasayten and Lake Chelan-Sawtooth Wildernesses were designated, and long before the Forest Plans were signed and implemented. There were no limitations on party sizes at the time, so groups larger than the current 12 people and 18 head of stock limitations traveled through and camped in the wilderness. Camps were constructed and maintained to provide for clients' comfort, with facilities such as permanent latrines, picnic tables, cook tents with wooden floors and ovens, camp furniture, and tent pads. Trees were cut down for firewood, or to improve the view or layout of camps. Stock were tied to trees, damaging some, and exposing their roots. All these activities were completely legal and acceptable at the time. Many camps originally used by livestock permittees were converted to stock outfitter camps. This created and perpetuated camps with large areas of vegetation loss and compacted bare mineral soil, trees with exposed roots, trees killed by recreation activities, and removal of all snags in and around camps.

Hiking and backpacking started to gain popularity in the 1960s and 1970s, and overtook horseback riding as the most common mode of transportation into the backcountry. Outfitter-guides offering trips in backpacking and wilderness skills have been operating in the Pasayten and Lake Chelan-Sawtooth wilderness areas since 1977. These groups occasionally use the large, established campsites, but also operate in the trail-less portions of the wilderness areas, teaching their clients about hiking, backpacking, mountaineering, survival skills, environmental and wilderness education.

Many of these campsites are used today by recreationists and outfitters. Due to the level of historic and continuing use, these hardened sites are still devoid of vegetation cover. Most of the camp areas predate the current Land Management Plans and exceed current plan standards for vegetation loss and compacted bare mineral soils, and number of trees with exposed roots. The camps are having a localized, moderate effect on the opportunities for solitude.

The social resources in the Pasayten and Lake Chelan-Sawtooth are also on a stable or upward trend. Outstanding opportunities for solitude, primitive, and unconfined recreation exist in most locations throughout the Pasayten and Lake Chelan-Sawtooth wilderness areas. Every person has a different perception of solitude, and of how many encounters with others it takes to lose the sense of solitude. The *2009 Wilderness Use Study: A Comparison of Pasayten and Lake Chelan-Sawtooth Wilderness Use Patterns* (Burns, et al, 2010) (hereupon called "2009 Wilderness Use Study") gathered information on people's perception of the opportunity for solitude by asking about crowding. Approximately 90 to 95% of those interviewed did not feel crowded at all or felt only slightly crowded during their trips in the wilderness areas. The feeling of crowds is grounded in a person's expectations, and about three-quarters (72% in the Pasayten and 79% in the Lake Chelan-Sawtooth) of the people saw as many or fewer people than they expected. Roughly one-half (55% in the Pasayten and 42% in the Lake Chelan-Sawtooth) of the visitors felt solitude is part of the wilderness experience, while the other half (43% in the Pasayten and 48% in the Lake Chelan-Sawtooth) felt that they did not expect complete solitude and expected to see other people some of the time (Burns, et al, 2010).

The Okanogan and Wenatchee Forest Plans have standards addressing social capacity by controlling the number of encounters a recreationist should not exceed in a day. The Okanogan Forest Plan states that there needs to be an 80% probability of not encountering more than one other group per day in management area 15A (trailless), and not more than 7 in management area 15B (trailed). The Wenatchee Forest Plan also has these same two levels for pristine and primitive, respectively, and includes an 80% probability of not more than 10 groups or individuals traveling along in semi-primitive, and not more than 10 to 20 groups or individuals in transition areas of wilderness. The Forest Service has also been gathering encounter data, and found that both wilderness areas comply with these standards and guidelines. Details are included later in this document, under the section titled “Encounter Studies”.

Capacity Analysis

An important step in determining the minimum extent necessary for commercial services in wilderness is to complete a capacity analysis. A capacity analysis is an exercise that calculates the maximum capacity of an area (expressed in visitor days), where the amount of interaction between people, and the effect of the people on the resources meets forest plan and other management direction. In other words, capacity is defined as the amount of overall use an area can sustain without detrimental social or physical resource impacts (without impairing wilderness character). Biophysical capacity is based on resource conditions, and ensuring non-degradation of wilderness character. Social capacity is based on Forest Plan standards and guidelines, the opinions of the people recreating in the wilderness, and their satisfaction of their experiences. The overall capacity determination is made considering both the biophysical and social capacity findings.

The capacity determination for both the Pasayten and Lake Chelan-Sawtooth wildernesses found that the existing amount of use is within biophysical and social capacities at this time. The details of each component are described below.

Biophysical Capacity

There are many different ways to determine capacity. The technique used here is from *Numerical Visitor Capacity: A Guide to Its Use in Wilderness* (Cole and Carlson, 2010). This two-step process involves identifying thresholds and estimating the maximum amount of visitor use that can occur without exceeding the thresholds. Diversity in the wilderness is maintained by dividing each area into zones. The forest plans established these zones, with standards and guidelines for each zone setting limits for encounters, barren core and vegetation loss, number of campsites visible or audible from other campsites, trail densities, and other factors.

The factor used for determining capacity in the Pasayten and Lake Chelan-Sawtooth is the size and number of established campsites. The effects of current recreation use, including commercial services, are largely limited and localized. The most meaningful criteria for evaluating effects to wilderness are to use effects in established campsites or other recreation areas. The Forest Service has many regulations to limit unwanted ecological effects from recreation in wilderness; including prohibitions on damaging vegetation, trail construction, littering, caching supplies, grazing, hitching, or hobbling any pack or saddle animals within 200 feet of lake shores, to name a few. The forest plans also have established party size limits and campsite size and condition standards and guidelines. The

terms and conditions of special use permits further control actions by outfitter-guides, and establish consequences for non-compliance. These actions help cumulatively limit unwanted ecological effects, but it is still reasonable to use effects at established campsites as the primary evaluation tool for capacity because these are the effects most sensitive to the opportunities for solitude quality of wilderness character.

Wilderness character will remain on a stable or upward trend if no new campsites are established. If use was evenly distributed every night, the capacity of each wilderness would be the average party size multiplied by the number of sites. Since use is never evenly distributed, the threshold is the number of people who could occupy half the existing campsites. This is a conservative threshold to account for the fact that use is not evenly distributed, and some areas are more popular than others. The threshold will minimize or eliminate the possibility of a party reaching their destination and having to camp in a new site because the existing ones are occupied. This also helps meet the forest plan standards specifying that there should be an 80% probability of two or fewer campsites being visible or audible from any campsite. The maximum amount of use that can occur without exceeding this threshold is calculated for each wilderness in the following sections.

Pasayten

There are approximately 637 established campsites in the Pasayten Wilderness. The threshold is that no more than 319 of these are occupied on any given night. The average party size in the Pasayten is 2.68 adults and 2.62 children (Burns et al, 2009), rounded to 7 people. Multiplying 319 by 7 give the people at one time (PAOT) capacity:

$$250 \text{ campsites} \times 7 \text{ people/campsite} = 2,233 \text{ PAOT}$$

The length of the season is approximately 120 days, so multiplying the PAOT by length of season will calculate the maximum amount of use (in visitor days) that can occur without exceeding the threshold:

$$2,233 \text{ PAOT/day} \times 120 \text{ days/season} = \mathbf{267,960 \text{ visitor days per season}}$$

The current number of visitor days (outfitted and non-outfitted) is approximately 18,700. This suggests that current use is below the level that could lead to creation of new campsites, and within the biophysical capacity for the Pasayten. This is supported by the current resource conditions. The resource conditions in the Pasayten were thoroughly evaluated during the analysis of a proposal to issue 10-year outfitter-guide permits to the existing stock outfitters. Refer to the *Stock Outfitter-Guide Special Use Permit Issuance, Final Environmental Impact Statement, 2012*, and the corresponding resource reports for detailed information. In summary, the resource specialists found concentrated areas of impact around campsites, but overall, the condition of the resources were pristine. Keeping use below approximately 267,960 visitor days per year should avoid degradation from additional area being impacted by recreation activities.

Lake Chelan-Sawtooth

There are approximately 338 established campsites in the Lake Chelan-Sawtooth Wilderness. The threshold is that no more than 169 of these are occupied on any given

night. The average party size in the Lake Chelan-Sawtooth is 2.6 adults and 2.14 children (Burns et al, 2010), rounded to 5 people. Multiplying 169 by 5 give the people at one time (PAOT) capacity:

$$169 \text{ campsites} \times 5 \text{ people/campsite} = 845 \text{ PAOT}$$

The length of the season is approximately 120 days, so multiplying the PAOT by length of season will calculate the maximum amount of use (in visitor days) that can occur without exceeding the threshold:

$$845 \text{ PAOT/day} \times 120 \text{ days/season} = \mathbf{101,400 \text{ visitor days per season}}$$

The current number of visitor days (outfitted and non-outfitted) is approximately 36,600, which is below the calculated capacity. Approximately half of the current visitor days are day use, and the threshold is tied to campsite occupation. The approximate number of people camping in the Lake Chelan-Sawtooth is 18,300 visitor days, so the existing use is below the level that would lead to creation of new campsites. For day use, the number of encounters is a potential limiting factor. As stated previously, the data collected for encounters indicate that use is consistent with forest plan standards and guidelines. This is supported by data collected for the 2009 Wilderness Use Study, which found that, on average, visitors saw four other groups during their trips (Burns et al, 2010). Considering campsite occupancy and encounters, the current level of use is below the biophysical capacity at this time. Encounter frequency will need to be closely monitored to determine when the combined day and overnight use approaches exceeding forest plan standards and guidelines.

The analysis of resource conditions supports the conclusion that current use is below capacity, although there are areas where use appears to be closer to capacity. The resource conditions in the Lake Chelan-Sawtooth were also thoroughly evaluated during the analysis for the 10-year outfitter-guide permits to the existing stock outfitters. Refer to the *Stock Outfitter-Guide Special Use Permit Issuance, Final Environmental Impact Statement, 2012*, and the corresponding resource reports for detailed information. In summary, the resource specialists found concentrated areas of impact around campsites, but overall, wilderness character is not being degraded by the recreation activities because of the effects are limited and localized. If the number of overnight campers stays below approximately 101,400 visitor days per year, there is a low probability of new adverse impacts to wilderness character.

The threshold and calculation for maximum amount of use was further refined by identifying the areas of concern (analysis areas). This follows the suggestion that capacity can be further refined by dividing the wildernesses into analysis areas (Cole and Carlson, 2009). These are typically areas defined by a specific trail, or by a geographical boundary, such as a watershed. The maximum amount of use can be calculated for each analysis area, and compared to existing use levels and resource conditions.

Monitoring has highlighted geographic areas where resource conditions are more impacted by recreation use in the Pasayten and Lake Chelan-Sawtooth, and where use may be closer to capacity. The Forest Service does not have existing use data that is specific to these

analysis areas for comparison to capacity calculations. Therefore, capacity calculations for each entire wilderness are the most useful. The capacity calculation is a ball-park number that managers can use to alert them to the risk of possible additional adverse impacts to wilderness character from higher use. By watching overall use numbers in comparison to the calculated capacity, and continuing to closely monitor resource conditions in these analysis areas (and new ones that are identified), the Forest Service will be able to determine if analysis area capacity is being exceeded. Outfitter-guide activities may need to be limited in these areas at some point in the future to ensure that the activities do not degrade the wilderness character. These analysis areas are described below.

Pasayten Analysis Areas

There are areas within the Pasayten where use is higher, and there is a higher density of established campsites. Outfitter-guide activities may need to be limited in these areas in the future if monitoring shows that the recreational activities are causing more intense or widespread adverse impacts to any of the four qualities of wilderness character; untrammeled, natural, undeveloped, or opportunities for solitude and primitive or unconfined recreation.

Lakes in the vicinity of Harts Pass and the Pacific Crest Trail

Silver Lake, Buckskin Lake, Ferguson Lake, Fred Lake, and Doris Lake are all popular destinations with limited campsites. They are frequently used by non-outfitted backpackers and/or stock users. Full-service stock outfitter camps may not be appropriate at the lakes, and stock drop camps and outfitter backpacking camps need to be coordinated to avoid proportionally occupying too many sites, not leaving campsites for non-outfitted recreationists.

Hidden Lakes

Hidden Lakes are located along the Hidden Lakes trail, beginning at the Billygoat Trailhead. The lakes are located in a narrow valley, with approximately five campsites around the lakes. The only graze in the area is located up Stub Creek, which flows into the Middle Hidden Lake. Recommend limiting the number of outfitter camps at any one time to ensure campsites will be available to non-outfitted recreationists.

Crow and Corral Lakes/Sheep Mountain Area

Crow and Corral lakes are located along the Larch Creek Trail, which begins at the Billygoat Trailhead. The trail continues to Sheep Mountain after passing the lakes. There is an existing assigned site for a stock outfitter-guide at Corral Lake, and another on Sheep Mountain. These assigned sites are for the exclusive use of the outfitter-guides, and typically have a camp set up all season long. It is recommended that no more assigned sites be established in this vicinity to keep camping areas open for non-outfitted use.

Spanish Camp

The Spanish Camp area is reached by the Andrews Creek Trail, beginning at the Andrews Creek Trailhead. It includes Rimmel Lake, Cathedral Peak, and Bald Mountain. There are two assigned sites for stock outfitter-guides in the area. This is one of the most popular areas in the Pasayten all season for non-outfitted

recreationists, and is especially popular during high hunt in September. Use approaches capacity during this time of year because encounters are more frequent, and established campsites are often used. Recommend not establishing another assigned site in the Spanish Camp or Amphitheater area to avoid additional campsite creation, and to protect the opportunities for solitude in the area.

Black Lake

Black Lake is located approximately 4 miles from the Lake Creek Trailhead, along the Lake Creek Trail. It is a very popular day-use site for non-outfitted recreationists. Bull trout, a federally listed threatened species, live in the lake. There is CFR prohibiting camping with pack animals within ½ mile of the lake shore. There are a very limited number of campsites. Recommend not allowing outfitter-guide camps at Black Lake on weekends and holidays between and including Memorial Day and Labor Day.

Lake Chelan-Sawtooth Analysis Areas

As in the Pasayten, some areas in the Lake Chelan-Sawtooth have higher levels of use, and resource conditions that are more susceptible to damage from recreation activities. The Lake Chelan-Sawtooth spans the geographic mountain divide between the Methow and Chelan watersheds. The destination lakes in the Chelan watershed are clustered near the divide in an area characterized by south-facing slopes, with scattered clumps of trees among large open meadows. The portion of the wilderness in the Methow watershed is roughly divided between north and south facing slopes, with more deeply incised drainages (compared to the upper elevation destinations on the Chelan side) around the tributaries to the Twisp River.

Many of the destination lakes are located in small basins in the Twisp River watershed with limited flat ground and graze, and accessed by one-way trails offering no loop opportunities to other areas. In comparison, there is more graze for stock animals, and more flat, open areas for campsites on the upper slopes of the Chelan side than in the Twisp River drainage. Since nearly all the trails into the wilderness begin along the Twisp River from roadways, use is more highly concentrated in this area than from the Lake Chelan boat-in trailheads. The steep slopes, limited flat ground, and little graze coupled with the higher use has led to more impacts, and more specific areas of concerns on the Twisp side. These are described below.

Oval Lakes

West, East, and Middle Oval lakes are accessed by the Oval Lakes Trail, beginning at the Eagle/Oval Trailhead along the Twisp River. There is a CFR prohibiting stock camping at West Oval Lake. The area around Middle Oval Lake has very little graze, and can be quickly overgrazed if large stock parties frequent the area. It is recommended that a very limited number of stock full-service camps be allowed in the area. The trips should not be back-to-back, but separated in time to allow the graze to recover. A controlled number of drop camps could be supported since stock do not remain in drop camps, and graze availability is not an issue.

North Lake and Surrounding Area

North Lake is accessed by the North Lake Trail that begins at the Gilbert Trailhead on the Twisp River. It is a very popular day-trip destination, and an easy hike or ride. There are a limited number of campsites. Since it receives higher levels of use by non-outfitted visitors, it is recommended that approval for outfitter-guides (hiking or stock) camps be made on a case-by-case basis considering time of year, number of clients, camp location, and other factors.

Twisp Pass

Twisp Pass is another popular day-trip destination and is along the Twisp Pass Trail, which also leaves from the Gilbert Trailhead. It has very few camping spots, and very little appropriate graze. The Pass is approximately 3.5 miles from the trailhead. It is recommended that no outfitter-guides be allowed to camp at Twisp Pass.

Louis Lake

Louis Lake is located approximately 5 miles from the South Creek Trailhead. There are a very limited number of campsites, and not alternative camps in the area away from the lake. There is also little graze. It is a popular destination, and the campsites are often full on weekends and holidays. It is recommended that no full-service stock outfitter-guide camps be allowed at the lake, and drop camps be approved on a case-by-case basis.

Williams Lake

Williams Lake is located approximately 7 miles from the Williams Creek Trailhead. There are a limited number of campsites, but graze is available. Recommendation is to allow drop camps, with full-service camps being approved on a case-by-case basis.

Libby Lake

Libby Lake is approximately 6 miles from the trailhead. The last ½ mile of trail leading to the lake is not recommended for stock due to a large rock creating an unsafe tread. The area around the lake is not suitable for stock due to fragile vegetation. Recommendation is to not allow stock outfitter-guide camps.

Star Lake, Tuckaway Lake, Bernice Lake, and Surprise Lake

These areas are too small to allow stock outfitter-guide camps because of limited graze and popularity with non-outfitted users. Recommendation is full-service camps not be allowed. A controlled number of drop camps could be supported, however stock are not allowed in lake-side camps.

Social Capacity

Social capacity is determined by contacting people using the wilderness, or concerned about the wilderness, and getting a sense of satisfaction level for items such as crowding, encounters with other groups, interactions with others, resource condition, and other factors. The Forest Service used the results documented in the 2009 Wilderness Use Study (Burns, et al., 2010) in determining this social capacity. The findings are summarized below.

The Forest Service also gathered input during scoping of proposals to issue 10-year, priority use permits to stock and backpacking outfitter guides. These comments are also summarized below.

Finally, the Forest Service conducted encounter studies to evaluate compliance with the Forest Plan standard and guideline on the number of encounters per day.

The results of these three information groups show that the current amount of use is well within the social capacity for both wildernesses. In general, people do not feel crowded, and feel the wilderness areas are in good condition. Some people disagree with the management, or have conflicts, but based on the results of the 2009 Wilderness Use Study, these people are a small minority of visitors overall.

2009 Wilderness Use Study

The social capacity of a wilderness is determined by talking to people visiting the wilderness to understand the level of satisfaction on a number of issues, such as crowding, condition of the resources, and interactions with others. These factors are very subjective, and vary from person to person depending on their expectations, past experiences, and personalities. The Forest Service typically hears most frequently from people who are unhappy or dissatisfied with their experience. The people who are happy with their trip usually do not contact the Forest Service. This can lead to a perception that most people disagree with the management of the wilderness, and with those they encounter on their trip. To give a balanced voice to all visitors, the Forest Service contracted with the research group to conduct a monitoring survey to gather and analyze data on these topics.

During the 2009 recreation season, the researchers interviewed people as they finished their trips into the Pasayten and Lake Chelan-Sawtooth. They asked questions about perceptions of crowding, acceptable number of times to see others, reasons for recreating, quality of facilities and services, how others impact their experience, and other topics. The responses were combined and analyzed, with the results documented in the 2009 Wilderness Use Study (Burns et al., 2010).

The survey found that virtually everyone (97%) reported that they did not have any conflicts with other groups during their trip. In addition, 90 to 95% did not feel crowded at all or felt only slightly crowded. The feeling of crowds is grounded in a person's expectations, and about three-quarters (72% in the Pasayten and 79% in the Lake Chelan-Sawtooth) of the people saw as many or fewer people than they expected. Roughly one-half (55% in the Pasayten and 42% in the Lake Chelan-Sawtooth) of the visitors felt solitude is part of the wilderness experience, while the other half (43% in the Pasayten and 48% in the Lake Chelan-Sawtooth) felt that they did not expect complete solitude and expected to see other people some of the time.

Nearly all of the responders were repeat users – 74% in Pasayten and 91% in Lake Chelan-Sawtooth. On a typical year, the average number of visits each person made to the National Forest was 18.81 for Pasayten, and 19.71 to the Lake Chelan-Sawtooth. Almost half (47% in the Pasayten and 40% in the Lake Chelan-Sawtooth)

chose to visit the wilderness to enjoy the place itself, while roughly one-third (40% in the Pasayten and 35% in the Lake Chelan-Sawtooth) went there because it's a good place to do the outdoor activities they enjoy.

When asked if other people increased the enjoyment of the trip, visitors were nearly evenly divided between feeling others increased their enjoyment, feeling neutral about others, and feeling others decreased their enjoyment. In the Pasayten, 45% of the visitors were neutral, 29% agreed or strongly agreed with the statement, and 26% disagreed or strongly disagreed. In the Lake Chelan-Sawtooth, the split was similar, with 32% feeling neutral, 34% agreeing or strongly agreeing, and 34% disagreeing or strongly disagreeing.

The condition of the wilderness was evaluated by asking about the balance between social and biological values in the management of the wilderness, and the condition of the areas. In both wilderness areas, 32% of the visitors had no opinion about the balance between social and biological values, while 61% in the Pasayten and 54% in the Lake Chelan-Sawtooth felt that wilderness management struck a good balance between the values. The majority of visitors (81% in the Pasayten and 87% in the Lake Chelan-Sawtooth) thought the wilderness was in good condition.

David Cole and Troy Hall found similar satisfaction levels when they conducted surveys and analyzed the data from wilderness areas around Oregon and Washington. In their paper titled *Wilderness Visitors and Experiences in Oregon and Washington: Trailhead Surveys in Thirteen Forest Service Wildernesses*, 2005, they reported that most visitors appeared to be highly satisfied with their trip and with wilderness conditions. They categorized trailheads into very high use, high use, and moderate use, with moderately used trails receiving less than one-third of the use of the very high use trails. The differences among visitors to each category of trailhead were surprisingly small. It appeared that visitors to more highly used trailheads had adjusted their tolerance of other wilderness users. Most knew what conditions they were likely to find, adjusted their expectations accordingly, and found their trips enjoyable. Most people were able to find solitude, or at least have what they considered a real wilderness experience (Cole and Hall, 2005).

Public Scoping

The Forest Service has asked for comments on proposals to issue 10-year permits to the existing stock outfitter-guides, and for one of the backpacking outfitter-guides. Scoping will be initiated soon for the remaining to backpacking outfitter guides.

No comments were received in response to the backpacking outfitter-guide proposal. Some people may have concerns about this commercial activity, especially within the trailless portions of the wilderness areas, but none who were contacted as part of this project scoping voiced concerns.

The Forest Service has received approximately 100 letters in response to scoping for the stock outfitter-guides. Some of these letters supported the stock activities, and felt the use and resource conditions were acceptable and appropriate for wilderness. Over half of the letters expressed concern about stock. The issues raised formed the

cornerstone for the environmental analysis for the proposed permit issuance, and are evaluated in detail in the Stock Outfitter-Guide Special Use Permit Issuance Draft Environmental Impact Statement (USDA Forest Service, 2010). The letters demonstrated that there is both strong support and strong opposition to stock outfitter-guides, and controversy about whether the effects of the activity are acceptable, and in compliance with the Wilderness Act.

Encounter Studies

The Okanogan and Wenatchee Forest Plans have standards addressing social capacity by controlling the number of encounters a recreationist should not exceed in a day. The Okanogan Forest Plan states that there needs to be an 80% probability of not encountering more than one other group per day in management area 15A (trailless), and not more than 7 in management area 15B (trailed). The Wenatchee Forest Plan also has these same two levels for pristine and primitive, respectively, and includes an 80% probability of not more than 10 groups or individuals traveling along in semi-primitive, and not more than 10 to 20 groups or individuals in transition areas of wilderness.

The Forest Service has had backcountry rangers gather encounter data since 2001. Rangers record the number of groups they encounter for each section of trail and associated destinations. Encounters with previously contacted groups are counted as a separate encounter when more than 20 minutes passes between contacts. Rangers patrol high use areas more often and are generally scheduled for the busiest use periods such as holidays and weekends. Thus their encounter data might be slightly skewed to the high end. Data collected in over 1,129 ranger patrol days and 2,400 encounters indicates that both wilderness areas are meeting Forest Plan standards for encounters.

Since certain portions of each wilderness are more popular, the data was examined for different trail and travel corridors to see if standards were being exceeded at specific locations. The following tables show data for common trails and travel corridors in the two wilderness areas. Some travel corridors include several sections of trail in order to best capture typical visitor travel patterns.

The Wilderness Use Study found that about half of the responders saw other groups twice on their trips, and slightly less saw groups 3 to 5 times. The average was seeing 4 other groups per trip (Burns et al, 2010).

Pasayten

In the Pasayten, the highest encounter rates occurred on the Pacific Crest Trail, and this was the most likely location for a visitor to have more than seven encounters. Data for the Pacific Crest Trail may be slightly skewed higher as backcountry rangers did not always differentiate encounters on the Pacific Crest Trail between the Harts Pass trailhead and Windy Pass which is a popular day hike and outside of the wilderness. Other locations that occasionally exceeded seven encounters were: the Hidden Lakes, Buckskin Ridge, Boundary Trail, Devils Dome, and Pasayten River trails. The highest likelihood of more than seven encounters

generally occurred on weekends and holidays in July, August, and September, but also occurred randomly during the week. Trails such as the Pacific Crest Trail, Billy Goat, Buckskin Ridge, Chewuch, and Andrews serve as primary access routes into the wilderness so it is not uncommon for encounter rates to be higher near the trailhead and drop further into the wilderness as people disperse to various destinations. Other factors have also influenced the amount and distribution of use, which influences encounters. Weather, fire activity, featuring a particular trail or trip in the media, can cause an obvious increase or decrease at specific in use on a yearly basis on an individual trail.

Figure B-17. Probability of Encountering Not More Than Seven Parties By Pasayten Travel Corridor.

Travel Corridors/Trails	Trail Numbers	Patrol days	Total Encounters	Days exceeding seven encounters	Probability of encountering more than seven groups
West Fork Pasayten	472	9	24	0	0%
Hidden Lakes	477, 458	405	647	2	0%
Robinson, Mainstem & Middle Fork Pasayten River	478, 474, 451	78	144	1	1%
Monument Creek	484	3	2	0	0%
Tatoosh Buttes	485	21	32	0	0%
Buckskin Ridge	498	28	65	1	4%
Lake Creek	500	25	78	0	0%
Larch Creek Trails	502, 502A	88	173	0	0%
Andrews Creek	504	103	196	0	0%
Chewuch	510, 360	71	118	0	0%
Crystal Lakes	517	2	6	0	0%
Boundary Trail	533	136	243	1	1%
Devils Dome, Canyon Creek	752, 738, 754	27	49	1	4%
Pacific Crest Trail	2000, 472A, 473	70	279	9	13%

Lake Chelan – Sawtooth

The Lake Chelan-Sawtooth receives more day use than the Pasayten. Popular destinations include: South Creek, North Lake, Louis Lake and Twisp Pass. The highest likelihood of more than eight encounters generally occurs on weekends and holidays in July, August and September. As in the Pasayten, there are many factors influencing amount and distribution of use, which influences encounters.

Weather, fire activity, or featuring a particular trail or trip in the media, can cause an obvious increase or decrease in use on a yearly basis on an individual trail.

Figure B-18. Probability of Encountering Not More Than Seven Parties By Lake Chelan-Sawtooth Travel Corridor.

Travel Corridors/Trails	Trail Numbers	Patrol days	Total Encounters	Days exceeding seven encounters	Probability of encountering more than seven groups
South Creek	401	9	12	0	0%
Reynolds Creek	402	1	0	0	0%
Williams Lake	407	16	12	0	0%
War Creek	408	12	49	0	0%
West Fork Buttermilk	411	6	4	0	0%
North Lake	413	22	61	1	5%
Slate Lake	414	1	0	0	0%
Libby Lake	415	6	2	0	0%
East Fork Buttermilk	420	4	1	0	0%
Copper Pass	426	9	10	0	0%
Scatter Lake	427	10	22	0	0%
Louis Lake	428	13	42	1	8%
Twisp Pass	432	18	97	0	0%
Wolf Creek	527	3	35	0	0%
Scaffold Ridge	436	18	97	0	0%
Summit Trail	1259	18	97	0	0%

5. EXTENT OF COMMERCIAL SERVICES NECESSARY AND ALLOCATION OF USE

The Wilderness Act prohibits commercial activities, except to the extent necessary for realizing the recreational or other purposes of the wilderness area. This step determines the minimum extent necessary and the allocation of use that will be specified for commercial services.

The minimum amount of commercial services needed to provide for recreation is not a number that can be precisely calculated. Rather, several factors are considered to establish a range of service days that would provide the minimum extent of commercial service. The factors include:

- need for commercial services,
- historic number of service days,
- proportional relationship between outfitter and non-outfitted use levels,

- current resource conditions and impacts from recreation use on wilderness character,
- wilderness capacity, and
- anticipated changes in overall number of recreationists and need for outfitter guides,
- demographics.

Need

The Forest Service has a need for the two existing types of commercial services: pack and saddle stock and backpacking/wilderness education in order to provide for wilderness appropriate recreation, based on the analysis of need discussed earlier in this document. Most people go into the wilderness on their own, without an outfitter-guide. An element of the population does choose to hire an outfitter-guide due to lack of skill, knowledge, or equipment, physical limitations, or other reasons. Some people who hire outfitter guides do so out of legitimate need, while others do so for convenience, or the desire to have more supplies with them than they could carry. Data does not exist that could be used to generate or calculate the percentage of clients who have a legitimate need.

Direction for disclosing incomplete or unavailable information in an environmental impact statement is found in 40 CFR 1502.22. The means to obtain the percentage of clients who have a legitimate need for commercial services are not known. There are too many variables, such as how much skill or knowledge is enough to no longer need an outfitter, or what income level would be adequate to afford the specialized equipment, or what physical conditions, or a combination of these factors, would make hiking or backpacking impossible or impractical. The answer to such questions would be different for every person.

No reasonably foreseeable significant adverse impacts on the human or biological environment were found in evaluating the direct, indirect, or cumulative effects of commercial services in either the Pasayten or Lake Chelan-Sawtooth Wildernesses. Therefore, determining the exact number or percentage of past use legitimately needing commercial services is not necessary. Refer to the earlier discussion concerning the social capacity, and the environmental analysis included in the *Pack and Saddle Stock Outfitter-Guide Special Use Permit Final Environmental Impact Statement, 2013*, for complete analysis, including summaries of existing credible scientific evidence relevant to evaluating reasonably foreseeable impacts, and scientific methodology used. Lacking specific information about the number of clients with legitimate need would not have catastrophic consequences since no significant impacts would occur. Therefore the Forest Service must consider other factors to determine if historic service day levels are a reasonable reflection of the minimum extent necessary.

Historic Service Day Levels

The range of years used for this determination was from 2001 to 2011. There has been a decline in outfitter guide service days in the past five years, but the reason for that decline is unknown. As discussed earlier in this document, the decline may be a result of wildfires, the downturn in the economy, decreased demand, or other factors. The eleven year span was selected in case the factors affecting the use change, and the need increases to the levels seen earlier in the 11-year span.

The lowest number of service days, or an average number for range of years cannot be used in the minimum extent necessary determination. The number of people needing the services of an outfitter-guide will vary from year-to-year, and may be influenced by outside factors such as wildfires, so the minimum extent of commercial services allowed needs to be large enough to cover the years with the largest need.

The highest number of hiker/backpacker outfitter-guide service days in the Pasayten Wilderness was 2,984 in 1999, and the highest number of stock service days was 1,677 in 2002. In the Lake Chelan-Sawtooth, the highest hiker/backpacker days were 1,397 in 2009, and 662 stock service days in 2003. These figures are displayed in Figures 21 and 22 below.

Proportional Relationship Between Outfitted and Non-outfitted Use Levels

Calculating the percentage of overall use that matches the past need for services is based on the current estimate of total visitor days and the highest past use. The information generated from the 2005 NVUM information (USDA Forest Service, 2012b) is the best available information concerning use levels. Therefore, these estimates are used as the current annual visitor day totals.

Comparing the current visitor day totals to the highest historic use levels displayed above, approximately 25% of overall use is outfitted in the Pasayten Wilderness⁵, and approximately 6% in the Lake Chelan-Sawtooth.⁶

Figure B-19. Current Number of Visitor days by User Group in the Pasayten, and Highest Need 2001 through 2011

User Group	Total Visitor days*	Highest Need 2001 - 2011	% of Total Visitor Days
Backpackers	13,090	2,984	23%
Stock Users	5,610	1,677	30%
TOTAL	18,700	4,661	25%

Figure B-20. Current Number of Visitor days by User Group in the Lake Chelan-Sawtooth, and Highest Need Over Past 11 Years

User Group	Total Visitor days*	Outfitter-guide Service Days	% of Total Visitor Days
Backpackers	23,790	1,397	6%
Stock Users	12,810	662	5%
TOTAL	36,600	2,059	6%

Current Resource Conditions and Impacts on Wilderness Character

The analysis of the impact of existing recreation use (including outfitter-guides) on wilderness character has shown that there are localized impacts to the opportunities for solitude, but these are not interfering with the current upward trend in wilderness character for the Pasayten or Lake Chelan-Sawtooth wildernesses. Refer to the *Pack and Saddle Stock Outfitter-Guide Special Use Permit Issuance Final Environmental Impact*

⁵ 4,651 days/17,000 days = 0.273 or 27%

⁶ 1,800 days/56,332 days = 0.032 or 3%

Statement, 2012 for the complete analysis. Current conditions meet or exceed the expectations of the vast majority of wilderness visitors (Burns, et al, 2010).

Wilderness Capacity

The capacity analysis for the Pasayten found that the existing amount of use (18,700 visitor days) is within the biophysical and social capacities (267,960 visitor days), with some areas needing closer monitoring and restrictions to ensure that the wilderness character is not degraded. Refer to page 29 and 30 for calculations.

The capacity analysis for the Lake Chelan-Sawtooth found that the existing amount of use (36,600 visitor days, of which approximately 18,300 are overnight visitors) is within the social capacity of the wilderness (101,400 visitor days). Use levels are below the maximum amount to keep effects below the threshold of no new campsites established, since the number of overnight visitor days is below the capacity. The resource condition analysis found isolated impacts, but overall pristine resource condition. Existing use levels were determined to be within capacity, but likely near the upper end of the acceptable range. At this time, outfitter-guide service days must be conservatively allocated until future monitoring confirms or refutes the capacity calculations. Refer to pages 30 and 31 for calculations.

Anticipated Changes in Need and Demand

As stated earlier in this document, there will be increasing demand for recreation in the coming years. The technical report *Outdoor Recreation in the Pacific Northwest and Alaska: Trends in Activity Participation* (Hall et al, 2009) and Washington State’s Interagency Committee on Outdoor recreation (Interagency Committee on Outdoor Recreation, 2003) both predict the increase. The Interagency Committee estimates that there will be a 13% increase in the number of people hiking and backing, and a 3% increase in the number of people riding horses in the year 2022 (Interagency Committee on Outdoor Recreation, 2003). These projections are used to estimate the number of people who will be recreating in the Pasayten and Lake Chelan-Sawtooth ten years from now.

Figure B-21. Current Number of Visitor days by User Group in the Pasayten, Estimated Increase, and Future Number of Visitor Days.

User Group	Current Visitor Days	Estimated Future Increase	Estimated Number of Visitor Days in 2022
Backpackers	13,090	13%	14,792
Stock Users	5,610	3%	5,778
TOTAL	18,700		20,570

*Includes current outfitter-guide service days

Figure B-22. Current Number of Visitor days by User Group in the Lake Chelan-Sawtooth, Estimated Increase, and Future Number of Visitor Days.

User Group	Current Visitor Days	Estimated Future Increase	Estimated Number of Visitor Days in 2022
Backpackers	23,790	13%	26,883
Stock Users	12,810	3%	13,194
TOTAL	36,600		40,077

*Includes current outfitter-guide service days

Demographics

The demographics of the population of people coming to the Pasayten and Lake Chelan-Sawtooth wilderness areas help identify the minimum extent of commercial services needed to provide visitors access to the wilderness. One statistic to consider is the age of the visitors. Assuming that as people age, they are less able to backpack long distances, an aging visitor population may have an increasing need for stock outfitter guides. On the other hand, younger people with little to no wilderness camping experience might need outfitter services as well. Having outfitter-guides for stock and backpacking would help make wilderness trips more feasible for these demographic groups.

Demographic information about visitors to the district was gathered and compiled in the 2005 NVUM report (USDA Forest Service 2012b). The report divided wilderness visits into age ranges from “under 16”, “16 to 19”, “20 to 29”, “30 to 39”, and so forth. The highest percentage of visits (33%) fell in the “50 to 59” age range, with the lowest percentages in the “under 16” and “30-39” age ranges (0.6% and 0.9% respectively). The number of visits was roughly split between people up to the age of 49 (45%), and those over 50 (55%).

The age class distribution of existing outfitter-guide clients shows that the majority of backpacking outfitter-guide clients are under the age of 29, while the majority of stock outfitter-guide clients are over the age of 50.

The following table shows the age ranges and percent of visits.

Figure B-23. Percent of Total Wilderness Visits and Outfitter-guide Clients by Age Class

Age Class	Percent of Total Wilderness Visits (NVUM)	Percent of Backpacking OG Clients	Percent of Stock OG Clients
Under 16	1%	14%	3%
16-19	4%	36%	8%
20-29	23%	43%	1%
30-39	1%	4%	2%
40-49	17%	2%	12%
50-59	33%	1%	24%
60-69	15%	<1%	41%
70+	7%	0%	8%

The Washington State Office of Fiscal Management tracks the population of the state, and how the composition of age classes is shifting over time. The following table displays the

current population distribution across the age classes, compared to the projected distribution in 2020. As is shown, the age class distribution is shifting into the older age classes. The number of people in the 60-69 age range will increase approximately 40%⁷, and those 70 years and older will increase 46%⁸ (Washington State Office Fiscal Management, 2010) by the year 2020. The Washington State Interagency Committee for Outdoor Recreation discusses projected changes in populations in the 2003 “Estimates of Future Participation in Outdoor Recreation in Washington State”, (IAC, 2003). One of the key considerations in projecting changes in the number of people participating in various outdoor recreation activities is age. Physical demands of various activities, such as backpacking, will discourage people from participating as they age (IAC, 2003).

Figure B-24. Percent Change in Number of People in Age Classes in 2010 and 2020

Age Class	Number of People in 2010	Projected Number in 2020	Percent Change
Under 15	1,311,555	1,517,032	16%
15-19	464,155	478,724	3%
20-29	966,978	1,014,958	5%
30-39	883,849	1,098,567	24%
40-49	959,344	935,360	-3%
50-59	947,648	967,301	2%
60-69	643,504	903,726	40%
70+	556,217	809,712	46%
Total	6,733,250	7,725,380	15%

(Washington State Office Fiscal Management, 2010)

As shown in Figure 3, approximately 73% of stock outfitter-guide clients are 50 years old or older. This age class is more dependent on stock to travel into the wilderness and more likely to use an outfitter-guide service due to a combination of physical limitations, more leisure time, and higher income levels. The relatively large predicted increase in the number of people over the age of 50 in Washington state (refer to Figure 4) indicates that there will likely be a corresponding increase in the number of people and the percentage of visitors who will require the service of stock outfitters guides for trips into the Pasayten and Lake Chelan-Sawtooth wilderness areas. The largest increases will be in people 60 years old and older. Therefore, the need for stock outfitter-guides will likely increase in the coming years at a substantially faster rate than the general activity increases projected by the Washington State Interagency Committee on Outdoor Recreation, 2003. Although only a small percentage of people over 50 years old actually take trips into the wilderness, it is safe to assume that the number of people in that age class that do so could increase at a rate that matches the rates of increase in the general population – approximately 25%⁹.

Conversely, approximately 87% of backpacking clients are between 16 and 29 years old (refer to Figure 3). The number of people in this age class will increase approximately 4%

⁷ (903,726 people - 643,504 people)/643,504 people = 0.40, or 40%

⁸ (809,712 people - 556,217 people)/ 556,217 people = 0.456, or 46%

⁹ (967,301 + 903,726 + 809,712) - (947,648 + 643,504 + 556,217) / (947,648 + 643,504 + 556,217) = 0.248 or 25%

by 2020 (refer to Figure 4)¹⁰. Figure 3 also shows that approximately 28% of all wilderness visitors are under the age of 30.

The number of young people recreating outdoors has been declining for the past two decades, and many of these young Americans seem to be losing connection with vast natural resources owned by the American people. To combat this, President Obama launched the Great Outdoor Initiative in 2010. One of the goals of this initiative is to reconnect Americans, especially children, to America's national forests. Since backpacking outfitter-guides target most of their services towards young people, allowing for growth in these companies will accommodate this growing number of young people to allow them to experience opportunities for solitude and primitive or unconfined recreation. This will allow young people to gain an appreciation for, and understanding of wilderness.

Most of the backpacking outfitter-guide clients are under the age of 30 (87% of clients). This portion of the population is expected to increase 4% by 2020. The minimum amount of these commercial services needed to provide for wilderness recreation by reconnecting young people to the outdoors through wilderness recreation could be approximately 15% above the estimated 13% increase in hiking and backpacking. This modest increase would help foster understanding and appreciation for wilderness by increasing the number of young adults experiencing "opportunities for solitude or primitive and unconfined recreation" and supporting the American Great Outdoors initiative (2010-2011 americasgreatoutdoors.gov).

Minimum Extent Necessary Determination

The minimum extent necessary range is displayed below for both the Pasayten and Lake Chelan-Sawtooth, by the two major categories of transportation, hiking (includes hiking and backpacking) and using stock. The official allocation of service days to outfitter-guides, and the analysis of potential resource effects must be covered in the appropriate NEPA document. The results in this document are merely recommendations.

The minimum extent necessary range was determined following these steps:

1. Identify highest actual use in the past 11 years. Although it is likely that some of these clients did not have legitimate need for the outfitter-guide service, it is also likely that some required the services of an outfitter-guide to experience the opportunities for solitude and primitive or unconfined recreation offered in wilderness. There is no data concerning what percentage falls into which category. Lacking any supporting data, the highest use number will be used as the starting point for the minimum extent necessary determination, and considered the current need.
2. Determine the percentage of use that is the existing need by comparing the current need to current total recreation visitor days.

¹⁰ $(1,014,958 + 478,724) - (966,978 + 464,155) / (966,978 + 464,155) = 0.044$, or 4%

3. Determine the number of total recreation days expected in 2020 by expanding the current total recreation visitor days by the Washington State Interagency Committee on Outdoor Recreation projections of increase in recreation use.
4. For the low end of the range, multiply the percent current need to the future number of visitor days.
5. For the high end of the range for stock outfitter-guides, increase the low end figure by 25% to account for the anticipated increases in recreation visitors over the age of 60 and a higher percentage from outside the area. These groups would more likely need the services of a stock outfitter guide.
6. For the high end of the range for hiker/backpacker outfitter-guides, increase the low end figure by 15% to increase opportunities for young adults to experience and gain an appreciation of wilderness in response to the American Great Outdoors initiative.

Figure B-25. Minimum Extent Necessary Calculations for Pasayten Wilderness

Activity	A Current Need	B Current Total Use	C % of total use (A/B)	D Future Total Use (From Figure 23)	E Range Low End (C x D)	F Range High End (Hiking: E x 1.15) (Stock: E x 1.25)
Hiking	2,984	13,090	23%	14,792	3,402, rounded to 3,400	3,910
Stock	1,677	5,610	30%	5,778	1,733, rounded to 1,735	2,169, rounded to 2,170

Figure B-26. Minimum Extent Necessary Calculations for Lake Chelan-Sawtooth Wilderness

Activity	A Current Need	B Current Total Use	C % of total use (A/B)	D Future Total Use (From Figure 24)	E Range Low End (C x D)	F Range High End (Hiking: E x 1.15) (Stock: E x 1.25)
Hiking	1,397	23,810	6%	26,883	1,613, rounded to 1,615	1,857, rounded to 1,860
Stock	662	12,820	5%	13,194	660	825

Priority and Temporary Use Pools

Outfitter-guide special use permits are either “priority” or “temporary”. Priority special use permits are issued for recurring activities, and typically have multi-year terms (such as 5 or 10 years). These permits are structured such that a certain number of days is allotted to each permit as priority use days – days guaranteed annually to the permit holder. The handbook direction also allows creation of a pool of service days that can be held in reserve, and assigned on an as-needed basis to allow outfitters extra days if bookings exceed assigned priority use days. These days return to the pool at the end of each season, making them available to outfitters who need them the following season.

Temporary use is defined as non-recurring use. Days in a temporary use pool are available for outfitters wanting to guide a one-time trip, or a series of non-recurring trips within the same season. The days are returned to the pool at the end of each season, and distributed the following year based on applications for use. Days can be shifted between the priority and temporary use pools depending on demand.

Pools are very useful in managing commercial activities in wilderness because they help ensure that an adequate number of service days are available during years when the need is high, without inflating the number of priority use days assigned to individual outfitter-guides in an attempt to cover the need. By assigning a conservative number of priority use service days to outfitter-guides, the Forest Service can keep the number of guaranteed service days to a minimum, but still be able to assign days on an as-needed basis to cover the peaks in need, in both priority and temporary special use permits.

The following table recommends the number of priority use days to be assigned to priority use permit holders, the number to be kept in the priority use pool, and the number to be placed in the temporary use pool. These recommendations must be adjusted whenever necessary to respond to changing conditions, either resource or outfitter-guide business structures.

Figure B-27. Recommended Distribution of Service Days Between Priority and Temporary Use By Activity and Range in the Pasayten

Outfitter-Guide Activity	Range	Number of Service Days in Range	Service Days Allocated as Priority Use Days	Service Days in Priority Use Pool	Service Days in Temporary Use Pool
Backpacking	Low	3,400	3,150	150	100
	High	3,910	3,150	560	200
Stock	Low	1,730	1,550	180	0*
	High	2,160	1,550	610	0*

* Tight administration of stock outfitter-guide permits is needed to minimize resource damage, so it is recommended that no service days be placed in a temporary use pool for this activity.

Figure B-28. Recommended Distribution of Service Days Between Priority and Temporary Use By Activity and Range in the Lake Chelan-Sawtooth

Outfitter-Guide Activity	Range	Number of Service Days in Range	Service Days Allocated as Priority Use Days	Service Days in Priority Use Pool	Service Days in Temporary Use Pool
Backpacking	Low	1,615	1,400	165	50
	High	1,860	1,400	360	100
Stock	Low	660	500	160	0*
	High	825	600	225	0*

* Tight administration of stock outfitter-guide permits is needed to minimize resource damage, so it is recommended that no service days be placed in a temporary use pool for this activity.

SUMMARY OF NEED AND EXTENT NECESSARY

The quantity of commercial services identified in this assessment has been determined to be needed and will not impair wilderness character. Considerations include:

Desired Condition and Management Objectives of the Area Found in the Forest Plans

The desired future condition and management objectives for the Pasayten and Lake Chelan-Sawtooth wilderness areas are included in the Okanogan and Wenatchee Forest Plans (USDA, 1989b, and USDA, 1990). The desired conditions are areas with unmodified or predominately unmodified primitive environments. The standards and guidelines insure a non-degradation approach to wilderness management and activities by controlling activities that could impact the untrammled, undeveloped, and natural qualities of wilderness, and the opportunities for solitude or primitive and unconfined recreation.

Defined Analysis Areas and the Existing Conditions

The overall condition of both the Pasayten and Lake Chelan-Sawtooth has been on an upward trend since the time of designation (1964 and 1984 for the Pasayten, 1984 for the Lake Chelan-Sawtooth). The elimination of commercial livestock grazing and establishment of forest plan standards and guidelines (including but not limited to party-size limitations) have improved wilderness character by reducing existing or potential impacts to the untrammled, natural, and undeveloped qualities, and improving opportunities for solitude by reducing impacts to existing campsites. The current amount of recreation use (including the outfitter-guide use included in this document) is having localized, limited adverse impacts to the opportunities to solitude, but when considered cumulatively with other actions, wilderness character is improving across the areas. The following analysis areas have been identified as areas where use levels are higher or resource conditions are more fragile. Restrictions on outfitter-guide activities and close monitoring is needed to ensure that wilderness character is not adversely impacted:

Pasayten Wilderness

Lakes in the vicinity of Harts Pass and the Pacific Crest Trail
Hidden Lakes
Crow and Corral Lakes/Sheep Mountain Area
Spanish Camp
Black Lake

Lake Chelan-Sawtooth Wilderness

Oval Lakes
North Lake and Surrounding Area
Twisp Pass
Louis Lake
Williams Lake
Libby Lake
Star Lake
Tuckaway Lake
Bernice Lake
Surprise Lake

Indicators or Limiting Factors and When Possible Thresholds May Be Exceeded

Two factors that may indicate that the threshold of nondegradation may be threatened are the total number of recreationists and number of established campsites. The calculated capacity of the Pasayten Wilderness is 267,960 visitor days, and 101,400 visitor days in the Lake Chelan-Sawtooth. These ball-park figures can be used to alert managers when overall use may be resulting in new or additional impacts. Continued campsite monitoring will show when the number of people camping in an analysis area is exceeding its capacity. The analysis areas listed above will be closely watched, and outfitter-guide activities may be further limited in the areas if monitoring shows an increased impact to wilderness character

Effects to Wilderness Character

The effects of stock outfitter-guide use on wilderness character is included in the *Stock Outfitter-Guide Special Use Permit Issuance Final Environmental Impact Statement, 2012*¹¹. The analysis considered impacts to the four qualities of wilderness character: untrammelled, undeveloped, natural, and opportunities for solitude or primitive and unconfined recreation. The impacts were evaluated in terms of context, duration and intensity. The effects from the existing long-term backpacking and wilderness skills outfitter are included in the 2009 Decision Memo for that issuance. Additional analysis will be completed prior to issuing other permits in the future.

The analyses for the stock outfitter-guides found that existing recreation use, including the minimum amount of outfitter-guide service days included in this Needs Assessment, will have limited, localized effects in and around established campsites because of other campsites within view and encounters with others. The impacts will not significantly affect opportunities for solitude. The impacts will be long-term since campsites will be perpetuated by continued use. Recreation use (outfitted and non-outfitted) will not directly or indirectly affect the untrammelled or undeveloped qualities of the wilderness character since the use will not interfere with wilderness ecosystems, or lead to additional developments in wilderness. The natural quality is being impacted where stock grazing are allowed to graze, but these impacts are localized and have very little to no impact on the plant communities or wetland ecosystems. The stock are also having localized, limited impacts to stream banks and soil where they water and congregate, but these effects are having little to no impact on aquatic or riparian habitat, or water quality due to the small size and frequency of impact.

Opportunities for solitude or primitive and unconfined recreation will be provided to those who do not have the skill or knowledge to experience wilderness appropriate recreation. On the other hand, opportunities for solitude will be reduced as the overall number of people recreating in the wilderness increases over time. While outfitter-guide parties may affect solitude, their use will be capped at the level specified in this document. The duration of the impacts (beneficial and adverse) to opportunities for solitude from outfitter-guides would equal the duration of permitted activity. If outfitter-guides activities cease, impacts will be immediately eliminated.

¹¹ The Stock Outfitter-Guide Special Use Permit Issuance Final Environmental Impact Statement, 2012, is incorporated by reference.

MONITORING PLAN

Ongoing monitoring is essential to ensure the wilderness areas remain on an upward condition trend. The capacity determination in this document must be updated as new information becomes available.

1. Follow the monitoring process detailed in *Monitoring Selected conditions Related to Wilderness Character: A National Framework, 2005* (Landers, 2005).
2. Monitor use levels by participating in the National Visitor Use Monitoring study every 5 years. If use numbers begin to reach calculated capacity, increase resource condition monitoring to determine if threshold of non-degradation has been crossed.
3. Complete a thorough campsite monitoring exercise to give an accurate count of the number of existing campsites and their condition. Use information to determine campsite density.
4. Monitor encounters to assess compliance with forest plan standards and guidelines.