

**Background:**

- Section 4(c) of the Wilderness Act states: “. . .*except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be . . . no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.*”
- Section 6.3.5 of NPS Management Policies 2006 states that the Minimum Requirement concept will be a two step process to [1] determine if the management action is necessary “*for administration of the area as wilderness and does not cause a significant impact to wilderness resources and character; and [2] the techniques and types of equipment needed to ensure that impacts on wilderness resources and character are minimized.*” Also: “*When determining minimum requirements, the potential disruption of wilderness character and resources will be considered before, and given significantly more weight than, economic efficiency and convenience.*”
- Section 5.14 Administration, of SEKI’s Backcountry Management Plan (which covers both Wilderness and non-wilderness backcountry and is NEPA compliant), provides guidance on how park managers are to treat the above generally prohibited actions of Section 4(c) of the Wilderness Act. Specifically treated are Radio communications (5.14.2.1), helicopters (5.14.2.2), mechanized trail maintenance equipment (5.14.2.3), Cabins (5.14.2.4), Administrative camps (5.14.2.5), Administrative Stock Use (5.14.2.6), NPS backcountry crews (5.14.2.7), and NPS personnel (5.14.2.8). Section 5.14.3 also provides reference to the Administrative Use Guideline Addendum (January 1985) which provides further clarification on administrative and management actions occurring in SEKI’s Wilderness and backcountry.
- Section 5.16 Scientific Study and Impact Monitoring, of SEKI’s Backcountry Management Plan, provides guidance on how park managers are to conduct “scientific study and monitoring” in Wilderness and backcountry areas.
- The 2007 Record of Decision for the 2006 General Management Plan and FEIS states:  
“The parks’ designated wilderness and other areas managed as wilderness are zoned to reflect the varying intensities of use of different areas. In heavily traveled zones, there exist engineered trails and bridges, food lockers, designated campsites, and toilets to protect park resources, while in less-used areas, amenities are minimal or non-existent. A new subsection, below in italics, entitled “*Decision-making Process for Facilities within Backcountry and Wilderness Zones,*” is added to the GMP/FEIS (Vol.1, Page 67) to clarify the action.

*This General Management Plan is a programmatic plan. The GMP provides conceptual guidance for park managers about the kinds of resource conditions, visitor services, and visitor experiences that best fulfill the mission of these parks. The listing of categories of “appropriate facilities” within the individual zone prescriptions serves only to exemplify the types of facilities that may now exist or that the parks may wish to consider at some point in the future. For a new facility to be considered, or for an existing facility to be repaired or replaced within the Major Trails, Secondary Trails, or Cross-Country Areas zones, the parks would conduct the appropriate level of compliance under the National Environmental Policy Act (i.e., Categorical Exclusion, EA or EIS). Incorporated into any such compliance would be appropriate consideration of the Wilderness Act (Minimum requirement analysis), the Endangered Species Act and the National Historic Preservation Act. Further, installation of or repairs to facilities would have to comply with any prescriptions contained in the action alternatives considered in this plan. Only facilities that undergo additional site-specific compliance and that comply with all applicable legal and planning requirements would be constructed or repaired.”*

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**Analysis:**

If you are proposing an action, you must complete the analysis below – no action as described above is to occur in wilderness unless this form has been completed and approved (use additional sheets if more space is needed).

- Describe the action you wish to take (e.g. helicopter flight, chainsaw use, install resource monitoring equipment, etc.), **not** a general project description. Please **provide detailed estimates on HOW MANY TIMES AND WHEN** (day/week/month) the action will occur on this project (e.g. 3 helicopter landings, or rock drill will be used on 4 days, etc. *the more detail, the better*):

In support of the Recovery Plan for Sierra Nevada Bighorn Sheep and development of the Wilderness Stewardship Plan/Environmental Impact Statement, we propose to use helicopter support to capture bighorn sheep for research, monitoring, and translocation purposes. Beginning in 2011 and continuing for up to 10 years, bighorn sheep would be annually captured and fitted with Very-High Frequency (VHF) or Global Positioning System (GPS) radio-collars in the parks by California Department of Fish and Game (CDFG) biologists and qualified personnel certified by the US Fish and Wildlife Service (USFWS). Bighorn sheep captures could occur in any of the bighorn sheep herds within the parks. The following table provides an estimate of the number of captures, helicopter landings, and helicopter days required for this project per year.

<b>Herd Unit</b>	<b># of sheep research/ monitoring captures</b>	<b>Approx. # of helicopter landings</b>	<b>Approx. # of helicopter days</b>
<b>Langley</b>	1-10	2-20	2-6
<b>Williamson</b>	0-1	0-2	2
<b>Bubbs</b>	2-4	4-8	2
<b>Baxter</b>	0-8	0-16	2-6
<b>Sawmill</b>	1-8	2-16	2-6
<b>Taboose</b>	0-1	0-2	2
<b>Big Arroyo</b>	0-2	0-4	2
<b>Laurel reek</b>	0-2	0-4	2

Bighorn sheep capture operations would occur for 1-14 days annually. Research and monitoring captures would occur during October and occasionally in January through the first week of April and bighorn sheep would be translocated in March through the first week of April. Helicopters would be generally be required to land twice for each bighorn sheep capture—however for shee that are translocated into Big Arroyo and Laurel Creek, there will only be one landing per bighorn sheep.

Answer the following questions:

1. Does the purpose of this action meet Minimum Requirements, that is, does it support: a) Visitor Enjoyment and Recreation (e.g. trail system and camping), b) Resource Protection and Visitor Management (e.g. ranger stations, toilets, communication systems), or c) Resource Management and Research (e.g. monitoring, inventorying, pertinent research, restoration, barriers for protection) per SEKI's MD-049?

The proposed action supports all three Minimum Requirements. Visitor Enjoyment and Recreation is supported because this project involves restoration of a federally endangered species into formerly occupied habitat—many visitors feel viewing wildlife is an important part of their wilderness experience. Resource Protection and Visitor Management is supported because results from the research component of this project may be used to adjust wilderness visitor regulations to ensure that bighorn sheep are not negatively impacted by visitor activities. Resource Management and Research is supported because project activities involve research into bighorn sheep habitat use and the impacts of wilderness recreation on bighorn sheep.

2. Why is this action necessary (e.g. movement of heavy/bulky materials, safety, time sensitive, trail closed by snow or logs, sensitive park resources, stock not available, maximum resource protection)?

Bighorn sheep capture is necessary for the NPS to support implementation of the Recovery Plan for the Sierra Nevada Bighorn Sheep. This plan calls for research, monitoring, and translocation of bighorn sheep as components required for their eventual delisting from the endangered species list. Capturing and radio-collaring bighorn sheep is the only way to accomplish these tasks.

3. What other Wilderness Act compatible alternatives (e.g. hand tools, stock, foot) were considered? Explain why these were determined to not be feasible?

Alternative techniques for capturing bighorn sheep (e.g., drop-nets, drive-nets, chemical immobilization) were considered but dismissed. Helicopter supported captures using net-guns has been found to have the lowest overall measure of risk to bighorn sheep (i.e., impacts of stress, capture myopathy, and accidental mortality) compared to other techniques. Further, these techniques would have higher impacts on wilderness values because they require longer periods of time to implement and require increased numbers of personnel and stock support.

4. If this action is not taken will wilderness resources be at risk (e.g. social trails created, over-use of grazing resources, illegal camping, bear management problems, critical snow surveys not taken, erosion, resource deprecations, human waste/pollution problems, etc.)?

If this action is not taken, the federally endangered Sierra Nevada Bighorn Sheep will continue to be at risk of extinction. The actions these helicopter activities would support include research that will inform SEKI of ways to mitigate wilderness visitor impacts to bighorn sheep, monitoring of bighorn sheep populations to prevent population declines due to disease or predation, and translocation of bighorn sheep into currently vacant herd units. Translocation, in particular, is a requirement of the Recovery Plan to assure long-term population viability.

5. Will alternate means of accomplishing the action provide for resource degradation (e.g. trail or meadow impacts from increased stock use, increased erosion from use trails)?

Alternate means of accomplishing bighorn sheep captures would likely provide for increased resource degradation over helicopter supported captures. The use of drop-nets, drive-nets, or chemical immobilization requires longer periods of time to implement and require increased numbers of personnel and stock support. Anticipated impacts would include (1) impacts to meadows from stock grazing, (2) impacts to trails from personnel/stock use, and (3) potential litter in the wilderness from irretrievable equipment (e.g., darts that miss bighorn sheep during chemical immobilization).

6. What wilderness resources might be at risk as a result of this action (e.g. character, soundscapes)?  
(Note: some of this can be mitigated with proper scheduling.)

Wilderness resources that would be at risk as a result of this action include all 4 qualities of wilderness character: (1) untrammeled, (2) natural, (3) undeveloped, and (4) opportunities for solitude.

**Untrammeled:** The untrammeled quality of the parks would be adversely affected because bighorn sheep would display evidence of human control or manipulation (i.e., the presence of radio-collars and eartags).

**Natural:** The natural quality would be positively affected because bighorn sheep would be restored into previously occupied habitat in Laurel Creek and Big Arroyo within Sequoia National Park.

**Undeveloped:** The use of helicopters would cause temporary adverse effects (approximately 1-14 days annually) to the undeveloped quality of parks. This would be mitigated though (1) scheduling of flights during off-peak

visitation (October and occasionally in January through the first week of April), (2) following specific flight paths, and (3) processing animals at a staging area outside of wilderness.

**Opportunities for solitude:** The sights and sounds of the helicopter and project crews would affect opportunities for solitude or primitive and unconfined recreation during project activities. This would be mitigated by scheduling of flights during off-peak visitation (October and occasionally in January through the first week of April) and because of the fact that helicopter landings are generally located above 9,000 feet and adjacent to steep topography, generally on wind-swept slopes. These locations are not ideal for winter recreation users as access is difficult and dangerous due to potential avalanches.

7. Is the action necessary at the time it is scheduled, i.e. can it be accomplished at a later date without utilizing a generally prohibited 4(c) action?

The research and monitoring captures are necessary at the time they are scheduled because continued monitoring is a component of the Recovery Plan and research is needed to inform the Wilderness Stewardship Plan/Environmental Impact Statement, which is currently in development. The translocation captures could potentially occur at a later date, but this would delay recovery of a federally listed endangered species.

The times chosen during the year (October and occasionally in January through the first week of April) are based on biological constraints of bighorn sheep—they were chosen to minimize impacts to them during the breeding and lambing seasons.

8. What other aspects, that are relevant to protecting wilderness character and resources, have been considered in this analysis?

Additional mitigation measures would include: (1) after bighorn sheep are located and pursuit begins, pursuit would be terminated after 2 minutes if capture was unsuccessful, (2) if the net misses or bighorn sheep escapes, pursuit would be terminated unless recapture was imminent (i.e., within 30 seconds), (3) nets that miss bighorn sheep would be collected to prevent adverse effects to wilderness character or the safety of wildlife and visitors, (4) helicopters would be landed immediately after bighorn sheep are netted and the helicopter would not park (i.e., the engine would not be turned off), (5) the number of people needed to safely and efficiently handle each bighorn sheep would be minimized as well as all sudden movements, auditory, visual, and touch stimuli, (6) pursuits would occur in relatively open areas away from topographic features that may be dangerous (i.e., steep cliffs, ravines, etc.), (7) capture of multiple animals in a net would be avoided, (8) in the event of a major injury, the bighorn sheep would be quickly and humanely destroyed and the project would be stopped for a review and assessment of the incident.

**Approvals and Routing:**

		<i>For Charisse Sydonak:</i>	
<i>DANIEL J GAMMINS</i>	<i>Daniel J. Gammins</i>	<i>7/29/11</i>	<i>Karen N. Wick (acting)</i>
Printed name	Signature	Date	Recommended by (Division Chief)
Submitted by (program manager)			
<i>Karen Kaye Smith</i>		<i>7/29/11</i>	
Approved by (Superintendent)		Date	

**NOTE: Upon receiving all above signatures, route original to Wilderness Coordinator for administrative record.**