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July 19, 2010

Karen Taylor-Goodrich, Superintendent  
Attn: Bighorn Sheep Study  
Sequoia and Kings Canyon National Parks  
47050 Generals Highway  
Three Rivers, CA 93271

Dear Superintendent Taylor-Goodrich,

Wilderness Watch has reviewed your News Release dated June 18, 2010, which solicits scoping comments on a proposed bighorn sheep study within Sequoia and Kings Canyon National Parks (SEKI). This letter provides our scoping comments.

Wilderness Watch is a nonprofit conservation organization whose mission is to provide citizen oversight to ensure the long-term preservation of America's wilderness and wild & scenic rivers. Wilderness Watch is the only organization dedicated solely to monitoring and protecting wilderness and wild & scenic rivers nationwide. Wilderness Watch is headquartered in Missoula, Montana, with local chapters throughout America, including in Sonora, CA, and Mammoth Lakes, CA. Many of our members enjoy backpacking, horse packing, day-hiking, cross-country skiing, wildlife viewing, and other non-mechanized activities in the SEKI Wilderness, in which they can experience the beauty, peace, quiet, and solitude found there.

Wilderness Watch has very serious concerns about this proposed study. As detailed in these comments, the proposed project is clearly a major federal action that would result in significant adverse effects to the environment. Wilderness Watch is concerned that the project would result in: 1) significant adverse effects to wilderness character (e.g., mechanized intrusion, noise, loss of solitude) due to the use of helicopters within designated wilderness; 2) there is no evidence that the project itself is necessary to meet minimum requirements to preserve the area as wilderness; 3) even if the project were necessary to preserve wilderness, the proposed actions are not the "minimum tool" for achieving the project's objectives, and therefore are inconsistent with the requirements of the Wilderness Act; 4) direct injury to critically endangered Sierra Nevada bighorn sheep, including the death of at least some individuals; and 3) significant adverse sub-lethal and/or indirect effects to Sierra Nevada bighorn sheep, such as decreased long-term survival of captured animals, behavioral changes such as avoidance of key winter range, etc.. Our specific comments are as follows:

1. The News Release proposes that approximately forty Sierra Nevada bighorn sheep would be captured using helicopters and "net-guns." Since fewer than

400 of these animals remain alive, capturing forty of them would result in the harassment, harm, and/or death of a significant proportion of the remaining population.

2. The net-gun capture process is very invasive, and includes many steps that are potentially harmful (or fatal) to bighorn sheep. After a group of bighorn is located, the helicopter crew selects a sheep to catch and “chases” it away from the group, then fires a net-gun at the individual. The helicopter then lands somewhere nearby, and a “mugger” jumps out of the helicopter to restrain the sheep. The helicopter then flies to a base camp or other location to pick up additional people who are flown to the location of the captured sheep and dropped off. The sheep is then usually tied and blindfolded, and placed in a tarp. The helicopter then returns and the sheep is attached by a cable to the bottom of the helicopter and flown, dangling from the cable, to a base camp for processing. While the sheep is being processed, the helicopter may chase and capture additional individuals. After processing, and receiving a tracking collar, the sheep is finally flown back to its original or some other location, and released.
3. Bighorn sheep can be harmed or killed in numerous ways during and after the capture process. Bighorn sheep can be—and have been—chased by helicopters into steep or otherwise treacherous terrain where they can fall and be accidentally injured or killed.
4. Bighorn sheep can overheat when chased by helicopters, and/or be injured while being restrained, tied up, processed, or released. Kock *et al.* (1987a) found that at least 17 of 137 bighorn sheep subjected to net-gun capture were either killed or directly “compromised” by the procedure.
5. Bighorn sheep are easily stressed, and have been documented to be susceptible to a condition called “capture myopathy” when handled (see, for example, Bunch *et al.* 1999). Capture myopathy is a non-infectious disease characterized by serious damage to muscle tissues due to physiological changes following extreme exertion, struggle, and/or stress.
6. In one study, Kock *et al.* (1987b) documented capture myopathy (CM) in bighorn sheep captured via the net-gun method, and concluded that net-gunning “appears to have the potential to cause some post-capture CM mortality.”
7. Capture can also cause significant sub-lethal and/or indirect effects to bighorn sheep. For example, capture may alter individual (and/or herd) behavior, and may affect reproduction, social status (dominance), and other life history traits.
8. Kock *et al.* (1987b) documented some of the impacts of capture on the long-term survival of bighorn sheep. They concluded that net-gun capture “may not be associated with the best long-term survival in some bighorn sheep,” and noted differences in biochemical parameters among older-aged males, young males, and females, suggesting a potential age effect on capture-related stress and subsequent mortality.
9. The proposed project would focus on capturing bighorn sheep within their east-side winter range. The bighorn sheep—after being substantially harassed, frightened, and stressed by numerous helicopter net-gun assaults within their winter range—may avoid portions of crucial winter habitats in the future. The official *Recovery Plan for the Sierra Nevada Bighorn Sheep* (USFWS 2007) acknowledges that such capturing of Sierra bighorn is certain to cause “major

disturbance” and may cause “winter range avoidance.”

10. The proposed project conflicts with the Recovery Plan (USFWS 2007) in at least two significant respects. First, the Recovery Plan “*calls for the monitoring of habitat use patterns only relative to winter ranges.*” Thus, the Recovery Plan clearly anticipated that Sierra Nevada bighorn sheep would not be subjected to the dangers of capture/collaring to facilitate the monitoring of summer habitats (as is proposed here by SEKI); the Recovery Plan clearly acknowledges the potential harm of doing so. And second, the Recovery Plan explicitly favors the incremental addition of telemetry collars to the Sierra Nevada bighorn sheep population during translocation projects (i.e., when sheep are already being captured for another purpose, as opposed to conducting stand-alone collaring projects, as SEKI proposes here). The Recovery Plan cautions that stand-alone collaring projects would be harmful, due to direct “major disturbance,” and may cause sub-lethal effects such as winter range avoidance, and it notes that such unnecessary collaring projects “*may trade off population recovery for easier and better information.*” SEKI should heed this warning and refrain from any action(s) that could risk, delay, or otherwise impede population recovery due to its desire for easier and better information.
11. The objectives of the proposed study are very broad and vague, and the News Release provides no details whatsoever about the specific monitoring questions or a research design capable of answering those questions. This is a serious concern because the stated objectives include such things as determining whether packstock or backpackers affect the selection and use of meadow habitats in SEKI, yet the only proposed action is to capture and collar endangered sheep. Simply collaring and tracking the movements of bighorn sheep cannot, by itself, provide information that would help answer such questions.
12. The project’s second stated objective—to determine whether the use of meadows and other habitats by packstock or backpackers limits use by bighorn sheep—can be accomplished without invasive capture methods and the deployment of telemetry/GPS collars. For example, a study by Hicks and Elder (1979) used direct observation, pellet transects, and hiker interviews to assess overlap in areas of use and nature of interactions between bighorn sheep and recreationists.
13. If bighorn sheep avoid or make limited use of certain meadows, it would not be possible without extensive direct observations (and/or GPS beacons on all stock/hiker groups who visit certain areas) to determine why the sheep are avoiding or limiting use of an area. SEKI cannot infer or conclude that a meadow (or other habitat) is unsuitable or non-preferred simply because bighorn sheep don’t (or rarely) go there. The bighorn sheep may avoid many places because of direct encounters—or even the experience of past encounters—with packstock or backpackers.
14. In order to determine the effects of packstock and backpackers on bighorn sheep, SEKI should at minimum: 1) articulate the specific research questions to be addressed; 2) design a study(ies) based on the principles of scientific experimentation that is/are capable of answering the research questions; and 3) obtain scientific peer review of the research design from multiple (at least three or four) external and unaffiliated scientists. The peer review comments should be made public, and the peer review of the research design should be completed before your staff develops alternatives for a public NEPA process.

15. The third stated objective of the study is to develop a resource selection function model to predict the relative probability of use of various habitats by bighorn sheep, including those areas used by packstock and backpackers. It is our understanding that adequate habitat suitability models may already exist for the Sierra Nevada bighorn sheep. The Recovery Plan suggests that models were already being developed in 2007: “*A spatial model of bighorn sheep habitat suitability in the Sierra Nevada is in preparation...*” (USFWS 2007).
16. Instead of harming and killing bighorn sheep with helicopter net-guns to gain “easier and better information,” the existing models may be adequate to manage competing uses of the SEKI Wilderness. Given the invasive and lethal effects of net-gun capture operations, such a “No Action” alternative must be truthfully evaluated, clearly disclosed, and fully considered in a public NEPA process.
17. The Wilderness Act prohibits the use or landing of aircraft (i.e., helicopters) in wilderness except in emergencies, rescue operations, and as necessary to meet the minimum requirements for the administration of the area to protect its wilderness character. SEKI has not shown, and must make a credible showing before allowing the use of aircraft within the SEKI Wilderness, that this project is necessary for this purpose or that the minimum requirements for the administration of the area cannot be met in any other way.
18. Helicopters intrude on the primitive character of wilderness, and significantly detract from the “wilderness experience” of visitors. Helicopters shatter the natural quiet and destroy solitude. These are significant adverse effects that must be acknowledged and disclosed in a public NEPA process.
19. Among the many values of wilderness is the preservation of traditional skills. Among those skills is the ability to travel and work in wild environments without the aid of mechanized transport or motorized equipment. Wildlife managers/biologists who choose to work in wilderness need to retain these skills, just as other agency staff that work in wilderness must retain them. If information on the use of these meadows and other habitats is necessary to administering the wilderness, then those who undertake the project should be prepared to spend a season in the wilderness monitoring the meadows and observing the habitat use by the bighorns. The information gained is likely to be more useful than remote sensing, since remote sensing won’t provide any information as to why bighorns may or may not be using specific areas (i.e. avoiding human visitors, predators, etc.). Collecting information without the use of mechanized transport or equipment appears to be the option that meets the agency’s “minimum tool” test.
20. The mere presence of helicopters (even without capture activities) can have significant adverse effects on bighorn sheep. One study (Stockwell *et al.* 1991) found that bighorn sheep were sensitive to disturbance by helicopters during winter and experienced a 43 percent reduction in foraging efficiency. Numerous other studies have also found that mountain sheep are dramatically affected by helicopter disturbance. See, for example, Bleich *et al.* (1990, 1994), and Frid (2003).
21. Given the known and potentially significant impacts discussed above, Wilderness Watch must oppose this project as it is currently described. At minimum, an environmental impact statement (EIS) must be prepared for any such project to evaluate and disclose the environmental consequences, including direct, indirect, and cumulative effects to the critically

endangered Sierra Nevada bighorn sheep and to the wilderness character of the SEKI Wilderness and adjacent wilderness areas on National Forest System lands.

22. In addition to the No Action alternative, your EIS should consider alternatives for gathering any needed information about the critically endangered Sierra Nevada bighorn sheep without the need for invasive, harmful capture methods or intrusive helicopter operations. It should also craft and consider only alternatives that are consistent with the requirements of the Wilderness Act. For example, existing habitat models could be overlaid with SEKI meadows to predict/determine the suitability of SEKI's meadows as habitat for the Sierra Nevada bighorn sheep. This could provide a scientifically valid means of meeting management objectives without any need for capture/collaring or helicopter overflights of wilderness. Alternatively, direct observation of habitat utilization by bighorn sheep, backpackers, and packstock could preclude the need to capture/collar bighorn sheep for such a study.
23. Because the proposed project would be conducted jointly with the California Department of Fish and Game, we request that a joint environmental impact statement and environmental impact report (joint EIS/EIR) be prepared. The regulations for both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) call for the preparation of joint environmental documents for joint federal/state projects. Joint documents streamline the environmental review process, better facilitate public involvement, and ensure that decision-makers have access to the best-available and most complete information regarding alternatives, environmental consequences, and mitigation measures.

Thank you for this opportunity to submit comments. Should you decide to proceed with this proposal, please timely send copies of any and all environmental and decision documents to my attention.

Sincerely,

George Nickas  
Executive Director

## References

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