



National Park Service
U.S. Department of the Interior
Zion National Park
Springdale, Utah

FINDING OF NO SIGNIFICANT IMPACT

BIGHORN SHEEP MANAGEMENT

Recommended:

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Approved:

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INTRODUCTION

In compliance with the National Environmental Policy Act (NEPA), the National Park Service (NPS) prepared an Environmental Assessment (EA) to examine alternative actions and environmental impacts associated with the proposed project to manage the Desert Bighorn Sheep (DBHS) population within Zion National Park (ZION). The project is needed to manage DBHS at Zion as a healthy herd and as part of a larger metapopulation by decreasing the risk of disease transmission through population assessment, density reduction, and capture activities, to provide healthy DBHS to supplement diminishing populations within the species historic range, and protect the opportunity for current park visitors and future generations to enjoy wild DBHS in their native habitat.

The statements and conclusions reached in this finding of no significant impact (FONSI) are based on documentation and analysis provided in the EA and associated decision file. To the extent necessary, relevant sections of the EA are incorporated by reference below.

SELECTED ALTERNATIVE AND RATIONALE FOR THE DECISION

Based on the analysis presented in the ZION Bighorn Sheep Management EA (August 2017), NPS selected Alternative B – Bighorn Sheep Management (Proposed Action and NPS Preferred Alternative).

In partnership with the Utah Division of Wildlife Resources (UDWR), the selected alternative, (noted above), will manage the long-term health and viability of the established ZION DBHS herd. Implementation of the selected action will simultaneously allow for increased levels of monitoring and present opportunities to restore DBHS populations in other areas of their historic range. In order to maintain the estimated population within the Park at or above approximately 350 individuals, ZION and UDWR personnel expect to employ population assessment and density reduction management techniques to reduce the risk of disease transmission and disease-related impacts. Aerial and on-the-ground visual observations will monitor the distribution of DBHS, herd demographics, and population densities to ensure management plan objectives are being met. Satellite collars, various capture/translocation techniques, and lethal removal (as necessary) will also be employed to augment project objectives and adapt management actions. Capture work will be conducted intermittently throughout the fall and winter months (October 1 to February 29).

RATIONALE

Alternative B was selected because it best meets the project purpose to:

- Manage DBHS at Zion as a healthy herd and as part of a larger meta-population.
- Restore historic and establish new interagency partnerships to achieve consistency in DBHS management.
- Decrease the risk of non-native disease(s) to the ZION DBHS herd.
- Provide healthy DBHS to supplement diminishing populations within the species historic range.
- Protect the opportunity for current park visitors and future generations to enjoy wild DBHS in their native habitat.

MITIGATION MEASURES

In consultation with various state and federal agencies (see Public Involvement/Agency Consultation below for additional details), the following mitigation measures have been added and/or clarified for the selected alternative:

Human Safety & Emergency Protocol

- Search and Rescue (SAR) protocols will be reviewed prior to capture operations with all participating staff. In the event of an active SAR operation, capture flights will stand-down until ZION dispatch clears capture crew or the SAR has terminated.
- UDWR will have a Safety Officer on site for each capture who will be in communication with NPS dispatch.

Wildlife & Special Status Species

- Helicopter staging area and animal processing area for translocation will be outside designated or proposed Wilderness areas.
- Prior to the implementation of management activities, coordinates will be supplied to helicopter pilots to ensure landings do not occur in designated Research Natural Areas or other environmentally sensitive areas, such as Parunuweap Canyon, Mojave Desert tortoise core habitat, and/or riparian zones.
- Helicopter and capture personnel will be briefed on California Condors identification, current locations, roost sites, and nest sites to avoid prior to flights.
- DBHS management activities will not be conducted within one-half mile of a California condor roost site.
- Capture personnel will be made aware of the location of tortoise core habitat in ZION and will not land in tortoise core habitat.
- If euthanasia must occur during bighorn sheep capture, lead ammunition and toxins that may impact secondary predators will not be used.

Wilderness

- Helicopter staging area and animal processing area for translocation will be outside designated or proposed Wilderness areas.

Refer to Appendix A for a complete list of all mitigation measures that will be implemented for the selected alternative. Refer to the associated Errata and Response to Public Comments document for revision specifics.

PUBLIC INVOLVEMENT/AGENCY CONSULTATION

Initial public scoping for the project occurred from February 13, 2014 through March 19, 2014. The EA was made available for public review and comment during a 30-days period, from August 25, 2017 through September 25, 2017. Initial scoping received nineteen (19) comments from the public: fifteen (15) individuals, three (3) organizations, one (1) public agency. In response to the EA, sixty-seven (67) comments were received from the public: fifty-three (53) individuals, twelve (12) organizations, two (2) businesses, two (2) public agencies. Substantive comments centered on Additional Alternatives/Considerations, Lethal Removal/Hunting, the

National Environmental Policy Act (NEPA) process, and Wilderness. Substantive comments are addressed in the Errata and Response to Public Comments.

AFFILIATED NATIVE AMERICAN TRIBES

Letters announcing the initial scoping period and EA review/comment period were sent (via post and email) to the twelve Tribes affiliated with ZION on February 13, 2014 and August 25, 2017, respectively. In response to the EA Review period, one letter and 5 phone call responses were received from ZION Affiliated Tribes. In a letter dated September 5, 2017, the Director of the Hopi Cultural Preservation Office (HCPO) stated their appreciation for ZION's continued effort to include input from the Hopi and address any concerns raised by the Tribe. The HCPO Director reaffirmed their interest in consulting on any proposal with the potential to adversely affect prehistoric sites and noted an increasing conflict between visitor enjoyment and the NPS mission to preserve cultural resources unimpaired for future generations. The recommendation was made to remove, "...domestic sheep and goats from the Park, rather than relocation of bighorn sheep, to reduce the risk of a large scale die off of bighorn sheep." The HCPO also requested a copy of the EA and continued consultation on any matters regarding pictographs, petroglyphs, and tribal cultural traditions. The ZION Archeologist/Cultural Program Manager responded to the letter in an email dated September 14, 2017. The email clarified that no domestic sheep or goats occur in ZION and that the risk of disease to bighorn is from contact with domestic sheep and goats occurring outside of the Park's boundaries. The email also addressed the increased risk of a large scale die-off resulting from the individual abundance and dense concentration of the herd. A digital copy of the EA was attached to the email and a link to the NPS Planning, Environment & Public Comment (PEPC) website was provided. Additionally, the ZION Archeologist/Cultural Program Manager phoned each tribe from September 14, 2017 to September 25, 2017 to ensure receipt of the notification for the EA review period and provide an opportunity to submit any comments to a ZION representative directly. Of the twelve tribes contacted, five submitted a comment. Tribal comments and responses are summarized as follows:

- Confederated Tribes of Goshute: Chairman supported the protection and preservation of DBHS and reinforced the need to protect and preserve any sacred sites. Chairman confirmed that ZION is within the homelands of the Southern Paiute Tribe and offered support for Paiute recommendations, comments, and/or suggestions. Chairman also requested to be informed when the decision is finalized.
- Hopi: Representative noted inconsistency among NPS units and deferred to the Southern Paiute as the benefiting tribe.
- Kaibab Band of Paiute Indians: Representative identified support for the project but claimed the selected alternative does not move the DBHS far enough. The Tribe also indicated interest in transferring some of the DBHS selected for translocation to tribal lands, in sharing data derived from the project, and participating in the project.

NPS ZION Response to Kaibab Band of Paiute Indians: Support for the project is appreciated. DBHS translocations will focus on supplementing DBHS populations within Utah but out-of-state translocations may be considered if these populations meet State and Federal management objectives. DBHS are dispersing naturally to tribal lands and ZION will

continue to work cooperatively with Tribal leaders to manage DBHS shared across jurisdictional boundaries, sharing data and techniques.

The Navajo Nation: Tribal Wildlife Manager requested strict adherence to disease testing protocols to ensure infected animals are not translocated. Support for creating new and healthy herds by appropriate management actions was also noted.

- *Paiute Indian Tribe of Utah:* Representative indicated that the Tribe did not have any issues or concerns.

BUREAU OF LAND MANAGEMENT

On February 13, 2014, ZION sent a letter announcing the NPS intent to prepare an EA to manage DBHS populations in ZION to seven surrounding Bureau of Land Management (BLM) Offices, including the: Arizona Strip Field Office, Cedar City Field Office, Grand Staircase National Monument, Kanab Field Office, St. George Field Office, Utah State BLM Office, and Vermilion Cliffs National Monument. No comments or responses were received from the BLM during the initial scoping period. Notifications were also sent out (via email and U.S. Post) to multiple BLM contacts throughout the State to announce the review and comment period for the Bighorn Sheep Management EA on August 25, 2017. A reminder email was also sent out by the NPS to encourage public and agency participation on September 11, 2017. No comments or responses were received from the BLM during the EA review and comment period.

Additionally, the ZION Wildlife Biologist contacted the BLM Cedar City Field Office on September 21, 2017 (via phone and email) to clarify information submitted in a public comment pertaining to livestock grazing in the Canaan Mountain Wilderness, including Eagle Crags. The BLM Rangeland Management Specialist confirmed livestock grazing in the area only included cattle allotments in an email dated September 22, 2017.

STATE HISTORIC PRESERVATION OFFICE

In accordance with the requirements of Section 106 of the National Historic Preservation Act, the NPS completed an Assessment of Effect (AEF) to provide details regarding the Area of Potential Effect (APE), associated historic properties, proposed alternatives, and mitigation measures pertaining to the Bighorn Sheep Management EA. ZION determined that the actions and alternatives proposed in the EA resulted in a determination of no adverse effect to historic properties. In a letter dated August 30, 2017, the ZION Archeologist/Cultural Program Manager submitted the AEF to the Utah State Historic Preservation Office (SHPO) and requested SHPO concurrence with the NPS findings of no adverse effect. ZION received concurrence from the Deputy State Historic Preservation Officer for this undertaking (Case #17-1545) in a letter dated September 7, 2017.

UTAH DIVISION OF WILDLIFE RESOURCES

In the late-1970s, ZION resource managers and UDWR developed a cooperative agreement to reestablish DBHS populations in ZION and nearby areas of southern Utah. The plan called for the State to trap DBHS from the Park after the number of ZION DBHS exceeded 50 animals. In 1982, the Superintendent of ZION and the UDWR Regional Supervisor agreed to allow the cooperative agreement to expire because of the low number of DBHS which was estimated between 5 to 10 animals. However, the UDWR did request that the option to trap and transplant sheep remain open should the population ever build beyond 50 animals.

Beginning in 2008, UDWR launched biennial DBHS population assessments in ZION and has successfully completed three (3) helicopter surveys: 2009, 2013, and 2015 (NPS PEPC #s: 24161, 49350, & 54125). Increased numbers of DBHS prompted conversations between ZION resource managers and UDWR to revive the 1970s interagency partnership. In response to initial scoping for the Bighorn Sheep Management EA, the Acting Director of UDWR submitted a letter dated November 26, 2013 to the NPS in support of the development and implementation of a DBHS management plan in ZION. Periodic meetings and correspondence have continued between the ZION Resource Management team and UDWR wildlife biologists in preparation of the Bighorn Sheep Management EA.

Additionally, on June 1, 2017 ZION contacted the UDWR Utah Natural Heritage Program Information Manager (via email) for information regarding state listed species of special concern proximal to ZION located in Iron, Kane, and Washington Counties, Utah. ZION received a letter (via email) in response on June 9, 2017 detailing all listed species of concern for the project area. Refer to **IMPACT TOPICS DISMISSED FOR FURTHER ANALYSIS: STATE LISTED SPECIES OF CONCERN** of the EA (page 7) for additional information. Notifications were also sent out (via email and U.S. Post) to multiple UDWR contacts throughout the State, including local and regional habitat/wildlife managers and biologists, to announce the release and comment period for the Bighorn Sheep Management EA on August 25, 2017. A reminder was also sent out by the NPS to encourage public and agency participation on September 11, 2017. On September 18, 2017 the Chairman of the Utah Division of Natural Resources (DNR) - Wildlife Board submitted a comment to the NPS Planning, Environment, & Public Comment (PEPC) website stating that the Wildlife Board voted unanimously in support of the NPS proposal to translocated DBHS from ZION to predetermined sites approved by the UDWR (PEPC Project ID: 51293; Document ID: 82480; Correspondence: 57).

U.S. FISH AND WILDLIFE SERVICE

Informal consultation was initiated with the U.S. Fish and Wildlife Service (FWS) on June 26, 2017 when ZION obtained a list of federally listed species and designated critical habitat in the action area from the FWS IPaC website (consultation code: 06E23000-2017-SLI-0354). In a letter dated August 24, 2017, ZION provided the FWS with a hard copy of the Bighorn Sheep Management EA and associated Biological Assessment (BA). Digital copies of the documents were also uploaded to the Information for Planning and Conservation (IPaC) website (<https://ecos.fws.gov/ipac/>). The NPS excluded threatened, endangered, and/or candidate species and critical habitat from further analysis that met one or more of the following conditions:

- 1) Species does not occur, nor is expected to occur during the season of use/impact;
- 2) Occurs outside of known distributional range of the species;
- 3) Occurs in habitats that are not present; and/or
- 4) Occurs outside the geographical or elevational range of the species.

Species and critical habitat excluded from further analysis for the selected alternative include: Southwestern Willow flycatcher (*Empidonax trailii extimus*), Yellow-Billed Cuckoo (*Coccyzus americanus*), Utah Prairie Dog (*Cynomys parvidens*), Virgin River Chub (*Gila seminude (=robusta)*) Woundfin (*Plagopterus argentissimus*), Dwarf Bear-poppy (*Arctomecon humilis*), Gierisch Mallow (*Sphaeralcea gierischii*), Holmgren Milk-vetch (*Astragalus holmgreniorum*), Jones Cycladenia (*Cycladenia humilis var. jonesii*), Siler Pinchshion Cactus (*Pediocactus*

(=*Echinocactus*, =*Utahia*) *sileri*), and Shivwits Milk-vetch (*Astragalus ampullarioides*) critical habitat. The NPS also determined that the selected alternative will have “*no effect*” on Shivwits Milk-vetch (*Astragalus ampullarioides*) and “*may affect, not likely to adversely affect*” the California condor (*Gymnogyps californianus*), Mexican Spotted Owl (*Strix occidentalis lucida*), Desert tortoise (*Gopherus agassizii*), and Mexican Spotted owl (*Strix occidentalis lucida*) critical habitat.

On September 15, 2017 ZION received an initial response from FWS via email which concurred with the NPS “*no effect*” determination for Shivwits milkvetch and made recommendations for the following four species:

1) California condor

Include the following mitigation measures for the species throughout project operations:

- Work will not be conducted within ½ mile of a California condor roost site; and
- If euthanasia must occur during bighorn sheep capture, lead ammunition and toxins that may impact secondary predators will not be used.

2) Southwestern willow-flycatcher

Identify suitable habitat for the species within the Park. Should suitable habitat exist, include the following mitigation measure for the species throughout project operations:

- Avoid helicopter flight within ½ mile of suitable habitat between April 15 – August 15; and
- Avoid ground disturbance in suitable habitat.

Should ZION be unable to implement these measures, the FWS recommended reconsideration of the NPS “*no effect*” determination by quantifying habitat disturbance and/or loss of suitable habitat for the species to determine if a “*may affect, not likely to adversely affect*” determination is more appropriate.

3) Western Yellow-Billed Cuckoo

Identify suitable habitat for the species within the Park using FWS Utah Guidelines (August 2017). Should suitable habitat exist consider project impacts to the species and make an effect determination.

4) Mojave Desert Tortoise

On September 26, 2017, ZION received an initial response from FWS regarding desert tortoise requesting more detailed information on the proposed action and suggesting the Park conduct protocol level clearance survey prior to helicopter landings in tortoise habitat.

ZION Wildlife Biologist responded to each species recommendations and questions in subsequent e-mails and phone call between September 20 and September 26, 2017. Corrections and/or updates are summarized below for each of the four species:

1) California condor

On September 25, 2017 ZION Wildlife Biologist called FWS biologist to get clarification regarding what actions will be required prior to helicopter flights to determine a condor roost site. FWS requested that regularly used roost sites be monitored for condor presence

prior to capture work and suggested that ZION contact The Peregrine Fund to confirm locations of those regularly used roost sites. ZION agreed to add the following two conservation measures for condors:

- Work will not be conducted within ½ mile of a California condor roost site; and
- If euthanasia must occur during bighorn sheep capture, lead ammunition and toxins that may impact secondary predators will not be used.

2) Southwestern willow flycatcher

On September 20, 2017 ZION Wildlife Biologist e-mailed FWS biologists clarifying the proposed action timeframe (October 1 – February 29) and proposing additional conservation measure to avoid Southwestern willow flycatcher suitable habitat. An agreement was reached that a “*no effect*” determination is appropriate for Southwestern willow flycatcher if the proposed action occurred between October 1 - February 29 and a conservation measure was added that prevented helicopter landings in all riparian habitat.

3) Yellow-billed cuckoo

On September 26, 2017 ZION Wildlife Biologist called FWS biologist to discuss additional conservation measures for Yellow-billed cuckoo suitable habitat. An agreement was reached that a “*no effect*” determination is appropriate for Yellow-billed cuckoo if the proposed action occurred between October 1 - February 29 and a conservation measure was added that prevented helicopter landings in all riparian habitat.

4) Mojave Desert tortoise

On September 26, 2017 ZION Wildlife Biologist called FWS biologist to provide a more detailed description of the proposed action as well as the biological and physical features of the tortoise core habitat in Zion. An agreement was reached that a “*may affect, not likely to adversely affect*” determination is appropriate for Mojave desert tortoise if a conservation measure was added that prevented helicopter landings in the tortoise core habitat.

On September 26, 2017 ZION submitted to FWS the revised Biological Assessment that incorporated all of the above-mentioned recommendations and changes. Digital copies of the documents were also uploaded to the Information for Planning and Conservation (IPaC) website. ZION received a letter dated on September 29, 2017 from FWS confirming their concurrence with NPS determinations for each of the aforementioned species.

FINDING OF NO SIGNIFICANT IMPACT

CEQ regulations at 40 CFR section 1508.27 identify ten criteria for determining whether the selected alternative will have a significant effect on the human environment. The NPS reviewed each of these criteria given the environmental impact described in the EA and determined there will be no significant direct, indirect, or cumulative impact under any of the criteria.

The following impact topics were dismissed because they did not warrant a full analysis: Air Quality and Green House Gas Emissions; Archeological Resources; Cultural Landscapes; Environmental Justice; Ethnographic Resources; Historic Structures; Indian Trust Resources and Sacred Sites; Migratory Birds; Socioeconomics; State Listed Species of Concern; Vegetation; Visitor Use and Experience; and Wild and Scenic Rivers.

As described in the EA, the selected alternative has the potential for adverse impacts on the soundscape, special status species, wilderness, and wildlife (DBHS); however, no potential for significant adverse impacts was identified. Additionally, the selected alternative may affect, but is not likely to adversely affect threatened and endangered species and critical habitat occurring within the project area.

The ZION Soundscape Management Plan (2010) has established four thresholds to help maintain the natural soundscape: 1) Time Audible, 2) Sound Level, 3) Noise Free Interval, and 4) Time Above Speech. Refer to **AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES: SOUNDSCAPES** section of the EA (page 28) for additional details. Helicopter noise associated with DBHS population assessment, density reduction (translocation and lethal removal), and capture activities will adversely impact the natural soundscape.

A few weeks prior to the implementation of translocation activities, a disease testing phase will occur and require the use of helicopters to search for and capture bighorn to collect biological data and samples, ear-tag, and attach satellite collars to no more than 30 individual animals. Capture work for both disease testing (2-3 days) and translocation (5-6 days) is expected to last 7 hours each day for up to nine (9) days each year of implementation. Searching for, locating, capturing, landing, taking off, and flying back to the staging area will take more than 30 minutes of each hour. It is estimated that approximately 12 takeoffs/landings will occur each day within the park. Takeoffs and landings are generally the loudest noise generated by the helicopter. Human-cause noise generated during an “average” helicopter take-off and landings is approximately 97 dBA at 100 feet which exceeds the sound level standard identified in the SMP.

The percent time audible standard will be exceeded due to the noise generated by the amount of helicopter use required for disease testing and active capture efforts. As previously discussed, this work throughout the life of this plan is anticipated to be conducted up to 9 days per year throughout the fall and winter months (October 1 to February 29) to achieve ZION DBHS population objectives. Initially, the project will focus on capturing and removing as many as 60 individuals per year. This level of capture activity is expected to continue until the Zion DBHS population is reduced to a lower desired level of abundance that approaches, yet remains above the park’s established population management limit as identified in the selected alternative. Once this desired population level is achieved, the recurring level of capture activity will be reduced considerably both in frequency and duration, but may still be required periodically in order to maintain the population within a range that reflects the lower desired level of abundance over time. Overall, there will be short-term adverse impacts associated with the selected alternative, but the impacts are reduced by the mitigation measures and are not significant.

Threatened and endangered species and/or critical habitat that may be affected but are not likely to be adversely affected by helicopter activity includes: California condors, Mexican spotted owl, Mexican spotted owl critical habitat, and Mojave Desert tortoise. Additionally, activities associated with the selected alternative will have no effect on the Southwest Willow flycatcher, Yellow-billed cuckoo, nor Shivwits milk-vetch critical habitat. In a letter dated on September 26, 2017, FWS confirmed their concurrence with the NPS determinations for each aforementioned species and critical habitat.

California condor

Auditory and visual disturbances in response to helicopter activity associated with the selected alternative may cause California condors to become startled or alarmed which may cause them to flush from perch or roost sites that are not located prior to the helicopter activity. However, impacts to California condor will not be significant because (1) flight plans will be altered to avoid areas of current condor activity; (2) condors will be easily sighted and avoided by helicopter pilots; (3) any active condor nest(s) in the project area will be avoided by a 1-mile buffer and will be closely monitored through visual observation to ensure effective and constant buffering; (4) helicopter activity will not be conducted within a half mile of known roost sites; and (5) if DBHS euthanasia must occur during capture, lead ammunition and toxins that may impact condors will not be used.

Mexican spotted owl (MSO)

Noise from helicopter surveys and capture work may temporarily startle or alarm MSOs which could alter behavior including temporarily (<1 day) moving from a day roost location. However impacts to MSOs will not be significant because (1) all proposed activities will be completed outside the breeding period and during daylight hours when owls are less active; (2) helicopter aerial surveys will consist of only a single pass during a survey, thus creating minimal auditory disturbance; and (3) during capture activities, bighorn will not be pursued for capture within narrow canyon habitat where MSOs are likely present.

Mexican spotted owl critical habitat

There will be no significant impact to MSO critical habitat because helicopter landings will not occur in areas containing the physical and biological features related to MSO canyon habitat.

Mojave Desert tortoise

Helicopter activity associated with the selected alternative will occur adjacent to and within occupied desert tortoise habitat and may occur during seasons when desert tortoise are active (i.e. fall and spring). Short-term (5 minutes) disturbance of individual tortoises could occur during overflights which may cause them to temporarily retreat into their shell until capture operations are finished. Impacts to Mojave Desert tortoise will not be significant because: (1) capture personnel will be made aware of the location of tortoise core habitat in ZION and will not land in core tortoise habitat which includes locations where tortoises have been regularly located in park surveys and radio tracking but may not include all areas where a tortoise could occur; (2) no helicopter landing will occur in tortoise core habitat; (3) helicopter overflight capture activity will last no more than 5 minutes; and (4) reducing the DBHS population will likely help reduce the potential for vegetation overgrazing and thus provide a beneficial impact to the tortoise.

The undeveloped quality of designated and/or recommended wilderness in ZION will be degraded by the selected alternative from the introduction of the sights and sounds of human occupation, including the use of low flying aircraft, helicopter landings, and radio collars. DBHS management activities may also impact the visitor's ability to experience solitude and/or may result in temporary safety closures in wilderness areas. Helicopter use over wilderness areas will increase a maximum of 9 days each year of implementation. Impacts to wilderness qualities

resulting from helicopter use are likely to occur over any specific area for a short time, since the helicopter continues to move between survey and capture sites. See the **SOUNDSCAPES** (page 21) AND **SPECIAL STATUS SPECIES: MEXICAN SPOTTED OWL** (page 30) sections of the EA for additional information on predicted sound levels and durations. Helicopter disturbances will also only occur over less than 1% of total wilderness areas at any given time; therefore, intensity and duration are anticipated to be inconsequential. Of the wilderness/backcountry permits issued in 2016 between October and February, only 8 individuals received backcountry permits for the south east slickrock area of the Park where most capture activity is likely to occur which suggests a negligible impact to the wilderness experience. Refer to the **IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS: VISITOR USE AND EXPERIENCE** section of the EA (pages 9-10) for additional details on visitor use totals. Attaching radio collars to DBHS will be a temporary installation until the drop off is triggered and the collar falls off the animal (4-5 year maximum per collar) and dropped collars will be tracked and removed from wilderness areas by NPS personnel to the extent feasible. Although some wilderness characteristics will be adversely impacted, these impacts will not be permanent. The selected alternative will also have beneficial effects to wilderness by helping to reduce the possibility of DBHS disease transmission which will help improve the natural quality of wilderness since a healthy DBHS populations contributes to natural settings in ZION wilderness and help prevent the trammeling influence of non-native pathogens. Intermittent degradation of ZION wilderness qualities during project activities for the immediate area around the project area will likely benefit wilderness qualities long-term and will not substantially change the impacts that are already occurring. For these reasons, the selected alternative will not have significant impacts to wilderness.

Helicopter activity to conduct population assessments and density reduction efforts will increase stress levels of DBHS. Population assessment surveys will hover near groups of DBHS for approximately 1 minute to gather demographic information, minimally impacting DBHS. Disease testing and translocations will continue stress levels for the duration of the process. To reduce stress: 1) chase times will be limited to 5 minutes and 2) animals captured for disease testing and translocation will be blindfolded immediately and vital signs will be continuously monitored. Should captured DBHS present with excessive signs of distress, chase and holding times will be reduced. DBHS selected for translocation will be processed as quickly as possible and separated into separate compartments based on age and sex to prevent further stress. Satellite collars affixed to DBHS will have negligible effects on collared animals as no behavioral effects on collared ungulates have been documented in other studies. Additionally, all management activities described in the EA will adhere to UDWR established DBHS capture and handling protocols, as approved and/or reviewed by the NPS Wildlife Branch. Any lethal removal of DBHS will be done humanely and will be carried out in accordance with the 2013 American Veterinary Medical Association (AVMA) euthanasia policy. Moreover, reducing the density of DBHS populations in the Park will greatly increase the probability of maintaining a healthy herd over the long-term as well as support the conservation of and help restore the statewide DBHS population. For these reasons, the selected alternative will not have significant impact to DBHS and will have beneficial effects to the DBHS population and positively change the impacts that are already occurring.

Best management practices and mitigation measures stated in the FONSI will be implemented to minimize the subsequent effects resulting from the selected alternative: helicopter landings and DBHS processing areas will avoid significant cultural sites, threatened and endangered species

habitat, and other environmentally sensitive areas; capture and translocation efforts will occur during fall and winter months to avoid important reproductive periods for multiple species; search and rescue operations will always be given flight priority, and signs, alerts, press releases, and notifications will be issued to inform visitors prior to disease testing and translocation operations.

The project will not result in the loss or destruction of significant scientific, cultural, or historical resources, nor will there be any significant impacts on public health, public safety, or unique characteristics of the region. No highly uncertain or controversial impact, unique or unknown risks, significant cumulative effects, or element of precedence were identified. Implementation of the NPS selected alternative will not violate any federal, state, or local environmental protection laws.

CONCLUSION

As described above, the selected alternative does not constitute an action meeting the criteria that normally requires preparation of an environmental impact statement (EIS). The selected alternative will not have a significant effect on the human environment in accordance with Section 102(2)(c) of NEPA.

Based on the foregoing, it has been determined that an EIS is not required for this project and, thus, will not be prepared.

APPENDIX A: MITIGATION MEASURES

The following mitigation measures will be implemented during the project to minimize the degree and/or extent of adverse impacts.

ARCHEOLOGICAL RESOURCES

- All project participants will be informed of the procedures to follow in the event of archeological, ethnographic, and paleontological resource discovery, as well as the penalties for illegally collecting artifacts or intentionally damaging paleontological materials, archeological sites, or historic properties.
- Prior to the implementation of management activities, coordinates will be supplied to helicopter pilots to ensure landings do not occur in culturally sensitive areas.
- All helicopter landing site coordinates will be reported to the ZION Cultural Program Manager for record keeping purposes and to pursue archeological survey of the areas as warranted, post project.
- All drop-net sites will be selected in coordination with the ZION Cultural Program Manager. Archeological surveys will be conducted prior to implementation and monitored for archeological resources throughout installation as required.

HUMAN SAFETY & EMERGENCY PROTOCOL

- Search and Rescue (SAR) protocols will be reviewed prior to capture operations with all participating staff. In the event of an active SAR operation, capture flights will stand-down until ZION dispatch clears capture crew or the SAR has terminated.
- UDWR will have a Safety Officer on site for each capture who will be in communication with NPS dispatch.

LIGHTSCAPES AND SOUNDSCAPES

- All helicopter activity will be completed during daylight hours, starting no earlier than one hour after sunrise and ending no later than one hour before sunset. Helicopter staging area and animal processing area for translocation will be outside designated or proposed Wilderness areas.

VEGETATION

- All equipment, including the helicopter and nets, will be inspected prior to use. Any weeds, seeds, or soil will be removed prior to project activities.
- All fueling activities will occur outside of the park.
- Helicopters will avoid netting or landing in vegetation. Landings will target core slick rock habitat within the proposed capture area.
- All drop-net sites will be selected in coordination with the ZION Vegetation Program Manager. Prior to implementation, sensitive plant surveys will be conducted. Any sensitive species located will be avoided or protected and made identifiable for DBHS ground crews.

VISITOR USE AND EXPERIENCE

- Signs, alerts, bulletins, press releases, and notifications will be issued to inform visitors prior to and throughout the duration of management activities.

WILDLIFE & SPECIAL STATUS SPECIES

- All proposed management activities described in this document will adhere to UDWR established DBHS capture and handling protocols, as approved and/or reviewed by the NPS Wildlife Branch.
- Flights over Mexican Spotted Owl protected activity centers (PACs) will be restricted from March 1 through August 31.
- Prior to the implementation of management activities, coordinates will be supplied to helicopter pilots to ensure landings do not occur in designated Research Natural Areas or other environmentally sensitive areas, such as Parunuweap Canyon, Mojave Desert tortoise core habitat, and/or riparian zones.
- The Peregrine Fund and park biologists will be contacted prior to the helicopter activity to obtain current California condor activity patterns and possible roosting or nesting locations that could be affected, and these areas will be avoided. Netting activity will likely occur in fall after fledging has occurred. Condors will be avoided if present in the project area.
- Aircraft operation will be limited to daylight hours, starting no earlier than one hour after sunrise and ending no later than one hour before sunset.
- Helicopter and capture personnel will be briefed on California Condors identification, current locations, roost sites, and nest sites to avoid prior to flights.
- If active condor nests exist in the action area, a one-mile flight buffer will be provided around the nest.
- Capture personnel will be made aware of the location of tortoise core habitat in ZION and will not land in tortoise core habitat.
- DBHS management activities will not be conducted within one-half mile of a California condor roost site.
- If euthanasia must occur during bighorn sheep capture, lead ammunition and toxins that may impact secondary predators will not be used.

WILDERNESS

- Helicopter staging area and animal processing area for translocation will be outside designated or proposed Wilderness areas.

ERRATA AND RESPONSE TO PUBLIC COMMENTS

BIGHORN SHEEP MANAGEMENT ENVIRONMENTAL ASSESSMENT

ZION NATIONAL PARK
OCTOBER 2017

The following errata and response to public comments together with the Findings of No Significant Impact (FONSI) and the Environmental Assessment (EA) describe the final decision of the National Park Service (NPS) for desert bighorn sheep (DBHS) management within the boundaries of Zion National Park (ZION).

ERRATA

These errata are to be attached to the Bighorn Sheep Management EA dated August 2017 and are intended to correct or clarify statements in the EA other than typographical and minor editorial errors and to address substantive comments on these documents received during the public review period.

A) Impact Topics Dismissed from Further Analysis: Migratory Birds (Pg. 6):

Replace current text with revised text.

Current Text:

Of the species listed, 12 may be present within or near the proposed project area during the fall and winter months (September 1 to February 29) including...

Revised Text:

Of the species listed, 12 may be present within or near the proposed project area during the fall and winter months (October 1 to February 29) including...

B) Impact Topics Dismissed from Further Analysis: State Listed Species of Concern (Pg. 7): Replace current text with revised text.

Current Text:

Of the listed species, 17 state-listed species of concern may be present within or near the proposed project area during the fall and winter months (September 1 to February 29) including...

Revised Text:

Of the listed species, 17 state-listed species of concern may be present within or near the proposed project area during the fall and winter months (October 1 to February 29) including...

C) Impact Topics Dismissed from Further Analysis: Visitor Use and Experience (Pg. 10): Add text to the first paragraph, 6th sentence.

Add Text:

Of the wilderness/backcountry permits issued in 2016, only 8 individuals received backcountry permits between October and February for the south east slickrock area of the Park where most capture activity is likely to occur.

- D) Alternatives: Alternative B – DBHS Management (Proposed Action and NPS Preferred) (Pg. 12):** Replace current text with revised text. *Current Text:* Capture work would be anticipated to be conducted intermittently as needed throughout the fall and winter months (September1 to February 29) to achieve ZION DBHS population objectives.

Revised Text:

Of the listed species, 17 state-listed species of concern may be present within or near the proposed project area during the fall and winter months (October 1 to February 29) including...

- E) Alternative B – DBHS Management (Proposed Action and NPS Preferred) 1. Population Assessments B) Disease Testing & Collaring (Pg. 13):** Add text to the end of the fourth paragraph.

Add Text:

In the event the tested DBHS do not meet disease criteria outlined in UDWR protocols, sheep will not be translocated.

- F) Mitigation Measures: Wildlife & Special Status Species (Pg. 17):** Replace current text with revised text.

Current Text:

- Prior to the implementation of management activities, coordinates would be supplied to helicopter pilots to ensure landings do not occur in designated Natural Resource Areas or other environmentally sensitive areas, such as Parunuweap Canyon and/or riparian zones.

Revised Text:

- Prior to the implementation of management activities, coordinates would be supplied to helicopter pilots to ensure landings do not occur in designated Research Natural Areas or other environmentally sensitive areas, such as Parunuweap Canyon, Mojave Desert tortoise core habitat, and/or riparian zones.

- G) Mitigation Measures: Wildlife & Special Status Species (Pg. 17):** Replace current text with revised text.

Current Text:

- Helicopter and capture personnel will be briefed on California Condors identification, current locations and nest sites to avoid prior to flights.

Revised Text:

- Helicopter and capture personnel will be briefed on California Condors identification, current locations, roost sites, and nest sites to avoid prior to flights.

H) Mitigation Measures: Wildlife & Special Status Species (Pg. 17): Replace current text with revised text.

Current Text:

- Capture personnel will be made aware of the location of tortoise habitat in ZION; if capture occurs in tortoise habitat, personnel will closely monitor through visual observation presence of desert tortoise in the immediate area of capture in order to eliminate the potential of injury or disturbance.

Revised Text:

- Capture personnel will be made aware of the location of tortoise habitat in ZION and will not land in tortoise core habitat. If capture occurs in tortoise habitat, personnel will closely monitor through visual observation presence of desert tortoise in the immediate area of capture in order to eliminate the potential of injury or disturbance.

-

I) Mitigation Measures (Pg. 16-17): Add mitigation measure(s):

Human Safety & Emergency Protocol

- Search and Rescue (SAR) protocols will be reviewed prior to capture operations with all participating staff. In the event of an active SAR operation, capture flights will stand-down until ZION dispatch clears capture crew or the SAR has terminated.
- UDWR will have a Safety Officer on site for each capture who will be in communication with NPS dispatch.

Wildlife & Special Status Species

- DBHS management activities will not be conducted within one-half mile of a California condor roost site.
- If euthanasia must occur during bighorn sheep capture, lead ammunition and toxins that may impact secondary predators will not be used.

Wilderness

- Helicopter staging area and animal processing area for translocation will be outside designated or proposed Wilderness areas.

J) Affected Environment and Environmental Consequences: Soundscape Impacts of Alternative B: Cumulative Impacts (Pg. 23): Replace current text with revised text.

Current Text:

As previously discussed, capture work throughout the life of this plan would be anticipated to be conducted intermittently as needed throughout the fall and

winter months (September 1 to February 29) to achieve ZION DBHS population objectives.

Revised Text:

As previously discussed, capture work throughout the life of this plan would be anticipated to be conducted intermittently as needed throughout the fall and winter months (October 1 to February 29) to achieve ZION DBHS population objectives.

- K) Affected Environment and Environmental Consequences: Soundscape Impacts of Alternative B: Cumulative Impacts (Pg. 24):** Replace current text with revised text.

Current Text:

In summary, the impacts of past, present, and reasonable foreseeable future actions will periodically interrupt natural quiet ~~in wilderness~~ throughout ZION, including wilderness areas (< 1% at any given time).

Revised Text:

In summary, the impacts of past, present, and reasonable foreseeable future actions will periodically interrupt natural quiet throughout ZION, including wilderness areas (< 1% of total wilderness area at any given time).

- L) Affected Environment and Environmental Consequences: Soundscape Impacts of Alternative B: Impacts of Alternative B (Pg. 26):** Replace current text with revised text.

Current Text:

Capture work for both disease testing and translocation would be expected to last 7 hours each day for up to six (6) days.

Revised Text:

Capture work for both disease testing (2-3 days) and translocation (5-6 days) would be expected to last 7 hours each day for up to nine (9) days each year of implementation.

- M) Compliance Requirements, Consultation, and Coordination (Pg. 42):** Add contributor.

William Sloan - Wildlife Biologist, NPS Southeast Utah Group & Death Valley National Park

RESPONSE TO PUBLIC COMMENTS

ZION issued a press release on August 25, 2017 announcing the public review period for the Bighorn Sheep Management EA. The EA was made available for public review from August 25, 2017 to September 25, 2017. Nearly 400 members of the public and various agencies were notified of the EA's availability. The EA was made available in hard copy and digital format. Three hundred and twenty five

(325) notifications were sent via email and thirty-five (35) notifications were mailed to other agencies, elected officials, and affiliated Native American tribes. The EA was also made available at the Zion Human History Museum.

In response to the EA, sixty-seven (67) comments were received from the public: fifty-three (53) individuals, twelve (12) organizations, two (2) businesses, two (2) public agencies. All comments will be maintained in the project decision file.

Substantive comments are those that: 1) question, with reasonable basis, the accuracy of the information in the NEPA document; 2) question, with reasonable basis of the environmental analysis; 3) present reasonable alternatives other than those presented in the NEPA document; or 4) cause changes or revisions in the proposal. Comments that raise, debate, or question a point of fact or analysis and responses are summarized as follows:

ADDITIONAL ALTERNATIVES/CONSIDERATIONS

1. **COMMENT** – Commenter inquired about the State and Federal outreach efforts to educate the surrounding community on the risks to DBHS discussed in the EA, tactics the community can employ to reduce domestic disease transmission to DBHS, or if there are any incentive programs offered to support the transition to alternative livestock types.

RESPONSE – Resource managers with the NPS and UDWR recognize community outreach and education as an effective means to increase the awareness of conflicts between domestic livestock and wild sheep. In preparation of the NPS Bighorn Sheep Management EA and the upcoming review of the Utah Statewide Bighorn Sheep Management plan, the UDWR, NPS, and project partners are currently discussing outreach program objectives and/or incentives. Efforts to engage the surrounding community will focus on improving the long-term viability of the herd by reducing the risk of disease(s) transmission. A range of strategies to improve the separation of domestic and wild sheep will need to be considered, such as: fencing, incentives to switch stock type, and/or seasonal use schedules.

2. **COMMENT** – Commenter discussed previous capture work with DBHS and noted the effective implementation of chase times under 5 minutes. Commenter stated their concern over elevated DBHS stress levels associated with the 5 minute chase time described for capture operations.

RESPONSE – Concern with 5 minute chase time has been noted. The 5 minute chase time includes slower movements to position the sheep and is not intended as time spent at a hard run. As discussed in the EA, the vital signs (i.e. heart rate, respiratory rate, and rectal temperature) of captured bighorns will be closely monitored and chase times adjusted as needed. Should captured DBHS show excessive sign of distress, “...the helicopter crew would be notified [of the animal’s condition] and asked to further reduce chase and holding times.” For

additional details, refer to **ALTERNATIVE B – DBHS MANAGEMENT (PROPOSED ACTION AND NPS PREFERRED)** page 14-17 of the EA and **AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES, WILDLIFE: DBHA, IMPACTS OF ALTERNATIVE B – DBHS MANAGEMENT** page 49 of the EA.

3. **COMMENT** – Commenter suggested that both male and female DBHS from a variety of other herds outside Utah be introduced into Utah. Include wild DBHS who have survived recent infectious outbreaks who can pass on their genes which may help strengthen resistance to diseases.

RESPONSE – ZION resource managers are working to maintain a healthy DBHS herd by reducing the total number of individuals occurring within Park boundaries. Therefore, the suggestion to transplant DBHS from herds outside of Utah is outside the scope of this EA. Nevertheless, as described in **SECTION III. ISSUES AND CONCERNS, G. TRANSPLANTS** (page 9-10) of the 2013 Utah Bighorn Sheep Statewide Management Plan, the UDWR currently obtains bighorn sheep for transplants from source herds within Utah as well as surrounding western states and Canadian provinces. The [2013 Utah Bighorn Sheep Statewide Management Plan](#) may be accessed and/or downloaded from the [Utah Government Digital Library](#).

4. **COMMENT** – Following review of the EA, commenter requested that DBHS offspring are not separated from adult females during capture and translocation operations.

RESPONSE – Concern for DBHS offspring is noted. Capture operations are strategically planned to occur outside of the lambing season (March to June) when the young are no longer dependent on adult females for survival. Capture operations will only take place from October 1 to February 29.

5. **COMMENT** – Commenter noted the substantial threat to mountain sheep from disease and suggests mitigating the threat of disease while concurrently establishing new populations or enhancing established populations.

RESPONSE – Suggestion is consistent with the anticipated outcome(s) of the selected alternative. As discussed throughout the EA, pneumonia epizootics pose a grave threat to ZION DBHS. Population assessments (i.e. aerial surveys, disease testing, and GPS collaring) will provide resources managers with vital data on overall herd health, habitat use, and dispersal patterns. Utilizing this data, ZION resource managers will be able to apply informed density reduction management actions (i.e. translocation and lethal removal) to help reduce the risk of disease while engaging in opportunities to restore healthy DBHS populations throughout Utah.

6. **COMMENT** – Commenter requested A) we do not reduce the allotment of hunting permits (allocated outside the Park) greater than 15% of the current 2017

permit total, B) the sheep remain in Utah (preferably to supplement struggling existing herds), and C) we work closely with the UDWR to provide continued support for the transplanted sheep.

RESPONSE – ZION DBHS translocations will focus on supplementing DBHS populations within Utah. As stated in **ALTERNATIVE B, 2. DENSITY REDUCTION, A. TRANSLOCATION** paragraph 4 on page 14 of the NPS Bighorn Sheep Management EA, “The bighorn captured during this project would be translocated to one of several areas identified in the Utah Statewide Bighorn Management Plan (UDWR 2013) to either augment existing herds or reintroduce bighorn into unoccupied habitat within the historic DBHS range.” ZION DBHS translocations will focus on supplementing DBHS populations within Utah. In **SECTION III. ISSUES AND CONCERNS, G. TRANSPLANTS** (page 9) of the 2013 Utah Bighorn Sheep Statewide Management Plan, the UDWR has developed 32 units/subunits in Utah for bighorn sheep that serve as potential augmentation or reintroduction sites for bighorn sheep. The [2013 Utah Bighorn Sheep Statewide Management Plan](#) may be accessed and/or downloaded from the [Utah Government Digital Library](#).

DBHS hunting permits allocated outside of ZION are managed by UDWR and set considering UDWR bighorn sheep management guidelines. The Utah Wildlife Board passes the rules and laws set forth in [Utah Hunting and Fishing Regulation Guidebooks](#). Visit the [UDWR Wildlife Board & RACs website](#) if you have feedback or suggestions for board members or would like to get involved in the [RAC/Board public process](#).

7. **COMMENT** – Commenter recommended the NPS work with UDWR on DBHS capture and translocation efforts, including site selection.

RESPONSE –As discussed throughout the Bighorn Sheep Management EA, the selective alternative will partner with the UDWR to carryout DBHS management actions.

8. **COMMENT** – Commenter suggested capturing DBHS from the highway.

RESPONSE –Limiting capture activities within the Park alongside the Zion-Mt. Carmel Highway, outside designated and/or recommended wilderness would prove challenging due to the confined space to maneuver the helicopter. Drop nets and chemical immobilization are two other techniques that could be employed along the highway but both of these methods, even if combined, would result in a low number of captures and an increased risk of injury or death to sheep. Refer to **ALTERNATIVES CONSIDERED AND DISMISSED, #1 NO CAPTURE EFFORTS IN WILDERNESS** for additional further discussion - see page 17 of the EA. Capture activities occurring alongside the highway also have the potential to interfere with and considerably delay traffic patterns within the Park and/or introduce safety hazards to visitors.

9. **COMMENT** – Commenter notes personal observations made during the 2017 hunting season within the Zion unit and suggests that any additional DBHS taken from the unit be taken from the Park.

RESPONSE – Suggestion to translocate DBHS from the Park is consistent with action(s) proposed in the selected alternative. Management actions taken within the Zion unit but outside of the Park are coordinated by UDWR. ZION will continue to cooperate with other State and Federal agencies to facilitate DBHS management across jurisdictional boundaries; however, the scope of this EA is limited to NPS managed lands.

10. **COMMENT** – Commenter rejects the notion that simple contact between domestic and wild sheep initiates an epidemic but supports the separation of both species until further research fully explores the issue. The commenter raises following points of concern regarding the EA:

- 1) No mention of what happens if the pre-capture, disease testing finds disease issues in the herd already. Will the diseased sheep still be transplanted and who assumes responsibility if they spread disease to an established herd?
- 2) Incorrectly assuming that over population causes disease because of bighorn dispersal and subsequent contact with domestics and not due to over allocation of resources causing stress and forcing dispersal. This is an area that has not been researched to any degree and making assumptions might lead managers to an incorrect policy decision. We simply know that herds above their target populations tend to have a higher incidence of die offs.
- 3) Language should be included to ensure the pre-capture, disease testing results will be made public along with any future testing of the Zion population to add to the body of public knowledge.
- 4) Need some justification for the 350 head population target. This may be contained in a separate document, but should be referenced to support the action alternative.
- 5) No mention of protocol to determine where the animals will be released. They may be released in an area that will create more conflict with existing bighorn or domestic populations. This might be covered a state management plan, but should be referenced.

RESPONSE – In response to the points listed above:

- 1) Additional text has been added to the EA to clarify that in the event the tested DBHS do not meet disease criteria outlined in UDWR protocols, sheep will not be translocated. Refer to Errata D above.

- 2) Population dynamic and causes of disease outbreaks in DBHS are complex and were summarized in EA using peer-reviewed literature. A detailed review of factors related to bighorn sheep disease outbreaks was not provided in the EA in order to maintain document brevity and straightforwardness. ZION resources managers are aware that both endemic and introduced pathogens are believed to contribute to contemporary pasteurellosis epidemics in bighorn sheep (Monello et al. 2011; Miller et al. 2008). Importantly, Monello et al. (2011) found that density-dependent forces and proximity to domestic sheep both contribute to pneumonia epizootics in bighorns and that these two factors may act either sequentially or in concert to promote disease outbreaks. Pneumonia outbreaks may occur during population peaks because of the effects of high density on movement and dispersal causing herds to occupy larger ranges which increases the chances to contract *Pasteurella* spp. from other bighorn herds or from domestic sheep herds (Monello et al. 2011). Density-dependent forces may affect bighorn susceptibility to pneumonia including inducing malnutrition or stress through food limitation, competition for mates, or emigration (Fest-Bianchet 1988, Monello et al. 2011). Monello et al. (2011) documented the tendency for bighorn herds that were in proximity to domestic sheep grazing areas to be more likely to experience pneumonia outbreaks than those farther away. NPS Management Policies Section 4: Natural Resource Management (2006) directs resource managers to maintain natural distributions and natural processes of native species (Section 4.4.2.1). In this case, the increased risk factors associated with potential contact with non-native domestic livestock and non-native disease contributed to the decision to directly manage the herd.
- 3) Disease testing information for the ZION herd has been and will be made available to managers, researchers, and other interested parties upon request to the UDWR or NPS.
- 4) A population target of 350 inside Zion was determined by examining herd population history, body condition of DBHS, habitat condition, reports of dispersing sheep, increased sightings in new areas, and after consultation with agency biologists. This number will be continuously re-assessed as field conditions change and more data is collected from GPS collars deployed during the DBHS disease testing phase, and future census data. Size and distribution of the entire herd, in and out of the park will also be considered when contemplating management actions. The goal of a healthy herd on a health habitat, in its historic range will be balanced against the risks associated with a larger herd.
- 5) As stated in **ALTERNATIVE B, 2. DENSITY REDUCTION, A. TRANSLOCATION** paragraph 4 on page 14 of the NPS Bighorn Sheep Management EA, “The bighorn captured during this project would be translocated to one of several areas identified in the Utah Statewide Bighorn Management Plan (UDWR

2013) to either augment existing herds or reintroduce bighorn into unoccupied habitat within the historic DBHS range.” In **SECTION II. SPECIES ASSESSMENT, C. HABITAT** of the 2013 Utah Bighorn Sheep Statewide Management Plan (page 5), UDWR recognizes that not all habitat is currently suitable for the reestablishment of bighorn populations, including domestic sheep grazing areas. The UDWR includes information on the presence or potential of domestic sheep and goat occurrence when determining DBHS transplant areas in effort to minimize conflicts between domestic livestock and wild sheep – see **SECTION III. ISSUES AND CONCERNS, G. TRANSPLANTS** (page 9). The [2013 Utah Bighorn Sheep Statewide Management Plan](#) may be accessed and/or downloaded from the [Utah Government Digital Library](#).

LETHAL REMOVAL & HUNTING

1. **COMMENT** – Commenter(s) suggested implementing an organized hunt for DBHS in the Park.

RESPONSE – In accordance with NPS Management Policies (2006), hunting, trapping, or any other method of harvesting wildlife by the public is precluded in Parks where it is not mandated by federal law. ZION does not have congressional authorization to permit public hunting within the boundaries of the Park unit, nor is this option compatible with other park objectives. Refer to **ALTERNATIVES CONSIDERED AND DISMISSED, #4 MANAGED HUNT/PUBLIC HUNTING** for additional details regarding NPS policies on hunting - see page 22 of the EA.

Additionally, relying solely on lethal removal of DBHS from the Park would not contribute to the conservation of the species within their historic range. Refer to **ALTERNATIVES CONSIDERED AND DISMISSED, #2 LETHAL REMOVAL ONLY** for further discussion on the lethal removal of DBHS - see page 18 of the EA.

2. **COMMENT** – Commenter suggested the use of non-lead bullets to remove DBHS if necessary and cites the dangers of lead ammunition to multiple wildlife species.

RESPONSE – Concern regarding the use of non-lead ammunition has been noted. As addressed in **ALTERNATIVE B, 2. DENSITY REDUCTION, C. LETHAL REMOVAL**, "Individual DBHS would be euthanized using non-lead ammunition and, if a sheep is lethally managed, carcass recovery would be considered" - see page 18 of the EA. Additionally, a mitigation measure has been added to clarify the use of non-lead ammunition. Refer to Errata I above.

REFERENCES

Festa-Bianchet, M. 1988. "A Pneumonia Epizootic in Bighorn Sheep, with comments on preventative management." In *Proceedings of the 6th Biennial Symposium of the Northern Wild Sheep and Goat Council*, Banff, Alta., 11-15. April 1988. Edited by W.M. Samuel. Pp. 66-76.

Miller, Michael W., D.P. Knowles, M. Bulgin. 2008. *Pasteurellosis Transmission Risks between Domestic and Wild Sheep*. Publications from USDA-ARS/UNL Faculty. 285.

Monello, R.J., D.L. Murray, and E.F. Cassirer. 2001. "Ecological Correlates of Pneumonia Epizootics in DBHS Herds." *Canadian Journal of Zoology* 79:1423-1432.

National Park Service (NPS) Management Policies. 2006. U.S. Department of the Interior. U.S. Government Printing Office. Washington D.C. ISBN: 0-16-076874-8. Accessed April 10, 2017. <https://www.nps.gov/policy/mp2006.pdf>

NON-IMPAIRMENT DETERMINATION

BIGHORN SHEEP MANAGEMENT ENVIRONMENTAL ASSESSMENT

ZION NATIONAL PARK
OCTOBER 2017

By enacting the NPS Organic Act of 1916 (Organic Act), Congress directed the U.S. Department of the Interior and the National Park Service (NPS) to manage units "to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (54 U.S.C. 100101). NPS *Management Policies* 2006, Section 1.4.4, explains the prohibition on impairment of park resources and values:

"While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them."

An action constitutes impairment when its impacts "harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values" (NPS 2006, Section 1.4.5). To determine impairment, the NPS must evaluate the "particular resources and values that will be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts. An impact on any park resource or value may constitute impairment, but an impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance (NPS 2006, Section 1.4.5).

Fundamental resources and values for Zion National Park (ZION) are identified in the enabling legislation for the park, the Foundation for Planning and Management Statement, and the Long Range Interpretive Plan. Based on a review of these documents, the fundamental resources and values for ZION come from the park's geologic showcase, water shapes and landscapes, convergence of ecoregions, natural resource quality and function, wilderness character, wild and scenic rivers, remnants of humanity's past, opportunities for connection to the resources, preserving and studying the Zion natural and cultural history as well as an engineered way of life. Resources meeting the above criteria that were carried forward for detailed analysis in the EA are Soundscape, Special Status Species, Wilderness, and Wildlife. Non-impairment determinations are not necessary for human health and safety or visitor use and experience because impairment findings relate back to park resources and values, and these impact topics are not generally considered park resources or values according to the Organic Act.

This non-impairment determination has been prepared for the selected alternative, as described in the Finding of No Significant Impact for the ZION Bighorn Sheep Management Environmental Assessment.

SOUNDSCAPE

A few weeks prior to the implementation of translocation activities, a disease testing phase will occur and require the use of helicopters to search for and capture bighorn to collect biological data and samples, ear-tag, and attach satellite collars to no more than 30 individual animals. Capture work for both disease testing (2-3 days) and translocation (5-6 days) is expected to last 7 hours each day for up to nine (9) days each year of implementation. Searching for, locating, capturing, landing, taking off, and flying back to the staging area will take more than 30 minutes of each hour. It is estimated that approximately 12 takeoffs/landings will occur each day within the park. Takeoffs and landings are generally the loudest noise generated by the helicopter. Human-cause noise generated during an "average" helicopter take-off and landings is approximately 97 dBA at 100 feet which exceeds the sound level standard identified in the SMP.

The percent time audible standard will be exceeded due to the noise generated by the amount of helicopter use required for disease testing and active capture efforts. As previously discussed, this work throughout the life of this plan is anticipated to be conducted up to 9 days per year throughout the fall and winter months (October 1 to February 29) to achieve ZION DBHS population objectives. Initially, the project will focus on capturing and removing as many as 60 individuals per year. This level of capture activity is expected to continue until the Zion DBHS population is reduced to a lower desired level of abundance that approaches, yet remains above the park's established population management limit as identified in the selected alternative. Once this desired population level is achieved, the recurring level of capture activity will be reduced considerably both in frequency and duration, but may still be required periodically in order to maintain the population within a range that reflects the lower desired level of abundance over time. Overall, there will be short-term adverse impacts associated with the selected alternative, but the

impacts are reduced by the mitigation measures and are not significant. For these reason, the resulting impacts will not be significant, and the natural soundscape will not be impaired.

SPECIAL STATUS SPECIES

Threatened and endangered species and/or critical habitat that may be affected but are not likely to be adversely affected by helicopter activity includes: California condors, Mexican spotted owl, Mexican spotted owl critical habitat, and Mojave Desert tortoise. Additionally, activities associated with the selected alternative will have no effect on the Southwest Willow flycatcher, Yellow-billed cuckoo, nor Shivwits milk-vetch critical habitat. In a letter dated on September 26, 2017, FWS confirmed their concurrence with the NPS determinations for each aforementioned species and critical habitat. Special status species will not be impaired.

California condor

Auditory and visual disturbances in response to helicopter activity associated with the selected alternative may cause California condors to become startled or alarmed which may cause them to flush from perch or roost sites that are not located prior to the helicopter activity. However, impacts to California condor will not be significant because (1) flight plans will be altered to avoid areas of current condor activity; (2) condors will be easily sighted and avoided by helicopter pilots; (3) any active condor nest(s) in the project area will be avoided by a 1-mile buffer and will be closely monitored through visual observation to ensure effective and constant buffering; (4) helicopter activity will not be conducted within a half mile of known roost sites; and (5) if DBHS euthanasia must occur during capture, lead ammunition and toxins that may impact condors will not be used.

Mexican spotted owl (MSO)

Noise from helicopter surveys and capture work may temporarily startle or alarm MSOs which could alter behavior including temporarily (<1 day) moving from a day roost location. However impacts to MSOs will not be significant because (1) all proposed activities will be completed outside the breeding period and during daylight hours when owls are less active; (2) helicopter aerial surveys will consist of only a single pass during a survey, thus creating minimal auditory disturbance; and (3) during capture activities, bighorn will not be pursued for capture within narrow canyon habitat where MSOs are likely present.

Mexican spotted owl critical habitat

There will be no significant impact to MSO critical habitat because helicopter landings will not occur in areas containing the physical and biological features related to MSO canyon habitat.

Mojave Desert tortoise

Helicopter activity associated with the selected alternative will occur adjacent to and within occupied desert tortoise habitat and may occur during seasons when desert tortoise are active (i.e. fall and spring). Short-term (5 minutes) disturbance of individual tortoises could occur during overflights which may cause them to temporarily retreat into their shell until capture operations are finished. Impacts to Mojave Desert tortoise will not be significant because: (1) capture personnel will be made aware of the location of tortoise core habitat in ZION and will not land in core tortoise habitat which includes locations where tortoises have been regularly located in park surveys and radio tracking but may not include all areas where a tortoise could occur; (2) no helicopter landing will occur in tortoise core habitat; (3) helicopter overflight capture activity will last no more than 5 minutes; and (4) reducing the DBHS population will likely help reduce the potential for vegetation overgrazing and thus provide a beneficial impact to the tortoise.

WILDERNESS

The undeveloped quality of designated and/or recommended wilderness in ZION will be degraded by the selected alternative from the introduction of the sights and sounds of human occupation, including the use of low flying aircraft, helicopter landings, and radio collars. DBHS management activities may also impact the visitor's ability to experience solitude and/or may result in temporary safety closures in wilderness areas. Helicopter use over wilderness areas will increase a maximum of 9 days each year of implementation. Impacts to wilderness qualities resulting from helicopter use are likely to occur over any specific area for a short time, since the helicopter continues to move between survey and capture sites. See the **SOUNDSCAPES** (page 21) **AND SPECIAL STATUS SPECIES: MEXICAN SPOTTED OWL** (page 30) sections of the EA for additional information on predicted sound levels and durations. Helicopter disturbances will also only occur over less than 1% of total wilderness areas at any given time; therefore, intensity and duration are anticipated to be inconsequential. Of the wilderness/backcountry permits issued in 2016 between October and February, only 8 individuals received backcountry permits for the south east slickrock area of the Park where most capture activity is likely to occur which suggests a negligible impact to the wilderness experience. Refer to the **IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS: VISITOR USE AND EXPERIENCE** section of the EA (pages 9-10) for additional details on visitor use totals. Attaching radio collars to DBHS will be a temporary installation until the drop off is triggered and the collar falls off the animal (4-5 year maximum per collar) and dropped collars will be tracked and removed from wilderness areas by NPS personnel to the extent feasible. Although some wilderness characteristics will be adversely impacted, these impacts will not be permanent. The selected alternative will also have beneficial effects to wilderness by helping to reduce the possibility of DBHS disease transmission which will help improve the natural quality of wilderness since a healthy DBHS populations contributes to natural settings in ZION wilderness and help prevent the trammeling influence of non-native pathogens. Intermittent degradation of ZION wilderness qualities during project activities for the immediate area around the project area will likely benefit wilderness qualities long-term and will not substantially change the impacts that are already occurring. For these reasons, the selected alternative will not have significant impacts to wilderness and wilderness will not be impaired.

WILDLIFE: DBHS

Helicopter activity to conduct population assessments and density reduction efforts will increase stress levels of DBHS. Population assessment surveys will hover near groups of DBHS for approximately 1 minute to gather demographic information, minimally impacting DBHS. Disease testing and translocations will continue stress levels for the duration of the process. To reduce stress: 1) chase times will be limited to 5 minutes and 2) animals captured for disease testing and translocation will be blindfolded immediately and vital signs will be continuously monitored. Should captured DBHS present with excessive signs of distress, chase and holding times will be reduced. DBHS selected for translocation will be processed as quickly as possible and separated into separate compartments based on age and sex to prevent further stress. Satellite collars affixed to DBHS will have negligible effects on collared animals as no behavioral effects on collared ungulates have been documented in other studies. Additionally, all management activities described in the EA will adhere to UDWR established DBHS capture and handling protocols, as approved and/or reviewed by the NPS Wildlife Branch. Any lethal removal of DBHS will be done humanely and will be carried out in accordance with the 2013 American Veterinary Medical Association (AVMA) euthanasia policy. Moreover, reducing the density of DBHS populations in the Park will greatly increase the probability of maintaining a healthy herd over the long-term as well as support the conservation of and help restore the statewide DBHS population. For these reasons, the selected alternative will not have significant impact to DBHS and will have beneficial effects to the DBHS population and positively change the impacts that are already occurring. DBHS will not be impaired.

CONCLUSION

In conclusion, as guided by this analysis, good science and scholarship, advice from subject matter experts and others who have relevant knowledge and experience, and the results of public involvement activities, it is the Superintendent's professional judgment that there will be no impairment of park resources and values from implementation of the selected alternative. The NPS has determined that implementation of the selected alternative will not constitute an impairment of the resources or values of ZION. This conclusion is based on consideration of the park's purpose and significance, a thorough analysis of the environmental impacts described in the EA, comments provided by the public and others, and the professional judgment of the decision maker guided by the direction of NPS *Management Policies 2006*.