ATTACHMENT A

Compliance Statement

Compliance with NPS Management Policies for Appropriate Uses, Non-Impairment, and Unacceptable Impacts for the Revised Selected Alternative for the Glen Canyon National Recreation Area Off-Road Vehicle Management Plan and Final Environmental Impact Statement

January 10, 2025

This Compliance Statement covers the revised selected alternative for the Glen Canyon National Recreation Area Off-Road Vehicle Management Plan and Final Environmental Impact Statement (FEIS) and the Amended Record of Decision (Amended ROD). The FEIS includes analysis of impacts to soils, vegetation, wildlife and wildlife habitat, special status species, soundscapes, visitor use and experience, cultural resources including archeological and ethnographic resources, socioeconomics, health and safety, and wilderness. The Amended ROD describes the alternatives evaluated in the FEIS, describes the revised selected alternative that is evaluated in this document and provides a rationale for the decision. This Compliance Statement replaces the Non-Impairment Determination associated with the 2021 Record of Decision for the same plan.

Glen Canyon National Recreation Area Purpose and Fundamental Resources and Values

The purposes of Glen Canyon National Recreation Area (Glen Canyon), along with Glen Canyon's significance statements and fundamental resources and values, are described in the Foundation Document for Glen Canyon National Recreation Area (Foundation Document), 2014, Foundation Document - Glen Canyon National Recreation Area (U.S. National Park Service). Glen Canyon's purpose is:

> Glen Canyon National Recreation Area, located at the center of the Colorado Plateau, provides for public enjoyment through diverse land- and water-based recreational opportunities, and protects scenic, scientific, natural, and cultural resources on Lake Powell, the Colorado River, its tributaries, and surrounding lands.

Congress established Glen Canyon to "provide for the public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto in the states of Arizona and Utah and to preserve the scenic, scientific, and historic features contributing to the public enjoyment of the area"(l6 USC 460dd).

Glen Canyon is significant for the Colorado River and its tributaries, which carve a unique landscape of desert and water environments; the landscape, which provides an unparalleled spectrum of diverse land-and water-based recreational opportunities; the preservation record of more than 10,000 years of human presence, adaptation and exploration and significance for many descendant communities; and the narrow gorge below the dam that provides a glimpse of the canyon walls, ancient rock area and a vestige of the riparian and beech terrace environments that were once present. See, Foundation Document, Park Significance.

Glen Canyon's fundamental resources and values include Lake Powell, its water quantity and quality, Glen Canyon's landscape, paleontological resources, and heritage resources. See the Foundation Document for additional details. The revised selected alternative does not directly impact Lake Powell or the quantity of water within. While the revised selected alternative may impact some aspects of water quality, those impacts are discussed broadly in other impact categories including soils and wildlife habitat. NPS did not carry water quality forward for separate analysis because any impacts to water quality were expected to be so minimal they did not warrant detailed analysis. See FEIS, pages 17-18 for a discussion of why a separate analysis for water resources was not warranted.

Some fundamental resources and values are impacted by the selected alternative and were evaluated in detail in the FEIS. Those resources include the soils, vegetation, wildlife, special status species and the natural soundscape which are not specifically considered fundamental resources, but are elements of Glen Canyon's landscape, which is a fundamental resource. Additionally, paleontological resources and archeological sites and ethnographic resources are fundamental resources and values that are impacted by the revised selected alternative. The impacts to these resources and an explanation of why the revised selected alternative does not result in unacceptable impacts or impairment of these resources appear below.

Compliance with NPS Management Policies Regarding Appropriate Uses

A separate written appropriate use analysis is not required under National Park Service Management Policies 2006 (NPS 2006 Management Policies). In recognition of comments suggesting that the NPS consider whether on-road street-legal ATVs and OHV travel and off-road vehicle use are appropriate uses at Glen Canyon, and because of the connection between appropriate uses, unacceptable impacts and impairment, NPS has decided to briefly address the issue of appropriate use below.

NPS 2006 Management Policies § 1.5 state: An "appropriate use" is a use that is suitable, proper, or fitting for a particular park, or to a particular location within a park. Not all uses are appropriate or allowable in units of the national park system, and what is appropriate may vary from one park to another and from one location to another within a park."

Section 8.1.2 of Management Policies further explain:

> The fact that a park use may have an impact does not necessarily mean it will be unacceptable or impair park resources or values for the enjoyment of future generations. Impacts may affect park resources or values and still be within the limits of the discretionary authority conferred by the Organic Act. In these situations, the Service will ensure that the impacts are unavoidable and cannot be further mitigated. In determining whether a use is appropriate, the NPS evaluates:
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> • consistency with applicable laws, executive orders, regulations, and policies;
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> • consistency with existing plans for public use and resource management;
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> • actual and potential effects on park resources and values;
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> • total costs to the Service; and
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> • whether the public interest will be served.

Parks may allow uses that are appropriate even if some individuals do not favor that particular use.

As a basis for evaluating whether the revised selected alternative is an appropriate use, the NPS relied on the FEIS, the Foundation Document, the enabling legislation, prior management plans, the Programmatic Agreement Among the National Park Service (NPS), the Arizona State Historic Preservation Office and the Utah State Historic Preservation Office Regarding Off-road Vehicle Management Plan for Glen Canyon National Recreation Area (ORV Plan Programmatic Agreement), and the Section 7 documentation for the Endangered Species Act.

The NPS has determined that street-legal ATV and OHV use on certain GMP roads and off-road vehicle use on designated routes and areas as described in the revised selected alternative is an appropriate use.

- The revised selected alternative is consistent with applicable laws, executive orders, regulations and policies governing these uses. The revised selected alternative is consistent with the enabling legislation for Glen Canyon. Consistent with Glen Canyon's purpose and significance, on-road street-legal ATV and OHV use, as provided for under the revised selected alternative, provides visitors with the opportunity to view the park's vast landscapes and access Lake Powell and other locations in Glen Canyon. The purpose of Glen Canyon includes both the protection of resources as well as the opportunity for recreational experiences that allow for visitors to enjoy those resources. Under the revised selected alternative, visitors may travel off-road at designated accessible shorelines and Lone Rock Beach to access Lake Powell or to camp, the enjoyment of which is related to the purpose of Glen Canyon. Finally, visitors may travel on designated routes to access other areas of Glen Canyon or to enjoy the scenery of Glen Canyon. Visitors may enjoy the scenery of Lone Rock while driving off-road in the Play Area. Thus, the revised selected alternative is consistent with the purposes of Glen Canyon. The finding that the revised selected alternative is consistent with Glen Canyon's purpose does not suggest that the uses evaluated are appropriate in other locations within Glen Canyon or in other NPS units.

  Additionally, the off-road vehicle use provided in the revised selected alternative is consistent with Executive Order 11644, "Use of Off-road Vehicles on the Public Lands," as amended by Executive Order 11989, 36 CFR 4.10 which is the applicable NPS regulation for off-road vehicle use, and NPS 2006 Management Policies § 8.2.3.1 which is the applicable NPS policy over off-road vehicle use.

  Consistent with these authorities, the revised selected alternative minimizes adverse impacts to natural and cultural resources and visitor experience and limits off-road vehicle use to only designated routes and areas where the use is appropriate. See, Attachment D: Rationales for Route and Area Determinations for the documentation of compliance with the Executive Orders.
  On-road street-legal ATV and OHV use on GMP roads as provided for in the revised selected alternative is consistent with NPS regulations. As described in the FEIS, page 10, NPS regulations that govern traffic on park roads include a provision at 36 CFR § 4.2. Additional explanation is included in the Amended ROD.

- The revised selected alternative is consistent with existing Glen Canyon planning documents for public use and resource management. The General Management Plan (GMP) and the Backcountry Management Plan for the Orange Cliffs Management Unit (Backcountry Management Plan) provide management zones and describe the types of activities and conditions that are appropriate in different areas of Glen Canyon. As described in the Amended ROD, the revised selected alternative is consistent with the GMP and the Backcountry Management Plan. *See also*, FEIS pages 11-12, 32. The revised selected alternative restricts street-legal ATV and OHVs on roads and off-road vehicle use to GMP zones where motorized use is appropriate. See FEIS pages 98-101. The impacts of the revised selected alternative are consistent

with those impacts that are to be expected in the respective GMP zones. *Id*. For example, the revised selected alternative minimizes noise in the natural zone while providing for motorized uses in the Development and Recreation and Resource Utilization Zone. The revised selected alternative also prohibits the use of OHVs and street-legal ATVs on all GMP roads within the Orange Cliffs Special Management Unit, thus better implementing the management objectives outlined in the Backcountry Management Plan. Therefore, the revised selected alternative is consistent with existing planning documents and better implements their directives.

- As described in the non-impairment determination below, the FEIS, and in the Amended ROD, the impacts associated with the revised selected alternative are intense and severe in very small, specific locations where off-road vehicle use occurs; however, these intense and severe impacts are constrained to a small percentage of the overall area of Glen Canyon (the Play Area represents approximately 0.014 percent of Glen Canyon's total acreage), are located in areas with less sensitive resources, and do not impact iconic or notable locations or destinations within the recreation area. Therefore, the revised selected alternative does not result in unacceptable impacts or impairment of any Glen Canyon resources.

- Generally, the costs associated with the revised selected alternative are included in Appendix B of the FEIS.

- While some visitors oppose street-legal ATV and OHVs on roads and off-road vehicle use in National Park units, other visitors may appreciate the opportunity to view and access Glen Canyon with these vehicles. The revised selected alternative serves the public in this way by protecting resources and preserving a diverse array of opportunities to recreate.

Street-legal ATV and OHV use on GMP roads and off-road vehicle use is not appropriate in every location within Glen Canyon. Also, street-legal ATV and OHV use on roads and off-road vehicle use is not appropriate in every NPS Unit. However, the NPS has determined that because the revised selected alternative restricts off-road vehicle use to designated routes and areas and because on-road street-legal ATV and OHV use is limited to those GMP roads where the resulting impacts will be acceptable and sufficiently protective of resources and visitor experience, the revised selected alternative is protective of Glen Canyon's resources and is an appropriate use at this time.

Compliance with 2006 Management Policies for Non-Impairment

As described in NPS 2006 Management Policies, § 1.4.4, the National Park Service Organic Act prohibits the impairment of park resources and values. Guidance for Non-Impairment Determinations and the NPS NEPA Process (September 2011) provides direction for completing non-impairment determinations for NPS actions requiring preparation of an environmental assessment (EA) or environmental impact statement (EIS) pursuant to the National Environmental Policy Act (NEPA). The NPS has completed a non-impairment analysis for the Off-Road Vehicle Management Plan and determined that it will not result in impairment of Park resources, or in unacceptable impacts as described in § 1.4.7.1 of the 2006 NPS Management Policies.

Sections 1.4.5 and 1.4.6 of Management Policies 2006 further explain impairment. Section 1.4.5 defines impairment as "an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values." Section 1.4.5 goes on to state:

> An impact to any park resource or value may, but does not necessarily, constitute an impairment.

An impact would be more likely to constitute 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, or

• 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.

Section 1.4.6 of Management Policies 2006 identifies the park resources and values that are subject to the no-impairment standard. These include:

• the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;

• appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;

• the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and

• any additional attributes encompassed by the specific values and purposes for which the park was established.

NPS non-impairment analysis normally does not include discussion of impacts to visitor experience, socioeconomics, public health and safety, environmental justice, land use, park operations, wilderness, etc., as these do not constitute impacts to Park resources and values subject to the non-impairment standard under the Organic Act. *See* 2006 Management Policies § 1.4.6.

As a basis for evaluating whether the revised selected alternative could result in impairment, the NPS relied on the FEIS, the Foundation Document, the enabling legislation, the Programmatic Agreement Among the National Park Service (NPS), the Arizona State Historic Preservation Office and the Utah State Historic Preservation Office Regarding Off-road Vehicle Management Plan for Glen Canyon National Recreation Area (ORV Plan Programmatic Agreement) and the Section 7 documentation for the Endangered Species Act. *See* 2006 Management Policies § 1.4.7.

The FEIS includes analysis of impacts to soils, vegetation, wildlife and wildlife habitat, special status species, soundscapes, visitor use and experience, cultural resources including archeological and ethnographic resources, socioeconomics, health and safety, and wilderness. Consistent with NPS guidance described above and the language in NPS 2006 Management Policies, the NPS has not included a non-impairment determination for Wilderness, visitor use and experience, socioeconomics and health and safety as these are not resources that may be impaired. See 2006 Management Policies

§ 1.4.6.

In the FEIS, the no-action alternative reflects off-road use at accessible shorelines and the Lone Rock Beach and Lone Rock Beach Play Area that Glen Canyon has planned for in previous NEPA documents. The no-action alternative for Ferry Swale and other ORV routes represents current levels of use, which NPS has allowed, in some cases by posting signage and information about access to that area. The no-action alternative for GMP roads reflects adoption of current state law pursuant to 36 CFR 4.2, except in the Orange Cliffs Special Management Unit (Orange Cliffs Unit) where street-legal ATVs have not been permitted. While the FEIS described existing conditions as the no-action alternative, the impact analysis for the action alternatives disclosed in the FEIS described the impacts of on-road street legal ATV and OHV use and off-road vehicle use even when those impacts were ongoing. See the FEIS, page 57. All resources described below are currently impacted by off-road vehicle use and in some instances on-road street-legal ATV and OHV use. Many of the adverse impacts from these uses have occurred for well over a half of a century. Additionally, and as disclosed in the FEIS, some areas of Glen Canyon are affected by fluctuating reservoir levels that cause resource impacts regardless of motorized vehicle use. Thus, the impacts disclosed in this non-impairment determination, in most cases, have already occurred or are ongoing. The newly-selected alternative will result in the continuation of adverse impacts in some locations to the same extent they were anticipated under the FEIS/plan and 2018 ROD; in other instances, the newly-selected alternative will result in beneficial impacts compared to the condition under the no-action alternative in the FEIS. For example, the newly-selected alternative does not affect provisions in the 2018 ROD disallowing off-road motorized vehicle use in portions of the Ferry Swale area and the Warm Creek accessible shoreline area. The newly-selected alternative also incorporates provisions from the 2018 ROD provisions that implement numerous human health and safety requirements, such as speed limits, vehicle decibel requirements, and quiet hours at accessible shorelines. These are examples of management actions that will continue to result in noticeable, measurable, beneficial effects to resources compared to the past and current condition of those resources as described in the FEIS. See the FEIS, Chapter 5, Environmental Consequences and Amended ROD for more information on the effects of the newly-selected alternative. Minor changes to the 2018 ROD made in the newly-selected alternative will result in added resource protection by restricting OHVs and street-legal ATVs on certain GMP roads and implementing management changes on certain accessible shorelines and the Lone Rock Beach Play Area.

The FEIS describes existing conditions as the no-action alternative and the baseline for which to compare alternatives. *See also* the discussion in the Amended ROD on this issue. The FEIS disclosed adverse impacts of on-road and off-road motor vehicle use for each alternative compared to the no-action baseline, and resource benefits attributable to reduced motorized vehicle access. That analysis often describes those impacts as ongoing because of the history of motorized uses at Glen Canyon. The unique history of motorized uses at Glen Canyon and the state regulatory regimes for motorized vehicle uses are factors that the NPS considered when describing the existing environment and formulating their baseline analysis from which to analyze alternatives. The use of any other baseline would have been speculative and would not properly reflect the existing environment at Glen Canyon, which is necessary to make an accurate impacts analysis and an informed non-impairment determination.

All motorized uses and development in national parks result in localized impacts of varying degrees of intensity. Many parks have highly developed areas including roads, multiple buildings, parking areas, etc., which do not impair park resources. Where allowed, these activities support appropriate uses and are consistent with park purposes. As described above, off-road vehicle use and on-road street legal ATV and OHV use as allowed in the revised selected alternative is an appropriate use at Glen Canyon and is consistent with its purpose and significance to provide a diversity of recreational activities. While off-road vehicle use results in severe impacts in some very small areas, impairment is defined as an impact that "in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or

values, including the opportunities that otherwise would be present for the enjoyment of those resources or values." NPS Policies § 1.4.5. Further, NPS Policies § 1.4.6 defines "park resources and values" in terms of actual resources, not specific geographic areas. "The fundamental purpose of all parks also includes providing for the enjoyment of park resources and values by the people of the United States." The NPS has management discretion to allow impacts to park resources and values, as long as the integrity of these resources and values are not impaired. The NPS has determined that the revised selected alternative does not cause impairment under the Organic Act.

Soils

As described in the FEIS, soils in Glen Canyon are integral to maintaining the physical, biological, and chemical integrity of the Glen Canyon ecosystem. The physical impacts on desert soils from off-road use have been well documented. Damage to soils from off-road use includes destruction of soil stabilizers (e.g., macrofloral elements [plants], microfloral elements [lichen, fungal, and biological soil crusts], and inorganic elements [physical soil crusts]), soil compaction and reduced rates of water infiltration, accelerated rates of surface water runoff and erosion, accelerated rates of wind erosion, and declines in soil productivity. Off road vehicle use contributes to soil degradation that is exacerbated by the presence of moderately erodible Farb-Pagina type soils and repeated use. As a result, these soils cannot recover while off-road vehicle use is ongoing. Damage to desert soils can result from a single pass of a vehicle. In the deserts of the Colorado Plateau, biological soil crusts can account for 70% of the living soil cover. Disturbance and damage by vehicles and may require hundreds of years or more for full recovery. Under the revised selected alternative, impacts to soil stabilizers (macro- and microfloral, and inorganic elements), soil compaction, reduced rates of water infiltration, and accelerated rates of water runoff and erosion, wind erosion, and decline in soil productivity may occur on accessible shorelines, Lone Rock Beach and Play Area, and on OHV routes.

As described in the FEIS, impacts to soils from on-road street-legal ATV and OHV use are not expected to be as severe or noticeable as off-road uses. Roadways have been designed and engineered to be driven upon, and where road surfaces are comprised of native material, soils along these routes have been disturbed previously through blading, compaction, and other earthmoving activities required for road construction and routine maintenance. Thus, on-road street-legal ATV use and OHV use will not result in unacceptable impacts or impairment of soils in Glen Canyon.

The soils within designated routes, accessible shoreline areas, Lone Rock Beach, and Lone Rock Beach Play Area will be adversely impacted compared to soil conditions in areas where no off-road vehicle use occurs. Impacts to soils will be most severely impacted within the Lone Rock Beach Play area. The severity of impacts to soils varies by type of use and location. Impacts to soils in some areas and routes would be highly noticeable, apparent, and severe. Soil impacts would be the most intense at accessible shorelines with the highest use, such as Bullfrog North and South and Stanton Creek and Lone Rock Beach and Play Area. Impacts at Lone Rock Beach and Play Area are likely to be especially severe because of the intense use in the area. For this reason, the revised selected alternative intentionally confined higher-intensity recreational off-road driving to the Play Area. Additional fencing and monitoring of uses will confine impacts from this type of use to the Play Area.

Although the revised selected alternative will result in severe impacts to soils within the boundaries of the Play Area and adverse impacts to soils at designated accessible shorelines, designated routes, and Lone Rock Beach, it will not result in unacceptable impacts or impairment to soils at Glen Canyon. Under the revised selected alternative, Glen Canyon has designated specific areas where vehicles can drive at each accessible shoreline. The delineation of the accessible shoreline areas limits the potential degradation of soils outside these areas. NPS has also further clarified that the purpose of allowing vehicles on accessible

shorelines is for access, not general overland recreational driving, which may reduce new tracks and associated soils impacts inside the designated area, and the potential for unlawful motorized uses extending outside of these delineated areas. New signs and educational materials will inform visitors where off-road and on-road OHV use is acceptable and additional monitoring efforts will help park management assess where visitors are driving outside of designated routes and areas or outside of road corridors. Additionally, Glen Canyon would mitigate impacts to soils outside the shoreline accessible areas by using enforcement and closures to ensure additional erosion does not occur outside designated routes and areas. Finally, the rise and fall of the lake level degrades soils that may be impacted by driving off-road in shoreline areas.

Impacts to soils under the selected alternative are confined to a small percentage of the soils in Glen Canyon. The revised selected alternative's total footprint of direct impacts on soils from off-road and on-road use is estimated to be less than 2% of the more than one million acres of mapped soils within Glen Canyon. The most severe impacts to soils occur at the Play Area, which consists of approximately 180 acres. Impacts to soils along accessible shorelines and the Play Area make up a less than l% of the 2,000 mile shoreline of Lake Powell. Narrowing the context to soil type, the soil type most impacted by off-road use and on-road street-legal ATV and OHV use is the moderately erodible Farb-Pagina. Under the revised selected alternative, less than 1% of the 66,766 acres of this soil type are impacted. The total number of acres of GMP roads impacted under the revised selected alternative constitutes less than l% of soils within Glen Canyon.

Overall, the revised selected alternative would not result in unacceptable impacts or impairment of Glen Canyon's soils because the impacts, while adverse on designated routes, at accessible shorelines, and at Lone Rock Beach, and severe at the Play Area, do not destroy the perpetuation or overall integrity of soils within Glen Canyon. The soils that are impacted by the revised selected alternative are not unusual or only present in specific areas of Glen Canyon or within the project area. Soils are not listed as fundamental resources or values of Glen Canyon. See, Foundation Document. These soils are found throughout Glen Canyon as described in the FEIS. Under the revised selected alternative, mitigations and monitoring ensure that vehicles do not drive outside of designated off-road routes and areas or off GMP roads. The revised selected alternative minimizes potential impacts to soils at accessible shorelines and at Lone Rock Beach and Play Area by delineating the areas where vehicles may drive, so that vehicles only disturb a small area instead of the larger landscape. As noted above, soils are a component of Glen Canyon's landscape, which is a fundamental resource of Glen Canyon. Hundreds of thousands of acres of Glen Canyon's soils would remain untouched by motorized vehicles, preserving the vast, unique Glen Canyon landscape for future enjoyment. While soils in small specific areas would be damaged, which is consistent with impacts of other recreational uses, the revised selected alternative would not affect the integrity or functioning of soils in the Park and overall soils in Glen Canyon would remain available for future generations to enjoy.

Vegetation

As described in the FEIS, off-road use can adversely impact native plants and plant communities at Glen Canyon directly, by crushing and uprooting of plants, and indirectly, by altering soil properties and by carrying and dispersing invasive plant seeds that replace native vegetation. Native vegetation is important for many reasons, including wildlife habitat and water quality protection. Off-road vehicle use may result in some slopes and heavily used areas designated for off-road use to be completely denuded of native vegetation, except for partial areas inhabited by sand sagebrush. Some species, such as snakeweed, dicoria, and ragweed, can survive off-road use and are common in disturbed areas in Glen Canyon. Most species can recover from direct contact with off-road vehicle use; however, blackbrush does not readily reestablish after being removed from the landscape by motorized vehicle damage. Thus, some vegetation types within designated routes and accessible shoreline areas are severely impacted compared to vegetation in areas where no off-road vehicle use occurs. Invasive plants pose a threat to native biodiversity, including to

native plant populations. Glen Canyon has an active and ongoing program to control invasive plant species. Under the selected alternative, the impacts to vegetation may continue to occur along accessible shorelines, Lone Rock Beach and Play Area and on OHV routes.

As described in the EIS, impacts from on-road OHV use are not expected to be as severe or noticeable as off-road areas because roadways have been designed and engineered to be driven upon, and vegetation along these routes have been disturbed previously through blading, compaction, and other earthmoving activities required for road construction and routine maintenance. Vegetation generally does not occur nor is expected to occur on GMP roads. Thus, on-road street-legal ATV use and OHV use will not result in unacceptable impacts or impairment of vegetation resources in Glen Canyon.

The severity of impacts from the revised selected alternative to vegetation varies by location and type. Vegetation impacts would be the most intense at accessible shorelines with the highest use, such as Bullfrog North and South, Stanton Creek and Lone Rock Beach and Play Area. Vegetation types most highly impacted would be blackbrush, sand sagebrush, and shadscale. Impacts in the Play Area would be especially severe. For this reason, Glen Canyon has intentionally confined off-road use of this type to the Play Area to this small area to ensure that the level of impact does not occur in other locations in Glen Canyon where the use is not appropriate.

Although the revised selected alternative will result in the continuation of severe impacts within the boundaries of the designated accessible shorelines, designated routes, Lone Rock Beach and Lone Rock Beach Play Area, it will not result in unacceptable impacts or impairment of vegetation at Glen Canyon. Under the selected alternative, Glen Canyon will designate specific areas where vehicles can drive at each accessible shoreline. The delineation of the accessible shoreline areas limits the potential degradation of vegetation outside these areas. NPS has also further clarified that the purpose of allowing vehicles on accessible shorelines is for access, not general overland recreational driving, which likely reduces vegetation removal and compaction and the potential for unlawful motorized uses extending outside of these delineated areas. New signs and educational materials will inform visitors where off-road use and on-road travel is acceptable. Additional monitoring efforts will help park management assess where visitors are not staying within designated routes and areas or on roads. Monitoring for invasive plants in these areas will help ensure they do not spread beyond the designated areas. Additionally, Glen Canyon would mitigate impacts to vegetation by using enforcement and closures to ensure additional crushing and erosion does not occur outside designated routes and areas.

In addition, impacts to vegetation under the revised selected alternative are confined to a small percentage of the vegetation communities in Glen Canyon. The selected alternative's total footprint of direct impacts on vegetation from off-road and on-road use is estimated to be less than 2% of the more than one million acres of mapped soils within Glen Canyon. The most severe impacts to vegetation occurs at the Play Area, which consists of roughly 180 acres. Impacts to vegetation along accessible shorelines make up less than 1% of the 2,000-mile shoreline of Lake Powell. Finally, narrowing the context to vegetation type, the vegetation type most impacted by off-road use and on-road OHV use under any alternative is the blackbrush, sand sagebrush, and shadscale vegetation types. Under the revised selected alternative, less than 1% any of these vegetation types are impacted by use that would be authorized under this plan.

Overall, the revised selected alternative would not result in unacceptable impacts or impairment of Glen Canyon’s vegetation because the impacts, while severe on designated routes, at accessible shorelines, and at Lone Rock Beach and Play Area, do not destroy the perpetuation or overall integrity of vegetation within Glen Canyon. The vegetation types that are impacted by the revised selected alternative are not unusual or only present in specific areas of Glen Canyon or within the project area. These vegetation types are found throughout Glen Canyon as described in the FEIS. Further, under

the revised selected alternative, mitigations and monitoring ensure that vehicles do not drive outside of designated off-road routes and areas or off GMP roads. The revised selected alternative minimizes potential impacts to vegetation at accessible shorelines and at Lone Rock Beach and play area by delineating the areas where vehicles may drive, minimizing the disturbance area and protecting the Glen Canyon's larger landscape. As noted above, vegetation is a component of Glen Canyon's landscape, which is a fundamental resource. Thousands of acres of Glen Canyon's vegetation would remain untouched by motorized vehicles, preserving the vast, unique Glen Canyon landscape for future enjoyment. While vegetation in specific areas would be damaged, and some, such as blackbrush more acutely than other vegetation types, no vegetation type would be impaired as they would continue to function on the landscape for future enjoyment by all.

Wildlife and Wildlife Habitat

As described in the FEIS, wildlife is known to be affected by motorized vehicle use, including off-road use. Impacts occur in four primary categories: direct mortality, disturbance, noise, and habitat. The most vulnerable species to off-road activity at Glen Canyon include burrowing species, such as kangaroo rats and other rodents and reptiles that nest in open sandy sites and whose burrows are easily crushed. In addition to vehicles crushing habitat, engine noise can negatively impact wildlife; for example, loud engine noise is known to deafen a kangaroo rat and virtually eliminate its defensive hearing, and bighorn sheep are known to be intolerant of noise and can abandon areas where motorized vehicle use causes excessive disturbance.

A variety of common species have the potential to occur in the study area including nesting and feeding shore and wading birds, nesting raptors, desert reptiles and mammals, and birds. Impacts on wildlife from off-road use could include species disturbance and displacement, habitat destruction, and vehicle-wildlife collisions causing species injury or mortality. Species mortality could occur, especially for smaller mammals, amphibians, and reptiles. Species disturbance and displacement and vehicle-wildlife collisions would continue along roadways and edge habitat. Birds nesting on or near the ground at accessible shoreline areas would likely be more vulnerable to the effects of motorized vehicles, due to direct exposure of nests and young to motorized vehicles and human disturbance. Impacts in some areas would be highly noticeable, apparent, and severe, especially at specific accessible shorelines, Lone Rock Beach, Lone Rock Beach Play Area, and along designated ORV routes.

However intense these impacts may be at specific locations, the revised selected alternative will not result in unacceptable impacts nor impair wildlife and wildlife habitat at Glen Canyon. Under the revised selected alternative wildlife would likely be displaced at the high use areas, including the accessible shorelines, Lone Rock Beach and Play Area, along OHV routes and on GMP roads. However, under the revised selected alternative certain mitigation measures will limit the impacts to wildlife. Vehicle quiet hours at accessible shorelines and at Lone Rock Beach and Play Area will mitigate impacts to nocturnal wildlife species in these areas. Seasonal closures to street-legal ATVs will also help reduce the potential for unacceptable impacts and impairment to certain migratory birds. Finally, a 15mph speed limit will likely benefit wildlife in these area by reducing collisions.

In addition, impacts to wildlife and wildlife habitat under the revised selected alternative are confined to a small percentage of the habitat in Glen Canyon. The revised selected alternative's total footprint of direct impacts on soils and vegetation, and thus wildlife habitat, from off-road and on-road use is estimated to be less than 2% of the total 1.09 million acres of mapped soils within Glen Canyon. The most severe impacts to wildlife and habitat occur at the Play Area, which consists of roughly 120 acres. Impacts to wildlife and wildlife habitat along accessible shorelines make up a less than 1% of the 2,000-mile shoreline of Lake Powell, leaving ample habitat for wildlife that chose shoreline areas. Seasonal closures at certain accessible

shoreline areas further protect wildlife during particularly sensitive times of year. Additionally, many of these accessible shoreline areas are infrequently visited, allowing time for wildlife to use the areas undisturbed. Impacts may be noticeable and severe at specific locations, but not significant or noticeable in the context of these wildlife populations as a whole within Glen Canyon.

Overall, the revised selected alternative would not result in unacceptable impacts or impairment of Glen Canyon's wildlife because the impacts, while severe on designated routes and accessible shorelines, including Lone Rock Beach and Play area, would not interfere with the integrity of Glen Canyon's wildlife. These uses will not noticeably change the population of any species, nor the health of any wildlife population. The low speed limits for on-road street-legal ATV and OHV use limits the potential for mortality, limiting the severity of impacts on wildlife. The most common impact to wildlife will likely be avoidance or displacement of individuals from these areas, however, ample undisturbed similar habitat is available near and often adjacent to these areas, limiting the impact on wildlife. Further, species that live in the Orange Cliffs, such as bighorn sheep, are not likely to be heavily impacted by the revised selected alternative as on-road ATV and OHV use is prohibited on roads in the Orange Cliffs and no off-road vehicle use is allowed in this area. As noted above, wildlife is a component of Glen Canyon's landscape, which is a fundamental resource of Glen Canyon. The revised selected alternative does not adversely impact Glen Canyon's landscape overall. While some wildlife habitat would be unavailable or undesirable, ample wildlife habitat at Glen Canyon would remain for future enjoyment. Thus, the revised selected alternative will not result in unacceptable impacts or impair Glen Canyon's wildlife or wildlife habitat.

Special-status Species

NPS has a responsibility to meet its obligations under the NPS Organic Act and the federal Endangered Species Act of 1973 to conserve listed species and prevent detrimental effects to listed, threatened, or candidate species as a result of any proposed action. A number of federally listed species are likely to occur in the project area (such as the southwestern willow flycatcher [*Empidonax trailii extimus*], the California condor [*Gymnogyps californianus*], and the Mexican spotted owl [*Strix occidentalis lucida*]) and therefore may be affected by management actions. Because the plan/FEIS may affect, but is not likely to adversely affect, listed species, NPS has engaged in consultation with the U.S. Fish and Wildlife Service (USFWS) as required under Section 7 of the Endangered Species Act (16 USC 1536 (a)(2)). There are a number of special status species in Utah and Arizona that are also evaluated under this section. After rigorous review and discussion, no mortality or take, as defined under the Endangered Species Act, is anticipated for federally listed species. Therefore, there is no potential for unacceptable impacts or impairment of any of these species as no take will occur. The selected alternative includes specific conservation measures to avoid impacts, including avoiding areas where these species occur, monitoring, and improving enforcement efforts. For a full list of conservation measures, see Attachment B of the ROD.

Other special-status reptiles and birds nesting or resting on or near the ground at accessible shoreline areas would likely be more vulnerable to the effects of motorized vehicles, due to direct exposure of nests and young to visitors and motorized vehicles. Mitigation measures are included within the revised selected alternative to minimize impacts to these species and ensure the plan will not result in unacceptable impacts or impairment of these species. Seasonal restrictions of street-legal ATVs during the winter months at eight shorelines would likely minimize impacts to special-status species, particularly shorebirds and the desert bighorn sheep, from limiting disturbance during that time. Special-status species with the highest potential for impact would be those that inhabit blackbrush, sand sagebrush, and shadscale vegetation communities like the kit fox, burrowing owl, and chuckwalla. Deserts and arid regions are generally considered areas of low productivity and damage to arid vegetation can be immediate and long lasting, especially for rare, specialized plant species. Because adverse effects under the selected would be minimized through the resource protection measures described above, the selected alternative would not result in impairment to

special status species at Glen Canyon.

In conclusion, the revised selected alternative is not expected to impact the population or viability of any of these special-status species, including federally listed species. Use along shorelines, roads, and on ORV routes will likely be sporadic. In some cases, such as at remote shoreline locations, special- status species may not be disturbed for days or weeks at a time. In the context of Glen Canyon, disturbance to special-status species may not be even detectable. When considering impacts in the context of vegetation types and availability, the impacts remain small. Disturbance is expected to be isolated to areas of use, many of which have been disturbed by vehicle use since Glen Canyon was established, thereby not creating new disturbance. Mortality of federally listed species is not expected to occur. Further, substantial intact undisturbed habitat remains for all of these species, despite use that may be authorized under this plan. Thus, the revised selected alternative will not result in unacceptable impact or impairment of special-status species.

Soundscapes

Solitude and natural quiet are an important attribute of Glen Canyon. The natural sound in some places in Glen Canyon is as low as 10 dBA, making it one of the quietest units of the National Park System. Noise from off-road use and on-road OHV use in Glen Canyon impacts wildlife, visitors, and adjacent wilderness character. The intensity of soundscape impacts is considered based on the decibel level of the sources involved and the number of times the noise occurs. The sound level and thus the intensity of impact is greatest closest to the source (e.g., the OHV, street-legal ATV, or conventional motor vehicle) and decreases with increasing distance. The intensity of impact also increases as the traffic volume of vehicles increases. A doubling of traffic volume results in a 3-dBA increase in Leq holding all other factors constant. Because of the low natural sound level in much of Glen Canyon, a pass-by of an OHV or street-legal ATV may be heard over long distances depending on topographic features, reducing the listening area for humans and wildlife as explained in the methodology section of the FEIS. The intensity of soundscape impacts is also influenced by the operating characteristics of the vehicles - activities at higher speeds and with more frequent acceleration create a greater load on the vehicle engine and higher noise levels compared to cruise conditions. Thus, the most intense soundscape impacts at Glen Canyon are associated with the Lone Rock Beach Play Area.

Under the selected alternative, areas along GMP routes and adjacent to designated routes and areas could potentially experience a 3 dB increase above the natural sound level due to motorized vehicle use on routes, areas and roads. These estimates do not consider topographic features which may preclude or accentuate how far noise is likely to travel. The adverse noise impacts under the revised selected alternative would be most noticeable in the vicinity of the eight accessible shorelines where street-legal ATV use would be allowed seasonally. The revised selected alternative would not introduce a new noise source into the Orange Cliffs Special Management Unit since neither on-road street-legal ATV or OHV use nor off-road vehicle use will be allowed in this area. During times when no motorized vehicles are operating in a particular area, there will be no impacts. Mitigation measures include the implementation of a 96 dBA limit which would significantly reduce the area potentially impacted by noise. The 25-mph speed limit on roads and 15 mph on accessible shorelines may also limit noise impacts. At the local level, the designation of a seasonal vehicle-free area at Lone Rock Beach would limit the intensity of potential impacts.

The soundscape at Glen Canyon is not expected to be impaired under the selected alternative because the quality of soundscapes in remote areas would remain high and because impacts are not likely to be frequent or continual. As described above, noise impacts become less noticeable, especially to humans, as visitors move farther from designated routes, areas and roads with active motorized vehicle use. The low number of vehicles traveling on many of the roads in Glen Canyon, as well as the low number of users on most

shorelines significantly decreases the frequency the soundscape would be impacted. Additionally, except for Lone Rock Play Area, OHV and street legal ATVs off-road use is primarily used to access accessible shorelines where vehicles are then parked. This means that the noise impacts are not frequent or continual in these areas. Therefore, opportunities to experience the natural sounds will continue to exist in Glen Canyon's backcountry and proposed wilderness, reducing the potential for unacceptable impacts or impairment.

Another context for evaluating the potential for impairment of the soundscape is whether the anticipated noise is acceptable in the GMP management zone where the actions are occurring. As noted in the introduction section, Glen Canyon is significant because of the recreational opportunities it offers. Existing roads, routes and accessible shorelines are consistent with the enabling legislation that provides for use and enjoyment of the area. The GMP zones designate areas where activities that produce noise may be expected. For example, motorized vehicle use within the Development Zone (which includes Lone Rock Beach and Play Area) is consistent with the objectives of that zone. Human activity and associated motorized vehicle noise is generally an expected and accepted element of Development and Recreation and Resource Utilization Zones. Thus, motorized vehicle use in such areas would likely result in less than significant impacts and no unacceptable impacts or impairment of the soundscapes to those areas. Most soundscape impacts from the selected alternative occur in the Development and Recreation and Resource Utilization Zones.

When motorized vehicle use occurs in the appropriate Development and Recreation and Resource Utilization Zones, impacts on the natural soundscape can extend into the adjacent Natural Zone where such sounds are inconsistent with the management objectives of the zone. Areas where impacts from OHV or street-legal ATV use extend into the Natural Zone. The revised selected alternative limits where these noise intrusions into the Natural Zone occur. Under the revised selected alternative, the core of the Natural Zone along these roads will remain a pristine natural soundscape under the selected alternative. In addition, noise, if any, extending into the Natural Zone from vehicles authorized under the revised selected alternative will likely be infrequent and of low intensity because of the distance the noise will have traveled. The natural soundscape is a component of Glen Canyon’s landscape. Under the revised selected alternative, noise will be isolated and limited to areas along GMP roads (outside of Orange Cliffs) and around designated routes and areas, including Lone Rock Beach and Play Area, which leave Glen Canyon’s vast landscape unimpaired by noise. In conclusion, because the revised selected alternative limits noise to GMP zones where motorized access is appropriate and expected and limits noise from reaching the Natural Zone (proposed wilderness), the revised selected alternative in will not result in unacceptable impacts or impairment of the natural soundscape.

Archeological Resources

In the American Southwest, archeological resources, some of which are also ethnographic resources, are often found in surface contexts and are vulnerable to effects from off-road use (Schiffman 2005; Spangler 2006; Sampson 2009). Impacts from off-road use have been particularly severe on public lands (Ouren et al. 2007). Scientific literature has been generated to assist land managers tasked with maintaining the health of ecosystems and the integrity of archeological sites, cultural landscapes, and ethnographic resources (Ouren et al. 2007; Sowl and Poetter 2004). These scientific studies often include discussions of off-road use effects, off-road use effects mitigation, site-restoration techniques, and research needs (Ouren et al. 2007). Soils are widely recognized in the scientific community as an important component of desert ecosystems (Dregne 1983; Lovich and Bainbridge 1999). ORV impacts on soils are particularly relevant to archeological resources. A more detailed discussion on impacts to soils from off-road vehicle use is described above under "Soils". Soil compaction has been linked to increased run-off resulting in the formation of rills and gullies particularly on elevated terrain and hill side-slopes. Surface runoff mobilizes

the sediments containing the archeological deposits destroying their contexts in the process. Additionally, the damage to stabilizing crusts results in increased susceptibility to wind erosion. Wind erosion deflates archeological sites potentially combining different artifact assemblages from different time periods that become very difficult to interpret in terms of function, period of use, and ethnic affiliation (Grayson 2011). Vandalism and looting can also be indirect effect of off-road vehicle use. Both direct and indirect impacts to resources due to motor vehicles used off-road are likely to occur (Sampson 2009; Sowel and Poetter 2004).

Lithic and ceramic surface scatters are by far the most commonly occurring site type in those portions of Glen Canyon covered by this FEIS. All 219 sites identified in Glen Canyon constitute surface sites of some kind. This total includes 59 sites determined or recommended eligible for the National Register of Historic Places including the Hole-in-the-Rock Trail and Hole-in-the- Rock. It is likely that additional archeological and ethnographic resources will be exposed below the 3,700-foot contour as Lake Powell recedes from the existing shoreline. Though the number of these sites is unknown, there are likely significantly fewer than the 518 identified in pre- inundation data (Bureau of Reclamation 2007). These sites will be vulnerable to the same impacts as those now exposed above current water levels. A correlation appears to exist between road proximity and vandalism of archeological sites. Although subject to direct and indirect impacts from many sources, many archeological sites retain their integrity in shoreline environments. The revised selected alternative minimizes the potential impacts to these resources by establishing, by elevation, where vehicles may travel at accessible shorelines. The revised selected alternative prohibits driving along the shoreline of Lake Powell, including below full pool, outside any designated ORV area, see FEIS page 36 and Amended ROD, which avoids potential unacceptable impacts and impairment of archeological resources that could otherwise occur.

54 USC 406108, commonly referred to as Section 106 of the National Historic Preservation Act, provides for the identification and resolution of adverse effects (impacts) to National Register listed or eligible archeological sites. In general, resolution of adverse effects is achieved by consultation among one or more federal agencies, in this case NPS, relevant SHPOs, appropriate THPOs, and other consulting parties. Because adverse effects are likely to result from the selected alternative, the NPS has completed a programmatic agreement for ORV management at Glen Canyon; signed February 4, 2015. The programmatic agreement (PA) stipulates the legal authority under which the measures are being undertaken, the responsible parties, and the character and intensity of the measures themselves as well as the process for inventory, evaluation, and mitigation of effects to historic properties. The documents demonstrating compliance with Section 106 are presented in the appendix E of the FEIS. The PA is available online at:

ParkPlanning - Off-road Vehicle Management Plan/Environmental Impact Statement.

The direct and indirect impacts under the selected alternative would be mitigated to some extent by implementation of NPS strategies to monitor, avoid, minimize, or mitigate ORV impacts.

These actions prevent impairment of these resources under the selected alternative. As part of monitoring cultural resources, sites in the Archeological Sites Management Information System (ASMIS) inventory are periodically evaluated under the ASMIS Site Condition Assessment program. Remedial actions are developed for sites that are found to be threatened by natural or man-made causes. In addition, NPS maintains the ability to prosecute looters and vandals of cultural resources under the Archaeological Resources Protection Act and other applicable regulations. The programmatic agreement also identifies the process that will be followed to pursue a phased identification and evaluation of additional historic properties. Additionally, NPS shall continue to develop Geographic Information Systems (GIS) databases to create zonal management models that will inform the prioritization of the phasing of identification and evaluation efforts. As described in the programmatic agreement (NPS 2015), the archeological sensitivity model would inform the location and timing of cultural resources inventory and site evaluation protocols for

those portions of GMP roads and ORV routes that have not received adequate identification efforts. The trigger-point model would inform the location and timing of cultural resources inventory and site evaluation protocols for Lone Rock Beach and accessible shorelines at Glen Canyon in response to decreasing water elevations of Lake Powell and the exposure of documented and previously unidentified cultural resources. In locations where the NPS has determined through Section 106 consultation that the agency's identification and evaluation obligations have been met at specific locations through Class III inventory, no additional inventory and evaluation efforts would occur unless modifications to the area of potential effect occur below 3600 feet in lake elevation.

In conclusion, the efforts to avoid, minimize and mitigate impacts to cultural resources in the project area ensure there will be no unacceptable impacts or impairment of archeological resources in Glen Canyon. Archeological resources are fundamental resources of the park. Under the revised selected alternative, these resources would retain their integrity and remain for future enjoyment. Survey efforts and subsequent management actions to protect resources found protect these resources from unacceptable impacts and impairment.

Ethnographic Resources

Ethnographic resources are objects and places, including sites, structures, landscapes and natural resources, with traditional cultural meaning and value to associated peoples (NPS 2006a). The Hole-in-the-Rock landscape which includes the road corridor meets the criteria for a Traditional Cultural Property (TCP). TCPs are a type of ethnographic resource. The Hole-in-the Rock landscape meets this criterion because it is significant to members of the Church of Jesus Christ of Latter-day Saints as a location associated with their pioneer history, and it continues to be important in the maintenance of their ongoing communal identity and in their development as an ethnically distinctive group (Sucec 2012). The Church of Jesus Christ of Latter-day Saints community was a proponent for increased use by organized groups of the Hole-in-the-Rock Road; they do no view pedestrian and vehicular use as having more impacts on this resource. Therefore, the revised selected alternative, and any motor vehicle traffic on the road will not result in unacceptable impacts or impairment of this resource. Rather, the selected alternative may have a beneficial long-term impact on ethnographic resources because it will allow access, including access by street-legal ATV and OHVs, to the site by members of The Church of Jesus Christ of Latter-day Saints for permitted activities such as re-enactments and over-night camping. Monitoring and enforcement under the revised selected alternative will help mitigate impacts from the potential for increased vandalism. Because the revised selected alternative will result in primarily beneficial effects, there will be no impairment to ethnographic resources.

Paleontological Resources

Glen Canyon contains a very extensive fossil record of Pennsylvanian to Quaternary-aged resources. Fossil resources are finite and nonrenewable (Santucci et al. 2009). Particularly vulnerable to damage are the many dinosaur trackways that are managed in situ. The effects on desert soils from off-road use, such as accelerated surface water runoff and erosion, as documented in "Soils" also pertain to paleontological resources, which occur in local concentrations in lithologic units (Shipman 1981). Prolonged ORV-related damage to soils can result in exposed soil substrate, causing the exposure of paleontological resources and leading to weathering and erosion, as discussed below. Schiffman (2005) and others have described the potential of off-road use to impact resources on public lands by enabling collectors to reach remote areas, which facilitates greater resource damage from intentional collection and vandalism. Human disturbances, such as those from off-road use, can accelerate local rates of weathering and erosion through soil damage and the removal of vegetation cover. Other, more direct, impacts on paleontological resources include the outright removal of resources themselves, also referred to as fossil "poaching." Under the revised selected alternative, these impacts may occur on accessible shorelines, Lone Rock Beach and Play Area, along OHV

routes and GMP roads.

Under the revised selected alternative, impacts on paleontological resources from OHVs on GMP roads would not result in unacceptable impacts or impairment because the roads are already constructed and maintained and thus are unlikely to contain intact paleontological resources. The soft geologic materials of the Kayenta formation, which is found along GMP roads, are vulnerable to damage caused by off-road use. This formation is known to contain dinosaur tracks and trace fossils including tracks of small and large theropods. However, these roadways are previously disturbed from blading, compaction, and other earthmoving activities required for road construction, routine maintenance, and use. As a result, the street-legal ATVs and OHVs would not result in any notable harm to paleontological resources in these areas.

The severity of impacts under the revised selected alternative may vary based on location and geologic strata present. Of the strata that occurs throughout Glen Canyon, the most vulnerable to direct impacts from off-road use that are found near accessible shoreline areas include the Entrada Sandstone, Organ Rock, Moenkopi and Chinle formations. These formations contain notable track sites, reptile fossils and other sensitive paleontological resources. The resulting potential for loss of these resources could likely be significant if the adverse effect represented direct, localized impacts on the landscape. The revised selected alternative prohibits driving along the shoreline of Lake Powell, including below full pool outside any designated ORV area and includes the delineation of accessible shoreline to mitigate the potential for visitors to drive outside of the designated accessible shoreline area and damage paleontological resources. Additionally, the revised selected alternative clarifies that off-road vehicle use at accessible shorelines is for the purpose of accessing Lake Powell, not for recreational driving. Periodic monitoring of these areas, consistent with the monitoring and mitigation described in the Amended ROD, also provide additional protections for this resource and prevents unacceptable impacts and impairment from occurring.

At Lone Rock Beach and Play Area, direct impacts on paleontological resources would be insignificant. While fossils have been known to occur in the eolian and alluvial deposits present in the bedrock material found elsewhere, at Lone Rock Beach and Play Area these deposits do not contain any known paleontological sites. Paleontological resource-containing strata present at the most highly visited accessible shorelines - Bullfrog North and South (though currently closed) and Stanton Creek - may experience localized severe impacts associated with off-road use within the authorized areas. However, as described above, impacts at accessible shorelines are mitigated by requirements to remain in designated areas and limits on recreational driving and monitoring and mitigation. Finally, monitoring and enforcement of these areas under the selected alternative can mitigate adverse impacts to these resources. If currently unknown fossils are discovered, the selected alternative allows for closures to protect those resources depending on their significance.

Overall, because the revised selected alternative would only result in potential impacts to paleontological resources on less than 1% of the Recreation Area, and because those impacts are minimized and mitigated by designating areas for off-road use that avoids known paleontological resources such as at Lone Rock Beach and Play Area, and because the potential for severe impacts is unlikely along GMP Roads, the revised selected alternative will not result in unacceptable impacts or impairment to these resources. Isolated severe impacts could occur at accessible shorelines, but the revised selected alternative includes, as described above, mitigations to reduce potential impacts. As noted above, paleontological resources are fundamental resources of the park. Under the revised selected alternative, the integrity of paleontological resources will remain intact across the numerous formations throughout Glen Canyon, perpetuating these resources and leaving them available for future enjoyment.

Conclusion

Based on the above analysis, the revised selected alternative, will not cause impairment of, or unacceptable impacts to, Park resources and values. Impacts to other resources potentially affected were considered so small and insignificant that they did not warrant a written analysis here. *See* FEIS pages 17 – 25 for a discussion of those resources that may be impacted by the revised selected alternative, but the effects are so minor that they cannot result in unacceptable impacts or impairment and thus were not included in the analysis. The monitoring and mitigations included in the Amended ROD allow Park managers to ensure that unanticipated or unacceptable impacts do not occur.

Compliance with NPS Management Policies for Unacceptable Impacts

A separate written unacceptable impact analysis is not required under NPS 2006 Management Policies. However, because NPS interprets the Executive Order's prohibition on "adverse impacts" to mean "unacceptable impacts" under NPS 2006 Management Policies, we have decided to include an unacceptable impact analysis here to more clearly explain how that requirement is met and address the specific elements of unacceptable impacts as defined in NPS 2006 Management Policies in the analysis below.

NPS Management Policies Section 1.4.7.1 states,

> Virtually every form of human activity that takes place within a park has some degree of effect on park resources or values, but that does not mean the impact is unacceptable or that a particular use must be disallowed. Therefore, for the purposes of these policies, unacceptable impacts are impacts that, individually or cumulatively, would
>
> - be inconsistent with a park's purposes or values, or
> - impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process, or
> - create an unsafe or unhealthful environment for visitors or employees, or
> - diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values, or
> - unreasonably interfere with:
>   - park programs or activities, or
>   - an appropriate use, or
>   - the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park.
>   - NPS concessioner or contractor operations or services.

Additional Unacceptable Impacts Analysis for Glen Canyon National Recreation Area Off-Road Vehicle Management Plan

As a basis for evaluating whether the revised selected alternative would result in unacceptable impacts to Glen Canyon resources, the NPS relied on the FEIS, the Foundation Document, the Programmatic

Agreement Among the National Park Service (NPS), the Arizona State Historic Preservation Office and the Utah State Historic Preservation Office Regarding Off-road Vehicle Management Plan for Glen Canyon National Recreation Area (ORV Plan Programmatic Agreement) and the Section 7 documentation for the Endangered Species Act.

The revised selected alternative will not result in unacceptable impacts for the following reasons:

- Consistent with Glen Canyon's purpose, on-road street-legal ATV and OHV use, as provided for under the revised selected alternative, provides visitors with the opportunity to view the park's vast landscapes and access Lake Powell and other locations in Glen Canyon. The purpose of Glen Canyon includes both the protection of resources as well as the opportunity for recreational experiences that allow for visitors to enjoy those resources. Under the revised selected alternative, visitors may travel off-road at designated accessible shorelines and Lone Rock Beach to access Lake Powell or to camp, the enjoyment of which is related to the purpose of Glen Canyon. Finally, visitors may travel on designated routes to access other areas of Glen Canyon or to enjoy the scenery of Glen Canyon. Visitors may enjoy the scenery of Lone Rock while driving off-road in the Play Area. Thus, the revised selected alternative is consistent with the purposes of Glen Canyon.

- The revised selected alternative does not impede attainment of Glen Canyon's desired future conditions for natural and cultural resources as identified in Glen Canyon's planning documents. The revised selected alternative is consistent with the conditions described for each respective zone in the GMP. See, FEIS pages 98-101 and the Amended ROD. Additionally, the revised selected alternative in consistent with the expected conditions described in the Backcountry Management Plan for the Orange Cliff Management Unit. See FEIS page 32 and the Amended ROD.

- NPS analyzed the impacts to health and safety in the FEIS, pages 418 – 420. On-road ATV and OHV use and off-road vehicle use comes with inherent safety risks. However, the revised selected alternative includes mitigations to reduce the potential impacts to the safety of all visitors, including speed limits and operator requirements. See FEIS pages 36, 38 – 40, and 81 – 82 for a description of operator requirements and other requirements that address safety. Thus, the revised selected alternative does not create an unsafe or unhealthful environment for visitors or employees.

- As described in the non-impairment analysis above, the revised selected alternative does not diminish the opportunities for current or future visitor to enjoy, learn about, or be inspired by Glen Canyon's resources. Under the revised selected alternative, all resources, including the fundamental resources and values of the park, including the Glen Canyon's outstanding landscape with its soils, vegetation, wildlife and special status species, remain available for enjoyment. Glen Canyon's natural soundscape, paleontological and heritage resources will remain intact and available for enjoyment as well.

- NPS has determined that the revised selected alternative does not unreasonably interfere with any of the following:

    - The revised selected alternative does not inhibit or preclude park programs or activities. Some visitors may not enjoy hearing or seeing street legal ATVs or OHVs, but visitors who do not wish to see or hear these vehicles may visit areas of Glen Canyon where these vehicles and uses are prohibited. Off-road vehicle use is only allowed on designated routes and within designated areas which collectively account for less than 2% of Glen Canyon's lands. Visitors who wish to participate in activities near or along roads that do not want to encounter ATV or OHV noise may do so within the Orange Cliffs Management Unit.

- Street-legal ATVs and OHVs are appropriate on GMP roads designated under the revised selected alternative. Similarly, off-road vehicle use is appropriate on designated routes and areas. See above, *Appropriate Use Analysis for Glen Canyon National Recreation Area Off-Road Vehicle Management Plan*.

- The revised selected alternative limits the potential for street-legal ATVs and OHV noise from reaching Glen Canyon's quietest areas, which protects the opportunity for solitude in those areas. The revised selected alternative only allows these vehicles and off-road driving in GMP zones where noise is consistent with the uses in those zones. The revised selected alternative does not allow off-road driving or street-legal ATVs or OHVs in the Natural Zone, which includes all of Glen Canyon's proposed wilderness and other backcountry areas. Thus, the revised selected alternative preserves an atmosphere of peace and tranquility and the natural soundscape in these areas.

- Finally, the revised selected alternative does not unreasonably interfere with concessioner or contract operations. The concession and contract operations, for example at Lone Rock Beach, Stanton Beach and other accessible shorelines, are consistent with the revised selected alternative. New concessions and contract operations would need to be evaluated to ensure they are consistent with this plan.

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ATTACHMENT B

Monitoring and Mitigation for the

Glen Canyon Off-Road Vehicle Management Plan

Monitoring procedures for the plan/EIS will be developed during implementation of the ORV Management Plan to identify resource impacts, assess and document the extent of disturbance, and mitigate impacts or restore areas affected by off-road use and disturbance. Glen Canyon staff will monitor indicators to determine when to take additional management actions as described in Table 2. Monitoring and subsequent management actions include both species populations and habitat connected to species-specific protection measures listed in this section.

Monitoring techniques will include staff observations and documentation of indicators, such as the presence of social routes (tracks outside ORV routes and areas and off of designated roads) and expansion of areas designated for off- road use, which will be monitored periodically by aerial photography. Glen Canyon staff will regularly monitor the number of motor vehicle accidents, vandalism, and other compliance issues resulting from off-road use and on-road use of OHVs and street- legal ATVs.

Management actions described in the "Indicators for Monitoring and Management Actions" table will be implemented if monitoring indicates that off-road use or on-road use is impacting resources, or if trends are negative and resources are at risk. The decision to implement a specific management action will be based on feedback provided by the monitoring program, consultation with outside experts, the professional judgment of NPS staff and management, and the authorities available to the NPS.

Species-specific proposed conservation measures are listed under the species accounts for California condor, Mexican spotted owl, southwestern willow flycatcher, yellow-billed cuckoo, Jones cycladenia, Brady's pincushion cactus, and Siler pincushion cactus.

INDICATORS FOR MONITORING AND MANAGEMENT ACTIONS

RESOURCE OR VALUE	POTENTIAL INDICATOR(S)	WHAT DOES IT POTENTIALLY INDICATE/ WHAT IS THE CAUSE FOR CONCERN?	POTENTIAL MANAGEMENT ACTIONS
Soils	Tire tracks outside designated use areas or off-road	Areas designated for off-road use may be poorly defined and identified. Changes in soil structure due to crushing and shearing affect ecological processes and functions, cause erosion, crush burrows and impact ground-dwelling and burrowing animals, affect vegetation, and can lead to increases in invasive plants.	Improved signs and communication/education with partners and users; physical barriers; enhanced NPS presence; restoration of native plants; and closures.
Vegetation (including threatened and endangered vegetation)	Crushing or other damage to native plants	Areas designated for off-road use may be poorly defined or identified. Impacts on plants can lead to losses in productivity, increases in impacts on soils, loss of habitat for wildlife, and increased susceptibility to invasive plants.	Improved signs and communication/education with partners and users; physical barriers; enhanced NPS presence; restoration of native plants; closures; and additional restrictions on vehicle type or other alterations to use.
Safety	Motor vehicle accidents/ personal injury	These incidents can indicate unsafe operator behavior and/or unsafe operating conditions or poor site design.	Improved signs and communication/education with partners and users; traffic requirements such as speed limit changes; and additional closures.
Soundscapes	Increasing levels of sound or incidents of exceeding sound limits	Exceeding sound limits set for motor vehicles could negatively impact natural soundscapes and wilderness character.	Improved signs and communication with partners and users; enhanced NPS presence; increase in equipment compliance checks.
Recreation Resources and Visitor Experience	Litter/ sanitation / vandalism / evidence of vehicle maintenance / evidence of hazardous materials	These indicate site degradation and ineffective communication of rules or problems with user behavior.	Improved signs and communication/education with partners and users and enhanced NPS presence; and closures.

RESOURCE OR VALUE	POTENTIAL INDICATOR(S)	WHAT DOES IT POTENTIALLY INDICATE/ WHAT IS THE CAUSE FOR CONCERN?	POTENTIAL MANAGEMENT ACTIONS
Recreation Resources and Visitor Experience	Conflict	Conflict indicates crowding, inappropriate forms of use or user behavior, degraded conditions, impacts on soundscapes, or similar issues.	Improved signs and communication/education with partners and users; physical barriers; enhanced NPS presence; and closures.
Recreation Resources and Visitor Experience	Expansion of ORV areas and routes	The expansion of designated ORV routes and areas indicates inappropriate forms of use, poor site design, or problems with user behavior.	Improved signs and communication/education with partners and users; physical barriers; enhanced NPS presence; restoration of native plants; and closures.
Recreation Resources and Visitor Experience	User-created routes	The creation of illegal user-created routes indicates inappropriate user behavior, poor site design, ineffective enforcement, and degradation of resources.	Improved signs and communication/education with partners and users; physical barriers; enhanced NPS presence; restoration of native plants; and closures.
Recreation Resources and Visitor Experience	Air quality and visual impacts	Impacts on air quality and visual resources could indicate increased dust at certain times of the year, such as spring and early summer.	Photographic monitoring using permanent photo points may require changes including closures at certain times of year or certain routes.
Cultural Resources	Evidence of site disturbance, vandalism/ evidence of visitation to areas near ORV routes and areas	Archeological resources are at risk due to inappropriate user behavior, poor site selection, or intentional disturbance of archeological sites.	Monitoring efforts at National Register-eligible sites; reduction' of use during particular times of the year and/or at specific locations based on surface conditions; relocation of road segments that are threatening or causing resource damages; improved signs and communication/education with partners and users; physical barriers; enhanced NPS presence; closures; and data recovery. Additional site-specific treatments could include repairs, rehabilitation, or other preservation treatments to historic fabric to stabilize resources that have been damaged or are threatened by damage; and revegetation and drainage control to stabilize the resource-supporting sediment matrix that is damaged or threatened by damage.

RESOURCE OR VALUE	POTENTIAL INDICATOR(S)	WHAT DOES IT POTENTIALLY INDICATE/WHAT IS THE CAUSE FOR CONCERN?	POTENTIAL MANAGEMENT ACTIONS
Paleontological Resources	Evidence of site disturbance, vandalism/ evidence of visitation to areas near ORV routes and areas	Paleontological resources are at risk due to inappropriate user behavior, poor site selection, or intentional disturbance of paleontological sites.	Improved signs and communication/education with partners and users; physical barriers; enhanced NPS presence; and inventories, monitoring, and either closing the shoreline and/or removing the artifacts if they are uncovered, depending on the fossil or the type of paleontological site resource.
Invasive Plants	Increase in invasive plants	Increases in invasive plants may indicate disturbance to soils or native vegetation, changes in resource conditions, or transport of seeds by off-road use.	Improved signs and communication/education with partners and users; physical barriers; enhanced NPS presence, restoration of native plants; closures; and additional restrictions on vehicle type or other alterations to use.
Special-status Species	Declines in special-status species through evidence of direct mortality (animals) or declines in abundance (plants)	Declines of special-status species along roads may be linked to increased mortality (direct collisions, dust emissions, etc.), indicating disturbance and impacts caused by increased off-road use.	Develop monitoring plans for species that survey data suggest may be affected; use education, physical barriers, enhanced NPS presence, or closures. Closure or seasonal closure for lambing areas for Desert Bighorn Sheep at Ferry Swale.
Compliance	Number of incidents	Poor compliance may be due to poor site design or selection, or insufficient monitoring or enforcement.	Improved signs and communication/education with partners and users; physical barriers; enhanced NPS presence; and closures.

Conservation Measures

The NPS has designed a variety of conservation measures in the project to protect federally listed species and their habitats. The following design criteria are intended to avoid or minimize potential for adverse impacts. These measures will be carried out by trained Glen Canyon staff and project personnel using applicable U.S. Fish and Wildlife Service (USFWS) protocols. In addition, education will be an important component of these measures for all species.

CALIFORNIA CONDOR

- Glen Canyon staff will communicate and cooperate with the Peregrine Fund and state wildlife agencies as these organizations monitor condor locations and movements to determine the locations and status of condors in the plan area.

- Park staff and visitors are instructed to avoid interaction with condors and to immediately contact Glen Canyon Division of Resource Management staff at (928-608-6267) and the Peregrine Fund (208-362-3716) if and when condor(s) occur in the plan area.

- Permits issued for off-road vehicle use will include information about the condor and applicable restrictions.

- The speed limit on accessible shoreline ORV areas will be lowered to 25 mph or lower to decrease the possibility of collisions.

- If condors consistently occur in a portion of the plan area the NPS will consult with USFWS to determine if additional conservation measures are necessary. Glen Canyon staff will report condor occurrence in the plan area to the USFWS in a timely manner, and will facilitate implementation of any necessary management actions by Glen Canyon in consultation with the USFWS.

- Condor nesting in the vicinity of the action area is unlikely. However, if condor nesting activity occurs within 1.0 mile of the project area additional conservation measures may be necessary. Glen Canyon will report any such occurrences to the USFWS in a timely manner, and will facilitate implementation of any necessary management actions by Glen Canyon in consultation with the USFWS. Temporary closures to recreational use of affected areas would be put in place if condor nesting activity occurs in the area.

- The NPS will provide visitor education via permit and other outreach efforts regarding proper and legal behaviors to protect natural and cultural resources when recreating on GMP roads, and on ORV routes and within ORV areas. This will include information about the importance of the area as habitat for a variety of sensitive species, including Mexican spotted owl, western yellow-billed cuckoo, southwestern willow flycatcher, the California condor, Jones cycladenia, Siler pincushion cactus, and Brady's pincushion cactus.

- All trash related to park maintenance and visitor activities will be removed and be properly disposed of in a timely manner.

MEXICAN SPOTTED OWL

- The following measures apply to known nesting sites and activity centers within 0.5 mile of the action area during the MSO breeding season (1 Mar - 31 Aug):

- During the MSO breeding season (1 Mar - 31 Aug), NPS will implement a 0.5 mile vehicle buffer around occupied activity centers, nest sites or occupied roost sites to provide adequate protection against disturbance of roosting or nesting owls.

- Ensure that no construction of new facilities (e.g., fencing, signage) occurs during the breeding season in suitable or designated critical habitat.

- When implementing activities related to maintenance of existing facilities pertaining to public health, safety, and routine maintenance, such as road repairs following storm events, use all measures possible to avoid potential effects to owls and their designated critical or suitable habitat (e.g., use least disruptive machinery, time activity to minimize disturbance, modify type of equipment used, conduct work in non-breeding season).

- Where designated critical habitat and modeled suitable nesting habitat overlaps the action area, and owl surveys are not current, NPS will implement seasonal closures (March 1 - August 31) of activities proposed in the Plan until survey data can be collected to determine use by Mexican spotted owl.

- NPS will institute additional USFWS protocol surveys for owls in 2017 for a minimum of three consecutive years through 2019 in modeled suitable nesting habitat. Areas of modeled suitable nesting habitat shall be prioritized for surveys based on a) overlap with the action area and a 0.5 mile buffer; and b) ground-truthing of modeled suitable nesting habitat;

- If new owl presence is detected, NPS will immediately modify ORV areas and routes in such a manner that off-road activity is restricted to areas >0.5 miles from known or suspected owl nesting sites. In the unlikely event that a temporary closure is not possible, the NPS will engage in additional consultation with USFWS to identify appropriate mitigation measures.

- NPS will report positive detections for MSO to the Utah Field Office of the USFWS within 3 days of detection.

- Annual reports of survey results shall be submitted to the Utah Field Office by September 30 of each year.

- NPS will develop a long-term monitoring strategy for Mexican spotted owl in coordination with USFWS to further guide implementation of the ORV Management Plan. This includes monitoring of suitable habitat in or near existing GMP roads, ORV areas and routes to inform subsequent management actions (e.g. change in size or location of designated ORV areas, modification of park operations or visitor use activities).

- NPS will discontinue off-road use at the existing Warm Creek ORV area due to a range of management objectives. This closure will eliminate potential for disturbance from motorized vehicular access to adjacent suitable habitat for the Mexican spotted owl.

- The NPS will provide visitor education via permit and other outreach efforts regarding proper and legal behaviors to protect natural and cultural resources when recreating on GMP roads, and on ORV routes and within ORV areas. This will include information about the importance of the area as habitat for a variety of sensitive species, including Mexican spotted owl, western yellow-billed cuckoo, southwestern willow flycatcher, the California condor, Jones cycladenia, Siler pincushion cactus, and Brady's pincushion cactus.

- NPS will lower the speed limit to 25 mph or less on unpaved GMP roads where street-legal ATVs and OHVs are permitted to decrease the possibility of collisions with wildlife, including sensitive species.

- Current accessible shorelines that are closed (Bullfrog North and South, White Canyon) due to low lake levels will remain closed until MSO surveys are completed.

SOUTHWESTERN WILLOW FLYCATCHER

- Glen Canyon staff will survey using USFWS protocols along accessible shorelines and any associated riparian zones where riparian vegetation may occur that could be used during migration and breeding to determine the locations and status of flycatchers in the plan area. Evidence for southwestern willow flycatchers will consist of presence during three or more survey times between 15 May and 17 July, and will be conducted in consecutive years from 2017 through 2019, with periodic surveys afterwards using USFWS protocols.

- NPS will develop a long-term monitoring strategy in coordination with USFWS to further guide implementation of the plan. This includes monitoring of suitable habitat in or near existing GMP roads, ORV areas and routes to inform subsequent management actions (e.g. change in size or location of designated ORV areas, modification of park operations or visitor use activities).

- The speed limit on ORV routes and accessible shorelines ORV areas will be lowered to 25 mph or less to decrease the possibility of collisions.

- The NPS will provide visitor education via permit and other outreach efforts regarding proper and legal behaviors to protect natural and cultural resources when recreating on GMP roads, and on ORV routes and within ORV areas. This will include information about the importance of the area as habitat for a variety of sensitive species, including Mexican spotted owl, western yellow-billed cuckoo, southwestern willow flycatcher, the California condor, Jones cycladenia, Siler pincushion cactus, and Brady's pincushion cactus.

- NPS will report consistent southwestern willow flycatcher occurrence in the plan area to the USFWS in a timely manner and will facilitate implementation of any necessary changes to management actions in consultation with the USFWS.

- Temporary closures to recreational use of affected areas will be put in place if activity occurs within 0.5 miles of nesting areas during the breeding season (May to August).

- When implementing activities related to modification or maintenance of existing facilities pertaining to public health, safety, and routine maintenance, use all measures possible to avoid potential effects to flycatchers and their suitable habitat (e.g., use least disruptive machinery, time activity to minimize disturbance, modify type of equipment used, and conducting work in non-breeding season).

- Flycatcher nesting is extremely unlikely within the plan area due to the absence of high quality habitat within the plan area. However, if nesting activity occurs within 0.5 mile of the action area, most likely at or near accessible shoreline ORV areas, additional conservation measures will be implemented in consultation with USFWS. This includes temporary closures to recreational use within 0.5 miles of any active nest sites or regularly used foraging areas during the breeding season.

- NPS will develop a long-term monitoring strategy for southwestern willow flycatcher in coordination with USFWS to further guide implementation of the ORV Management Plan. This includes monitoring of suitable habitat in or near existing GMP roads, ORV areas and routes to inform subsequent management actions (e.g. change in size or location of designated ORV areas, modification of park operations or visitor use activities).

YELLOW-BILLED CUCKOO

- Prior to the implementation of this Plan, Glen Canyon staff will identify suitable nesting habitat for cuckoo within a 0.5 mile of the action area using the Service's 2015 Guidelines for the identification of suitable habitat for WYBCU in Utah.

- Protocol-level surveys for cuckoo will be conducted in consecutive years from 2017 to 2019, with periodic surveys in following years.

- Where suitable nesting habitat for cuckoo overlaps the action area, NPS will implement temporary closures (June 1 -August 31) to recreational use within 0.5 mile of that habitat. If protocol-level surveys determine absence of nesting cuckoo, temporary closures may cease.

- If protocol-level surveys indicate presence of nesting cuckoos, seasonal closures will be implemented for recreational use within 0.5 mile of the habitat patch where cuckoo activity has been documented and where nesting is likely.

- NPS will develop a long-term monitoring strategy in coordination with USFWS to further guide implementation of the plan. This includes monitoring of suitable and designated critical habitat in or near existing GMP roads, ORV areas and routes to inform subsequent management actions (e.g. change in size or location of designated ORV areas,

modification of park operations or visitor use activities).

- The speed limit on unpaved roads and accessible shorelines where street-legal ATVs and OHVs are permitted will be lowered to 25 mph or lower to decrease the possibility of collisions.

- The NPS will provide visitor education via permit and other outreach efforts regarding proper and legal behaviors to protect natural and cultural resources when recreating on GMP roads, and on ORV routes and within ORV areas. This will include information about the importance of the area as habitat for a variety of sensitive species, including Mexican spotted owl, western yellow-billed cuckoo, southwestern willow flycatcher, the California condor, Jones cycladenia, Siler pincushion cactus, and Brady's pincushion cactus.

- NPS will follow all USFWS reporting requirements if cuckoos are detected, including detections within 24 hours as well as annual reporting by September 30.

- When implementing activities related to modification or maintenance of existing facilities pertaining to public health, safety, and routine maintenance, use all measures possible to avoid potential effects to cuckoos and their designated critical or suitable habitat (e.g., use least disruptive machinery, time activity to minimize disturbance, modify type of equipment used, and conducting work in non-breeding season).

- Yellow-billed cuckoo nesting in the vicinity of the plan area is unlikely due to the absence of high quality nesting habitat. However, if nesting activity occurs within 0.5 mile of the plan area, additional conservation measures will be implemented in consultation with USFWS. This includes temporary closures to recreational use within 0.5 miles of a habitat patch where cuckoos are nesting.

JONES CYCLADENIA

- Glen Canyon staff will continue to survey suitable habitat at accessible shorelines for the species prior to project implementation using survey protocols recommended by the USFWS. If populations are found they will be protected by closures or barriers to prevent vehicle access. A 300-foot minimum buffer will be established using closures and barriers around located plants.

- Any plan activity that may cause adverse effect to located populations and plants will cease until qualified personnel can assess the situation and determine the correct course of action in consultation with the USFWS.

- The NPS will provide visitor education via permit and other outreach efforts regarding proper and legal behaviors to protect natural and cultural resources when recreating on GMP roads, and on ORV routes and within ORV areas. This will include information about the importance of the area as habitat for a variety of sensitive species, including

Page 319, Paragraph 1: "In terms of impact metrics, **a 3 dB SPL increase** above the natural ambient sound level is an important indicator of potential impact..."

Page 319, Table 29 Top Left Cell: "dB/.. Ambien-t--tfle'l'tmse" **"Background SPL Increase (dB)"**

Page 320, Paragraph 2: "If a noise such as a conventional or non-conventional motor vehicle increases amh-i-eftt: smmd level-ay-6--e-BA **background SPL by 6 dB,** the distance at which the flood could be detected would decrease... "

Page 321, Paragraph 2: "A 3 dBA increase" **A 3 dB SPL increase** is important because it results in a 50% reduction in listening area for humans and wildlife... "

ATTACHMENT C

ERRATA

These errata are to be attached to the Glen Canyon Off Road Vehicle Management Plan EIS dated January 2017, and serve as text corrections or additions to clarify the content of the EIS. Text has either been re-written, or minor changes are identified using "strikethough" showing removed text and bold type font showing added text.

Chapter 3, Soundscapes, 2007 Glen Canyon Off-road Vehicle Sound Study, Page 141: Because the ORV area where the sound study took place is completely open, ORV distances from the sound monitoring equipment are actually unknown, and it is possible that the assumed 89 foot reference distance for adjustment of ORV noise levels to 50 feet is in error. As a result of the measurement report uncertainties, the values associated with the 50 foot predictions will be removed from this section, and only known report data will be referenced.

Page 140, Paragraph 2 - the first sentence is changed to "This study found that sound levels at the Lone Rock Beach Play Area regularly exceeded 75 dBA and occasionally exceeded 90 dBA (Ambrose and Florian 2008).

Page 141, Paragraph 2: ~~"The loudest events at monitoring sites CLCA005 and GLCA006 were evaluated, using measured data, for a standard reference distance of 50 feet and presented in the ORV study report (Ambrose and Florian 2008). The loudest events at GLCA005 were most frequently attributed to ORVs (up to 101.6 dBA at 50 feet). In contrast, the loudest events at GLCA006 were attributed to motor boats (up to 102.8dBA at 50 feet)."~~ Replace with: "The loudest events at monitoring sites GLCA005 and GLCA006 were presented in the ORV study report (Ambrose and Florian 2008). The loudest events at GLCA005 were attributed to thunder (101.9 dBA) and ORVs (up to 97.0 dBA). In contrast, the loudest events at GLCA006 were attributed to thunder (87.0 dBA) and motor boats (up to 80.5 dBA).

Chapter 4, Wildlife and Wildlife Habitat, Page 271 and Soundscapes, Pages 319-321: As stated in ANSI Sl2.9, Annex A.1.3, it is impossible to determine the degree of masking from A-weighted sound levels because sounds with similar A-weighted sound levels may have quite different spectral content. Listening area is an important concept for showing impacts to hearing opportunities due to masking. A masking analysis should be based on sound pressure levels in specific frequency bands. To ensure that the relationship between sound pressure, detection thresholds, and masking is presented correctly (according to ANSI Sl.1 and ANSI Sl2.9-2005/Part 4) and to bolster the 3-dB impact rationale (ANSI S12.9-2005/Part 4, Annex A.1.3.) the following text changes have been made:

> Page 271, Paragraph 1: "In terms of impact metrics, ~~a 3-A-weighted decibels (dBA)~~ **a sound pressure level (SPL) of 3 decibels (dB)** increase above the natural ambient sound level is an important indicator of potential ambient sound conditions... "

Page 319, Paragraph 1: "In terms of impact metrics, ~~a 3 dBA increase~~ **a 3 dB SPL increase** above the natural ambient sound level is an important indicator of potential impact..."

Page 319, Table 29 Top Left Cell: ~~"dBA Ambient Increase"~~ **"Background SPL Increase (dB)"**

Page 320, Paragraph 2: "If a noise such as a conventional or non-conventional motor vehicle increases ~~ambient sound level by 6 dBA~~ **background SPL by 6 dB,** the distance at which the flood could be detected would decrease... "

Page 321, Paragraph 2: ~~"A 3 dBA increase"~~ **A 3 dB SPL increase** is important because it results in a 50% reduction in listening area for humans and wildlife... "