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Bureau of Land Management

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Excavation of a Pentaceratops Skull and Partial Skeleton from the Ah-Shi-Sle-Pah Wilderness Study Area

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It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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1. PURPOSE AND NEED FOR ACTION

1.1. Background

Paleontologist Dr. Spencer G. Lucas of the New Mexico Museum of Natural History and Science (NMMNHS) proposes to excavate a *Pentaceratops* skull and partial skeleton from the Ah-Shi-Sie-Pah Wilderness Study Area (WSA) and two partial *Pentaceratops* skeletons from the Bisti/De-Na-Zin Wilderness Area (WA) from Farmington Field Office (FFO) managed lands of the San Juan Basin. The excavations will take place during the 2014 through 2015 field season. The plastered fossil jackets will be removed from the excavation sites by helicopter airlift. The National Guard out of Santa Fe New Mexico is providing a Black Hawk helicopter and the 3 man flight crew for the airlift. The helicopter will not touch down during the airlift removal of the jacketed fossils. Dr. Lucas will have a total of 5 of field assistants from the NMMNHS assisting him with the excavation. Dr. Robert Sullivan, a BLM permitted paleontology consultant will be included in the group of field assistants.

The San Juan Basin, including the Ah-Shi-Sie-Pah WSA and Bisti/De-Na-Zin WA, are some of the few places that exhibit surface exposures of nearly complete and uninterrupted stratigraphic and bio-stratigraphic record of late Cretaceous dinosaur-bearing rocks into early Tertiary mammal-bearing deposits (Figure 1). Fossil resources from this area have been determined to be of scientific or educational importance by the Farmington Field Office and are managed as a sensitive resource warranting collection and conservation by the professional scientific community.

The proposed excavation site is located approximately 37 miles south of Farmington, NM. The excavation located in the Ah-Sh-Sie-Pah WSA is in Section 6 of T22N, R10W (Figure 1). The one excavation site is located in the Bisti/De-Na-Zin WA in Section 23 of T24N, R13W.

The proposed excavation projects could last a combined one to two weeks of field work. The airlift project will take 1-2 hours. All tools and field supplies will be carried in to and out of the WA and WSA by hand. The excavation sites and associated work area disturbance around the sites will be approximately 8x8x3 feet. Reclamation of the excavation sites would involve backfilling, re-contouring, and raking of all disturbed ground back to its natural topography. Photo-documentation of the process, from pre-excavation to post-reclamation will be provided by Dr. Lucas.

All recovered material will be curated and reposited at the New Mexico Museum of Natural History and Science. This organization accepts responsibility for the housing, care, and curation of any and all materials which are collected under this proposed Environmental Assessment (EA). It is understood by the museum that all paleontological material collected under this EA would remain in the property of the United States Government on loan to this facility and that it must be permanently preserved and made available for scientific study and public observation.

1.2. Purpose and Need for Action

The purpose for the proposed action is to grant a paleontological excavation permit on BLM managed lands, issued by the Bureau of Land Management (BLM), to Dr. Spencer Lucas. This permit would authorize the applicant to excavate one site within the Ah-Shi-Sie-Pah WSA and one excavation site within the Bisti/De-Na-Zin WA and remove the jacketed material by helicopter airlift from Farmington Field Office managed lands in.

The need for the action is established by the BLM's responsibility under the Federal Land Policy and Management Act (FLMPA) to respond to the request for a paleontology excavation permit. FLMPA (P.L. 94-579.) requires that public lands be managed in a manner that protects the quality of scientific and other values. The Act also requires the public lands to be inventoried and provides that permits may be required for the use, occupancy and development of the public lands.

1.3. Decision to be Made

The BLM will decide whether or not to issue a paleontological excavation permit to Dr. Spencer Lucas, and if so, under what terms and conditions. Under the National Environmental Policy Act (NEPA) (Public Law [PL]91-90, 42 USC 4321 et seq.), the BLM-FFO must determine if there are any significant environmental impacts associated with the proposed action warranting further analysis in an Environmental Impact Statement (EIS). The BLM-FFO Field Manager is the responsible officer who will decide either:

- To approve the permit with design features as submitted;
- To approve the permit with additional mitigations;
- To analyze the effects of the proposal in an EIS; or
- To deny the application for a permit.

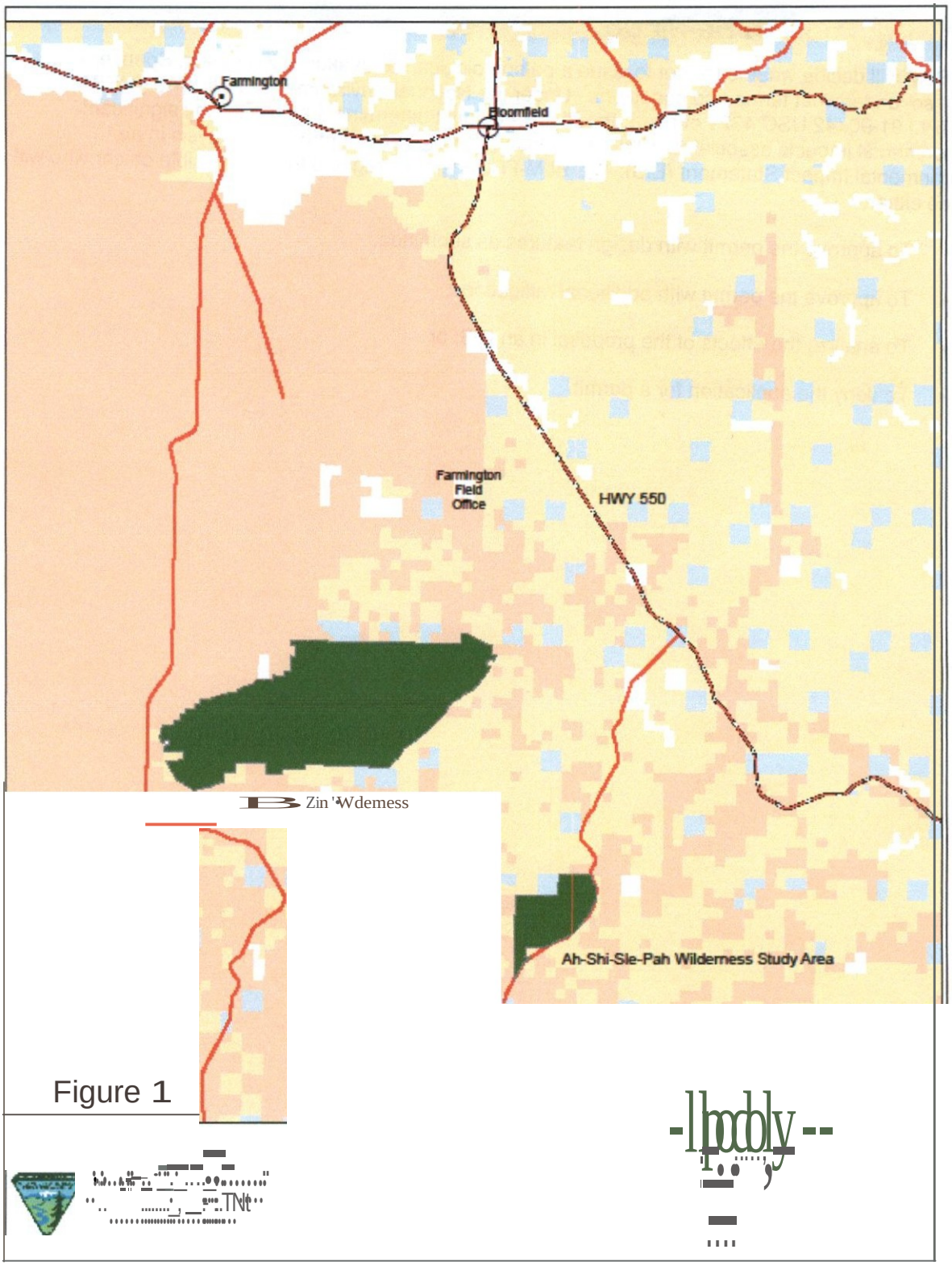

Farmington
Bloomfield
Farmington Field Office
HWY 550
Zin 'Wdemess
Ah-Shi-Sle-Pah Wilderness Study Area

Figure 1

Management Prescriptions of the RMP state that the collection of paleontological resources is permitted by permits granted for scientific endeavors within the Ah-Shi-Sie-Pah WSA.and Bisti/De-Na-Zin WA.

This EA is prepared under the authority of the National Environmental Policy Act (NEPA) of 1969 (PL 91-852) and its regulations (40 CFR Parts 1500-1508) for implementation.

Wilderness Study Area management policy (Manual 6330) has clarified that recovery of fossils (including excavation) can be permitted where Wilderness characteristics would clearly benefit from a better understanding and appreciation of the values that the wilderness provides.

The Paleontological Resources Preservation Act (PRPA). (Sections 6302-6312 of the Omnibus Public Lands Act of 2009, 16 USC 470aaa) codifies the practice of the BLM requiring that rare and scientifically significant fossils be collected only by qualified researchers who obtain a permit.

1.4. Conformance with Applicable Land Use Plan{s

This EA is in conformance with the management goals set forth in the Resource Management Plan (RMP) for the Farmington Field Office (FFO), which was approved by the Record of Decision signed September 29, 2003, and updated in December 2003 (BLM 2003b)(pg. 2-39). Management Prescriptions of the RMP state that the collection of paleontological resources is permitted by permits granted for scientific endeavors within the Ah-Shi-Sie-Pah WSA and Bisti/De-Na-Zin WA.

1.5. Relationshito Statutes, Regulations or Other Plans

This EA is prepared under the authority of the National Environmental Policy Act (NEPA) of 1969 (PL 91-852) and its regulations (40 CFR Parts 1500-1508) for implementation.

Wilderness Study Area management policy (Manual 6330) has clarified that recovery of fossils (including excavation) can be permitted where Wilderness characteristics would clearly benefit from a better understanding and appreciation of the values that the wilderness provides.

The Paleontological Resources Preservation Act (PAPA), (Sections 6302-6312 of the Omnibus Public Lands Act of 2009, 16 USC 470aaa) codifies the practice of the BLM requiring that rare and scientifically significant fossils be collected only by qualified researchers who obtain a permit.

The proposed project would not be in conflict with any state, county, or local plans. The Proposed Action is in conformance with the September 2003 Farmington Resource Management Plan with Record of Decision, as updated in December 2003 (BLM, 2003). Relationship to Statutes, Regulations or Other

1.6. Scoping, Public Involvement, and Issues

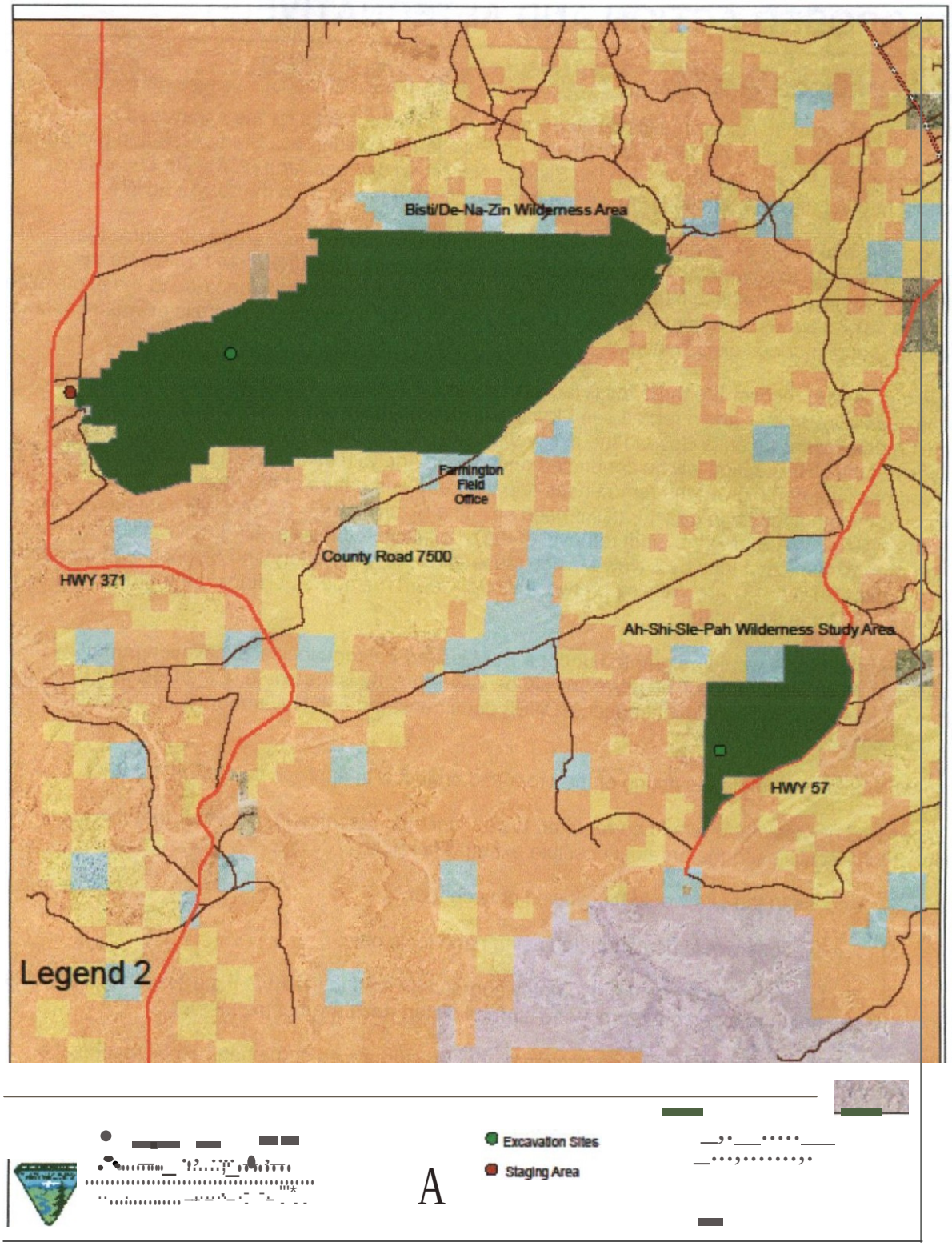
Internal scoping has been conducted to analyze the potential consequences of the Proposed Action and alternatives. The proposed paleontological excavation was introduced and discussed by FFO resource specialist on May 12, 2014 and November 3, 2014 at the weekly NEPA meeting. Resource issues discussed included helicopter airlift of the three excavated fossil jackets, paleontology, recreation/wilderness, soil, cultural, and special status species.

Resource specialist determined that there would be no new surface disturbance at the three sites by a helicopter that would not touch down during the airlift removals of the fossils. They also decided there would be no new surface disturbance created by the project staging on an established road. Specialists decided that the helicopter rotor downwash and associated operation noise would be temporary, lasting only one to two hours, and would have only a temporary effect on Air Quality, Visual Resources, or Wilderness Characteristics. It was decided by FFO resource specialists that a helicopter airlift of jacketed fossils from the Ah-Shi-Sie-Pah WSA and Bisti/De-Na-Zin WA will not require further analysis in this EA and will not be carried forward.

Follow up consultations were held with FFO resource specialists to further discuss the need for continued analysis of Paleontology, Cultural resources, impacts to soil, and potential impacts to special status species. It was decided that these issues will require further analysis in this EA.

Based on the internal scoping efforts, the following issues are considered relevant to the analysis of this management action:

- How would the proposed action impact paleontological resources in the project area?
- How would the proposed action impact soil in the project area?
- How would the proposed action impact Cultural resources in the project area?
- How would the proposed action impact special status species in the project area?


Bisti/De-Na-Zin Wilderness Area
Farmington Field Office
County Road 7500
HWY 371
Ah-Shi-Sle-Pah Wilderness Study Area
HWY 57
Legend 2
Excavation Sites
Staging Area
A

2. PROPOSED ACTION AND ALTERNATIVE{S)

2.1. Proposed Action

The BLM is proposing to issue an excavation permit to Dr. Spencer Lucas for the excavation of a *Pentaceratops* skull and partial skeleton from the Ah-Shi-Sie-Pah Wilderness Study Area and two partial *Pentaceratops* skulls and skeletons from the Bisti/De-Na-Zin Wilderness Area 0/VA). Dr. Lucas is proposing to use helicopter airlift to remove the three excavated fossils from the WSA and WA.

The proposed action will be to remove soil material approximately 8x8x3 foot area {192 Cubic feet) at each site in order to excavate the fossil skulls and partial skeletons. Repeated foot traffic from the excavation team would result in minor surface disturbance of approximately 6 feet around the excavation sites. The field crew will be required to travel to and from the site on existing cow trails or wash bottoms in order to reduce surface disturbance.

The airlift project to recover the three fossil jackets will take 1-2 hours. The field crew, including the National Guard helicopter and a rented semi-truck, will stage outside of the WSA on a two track road down Hunter's Wash, which is close to the excavation site {36.285046N,-108.258716) (Figure 2). All activities related to this action will be conducted on the road and will result in no new surface disturbance. This road has little traffic given the remoteness and the dead end nature of the road. Dr. Lucas will have 2 people at the staging site to direct traffic if need be. The Black Hawk helicopter will not touch down within the WSA or WA during the airlift removal of the three jacketed fossils. Dr. Lucas will be assisted with the proposed excavations by 5 New Mexico Museum of Natural History and Science staff members and Dr. Robert Sullivan. There will also be two National Guard members helping on the ground at the sites of the plaster jacket airlifts.

The proposed projects would be granted under a BLM issued Paleontological excavation permit by the New Mexico BLM State Office. The permit would be valid from the issued date of the Decision Record (DR) and Finding of No Significant Impact (FONSI) documents through November 21, 2015 to Dr. Spencer Lucas.

Dr. Lucas would coordinate the timing of the proposed project with appropriate staff at the FFO.

Dr. Lucas and his assistants would be required to conduct their research in a manner that minimized the impact of their activities to the greatest possible extent. Therefore:

a) Access to the site would be allowed only on foot;

b) Excavations would be conducted using hand tools only.

c) Dr. Lucas would be required to notify appropriate staff at the FFO if the excavation projects are going to exceed the proposed surface disturbance area of 8x8x3 feet.

In order to reduce the effects of soil compaction or other disturbances of the natural soil regime, the excavation crew would be required to:

a) Travel on existing cow trails or wash bottoms, wherever possible:

b) Rehabilitate the site to a substantially unnoticeable condition, using a combination of back-fill, re-contouring, and raking the surface to match the color, line, texture, and contrast of the surrounding, unexcavated land;

c) Remove from the sites (not bury) all fragments of plaster or other jacketing material;

d) Overburden material removed to expose the bone bed would be stockpiled within the disturbance area during the excavation of the sites. If multiple sedimentary strata are encountered, the different strata would be piled separately, and during post-excavation site

rehabilitation, they are to be returned to the excavation in the order in which they were removed. The disturbed area peripheral to the actual excavation will be raked to remove any signs of foot traffic in the area.

e) No fences will be cut or closed gates left open in order to access the excavation site.

Specific stipulations will also be attached to Dr. Lucas's permit. These stipulations are:

- Vehicular activity is restricted to existing roads outside of the WA.
- Participants will utilize pit toilets that will be dug a minimum of 6 inches deeps, resulting in at least 4 inches of soil cover.
- All refuse including toilet paper will be packed out and disposed of in a certified disposal facility.
- In the event cultural artifacts are discover the permit holder must stop work and immediately notify the FFO.
- Cross country travel is prohibited.
- The field crew will access the Ah-Shi-Sie-Pah WSA excavation site by leaving the State land in Section 5, T22N, R10W.
- The field crew will access the Bisti/De-Na-Zin WA excavation sites at Section 23, T24N, R13W

2.2. No Action

Under the No Action Alternative, the FFO would not grant the excavation permit described in the Proposed Action. Under this alternative the *Pentaceratops* skulls and partial skeletons would be left exposed to deterioration as it erodes from the outcrop under natural conditions or risk being collected illegally by recreationists or fossil hunter.

2.3. Alternatives Considered but Eliminated from Detailed Stud}!

One alternative action proposed but not analyzed in detail would be to issue Dr. Spencer Lucas a paleontological permit to conduct a field study of the *Pentaceratops* skulls and partial skeletons. This type of field study would be an on the ground study with no excavation or removal of fossil bones. No ground would be disturbed with this type of action.

Granting a permit under this alternative, the fossil bone beds would be subjected to and eventually lost to natural ecological processes and potential indiscriminate fossil removal by amateurs thus adversely threaten the significant of the resource. Most scientific study of paleontological resources will require collection of the fossils. Without stabilization and/or collection, exposed bone bed will continue to weather and erode.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the environment that would potentially be affected by implementation of the proposed action. Aspects of the affected environment described in this section focus on the relevant major resources or issues. Certain critical environmental components require analysis in every EA, under BLM policy.

3.1. Cultural Resources and American Indian Religious Concerns

3.1.1. Affected Environment

The proposed action is located within the archaeologically rich San Juan Basin of northwestern New Mexico. In general, the prehistory of the San Juan Basin can be divided into five major periods: Paleo-Indian (ca. 10000 B.C. to 5500 B.C.), Archaic (ca. 5500 B.C. to A.D. 400), Basketmaker II-III and Pueblo I-IV periods (aka Anasazi; A.D. 1-1540), and the historic (A.D. 1540 to present), which includes Native American as well as later Hispanic and Euro-American settlers. Detailed description of these various periods and select phases within each period is provided in the Bureau of Land Management Farmington Field Office Final Environmental Impact Statement (2003) and will not be reiterated here. Additional information is also included in an associated document, Cultural Resources Technical Report (SAIC 2002).

Cultural sites vary considerably, and can include but are not limited to simple artifact scatters, domiciles of various types with a myriad of associated features, rock art and inscriptions, ceremonial/religious features, and roads and trails.

Traditional Cultural Properties (TCP's; Parker and King 1998) are a separate class of cultural resources and are places that have cultural values that transcend, for instance, the values of scientific importance that are normally ascribed to cultural resources such as archaeological sites, and may or may not coincide with archaeological sites. For the proposed action, identification of TCPs were limited to reviewing existing published and unpublished literature (e.g. Valkenburgh 1941, 1974, Brugge 1993, Kelly et al 2006. A review of existing information compiled during previous land use planning efforts, existing studies, or via direct consultation indicates the proposed action is not within a known Traditional Cultural Property.

The excavation sites and staging area have been subjected to an FFO In-House Archaeological Survey (NM-210-2015-003). This survey concluded that the nature of the proposed action is such that no impacts can be expected on significant cultural resources. Previous surveys in the general vicinity and similar environmental context indicate a low site density. Given the small nature of the work to be authorized and the highly eroded nature of the terrain, the action has negligible potential to affect cultural resources and pursuant to the *Protocol Agreement between New Mexico Bureau of Land Management and New Mexico State Historic Preservation Officer* the undertaking can be approved without additional cultural identification efforts.

3.1.2. Impacts from the No Action

Direct and Indirect Impacts

There will be no direct or indirect impact to cultural resources within the proposed excavation sites under the No Action Alternative.

Cumulative Impacts

No cumulative impacts to cultural resources within the project area would occur under this alternative.

3.1.3. Impacts from the Proposed Action

Direct and Indirect Impacts

No direct or indirect effects to known cultural resources are anticipated from the proposed project.

Cumulative Impacts

There would be no negative cumulative impact on known cultural resources.

Mitigation Measures and Residual Impacts

All participants of the project will be informed that cultural sites are to be avoided by all personnel, personal vehicles, and project equipment. The participants will also be informed that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm).

3.2. Special Management Species

3.2.1. Affected Environment

In accordance with BLM Manual 6840, BLM manages certain sensitive species not federally listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. Included in this category are state listed endangered species and federal candidate species which receive no special protections under the Endangered Species Act. Special Management Species with potential to occur in the proposed action area are listed in Table 3.22.

Table 4- Special Management Species of the BLM/FFO and their potential to occur in the proposed action area

Common Name *(Scientific name)*	Status*	Habitat Associations	Presence**
BIRDS			
American peregrine falcon *(Falco peregrinus anatum)*	SMS NM-T	Nest in ledges or potholes on cliffs in wooded/forested habitats; Forage over riparian woodlands, coniferous & deciduous forests, shrublands, prairies.	S
Ferruginous hawk *(Buteo regalis)*	SMS	Breed in open country, usually prairies, plains and badlands; semidesert grass-shrub, sagebrush-grass & pinon-juniper plant associations.	S
Golden eagle *(Aquila chrysaetos)*	SMS	In the west, mostly open habitats in mountainous, canyon terrain. Nests primarily on cliffs and trees.	S
Bald eagle *(Haliaeetus leucocephalus)*	SMS NM-T	Nests in forested areas adjacent to large bodies of water.	NP
Burrowing Owl *(Athene cunicularia)*	SMS	Open grasslands or desert scrub. Presence of suitable nest burrow is critical prerequisite (often prairie dog burrows).	S
Prairie falcon *(Falco mexicanus)*	SMS	Forages in open grassland, desert scrub, rangeland, and	S

		agricultural areas; nests in cavities and trees, and on ledges, cliffs, and power structures.	
Mountain plover *(Charadrius montanus)*	SMS	Lowland grasslands, sites with grassland characteristics (alkali flats, agricultural lands).	NP
Yellow-billed cuckoo *(Coccyzus americanus)*	SMSC		NP
PLANTS			
Brack's hardwall cactus *(Sc/erocactus c/overiae ssp brackii)*	SMS NM-E	Sandy clay strata of the Nacimiento Formation in sparse shadscale	NP
Aztec gilia *(Aiiciella formosa)*	SMS NM-E	scrub (5,000-6,000 ft.). Salt desert scrub communities in soils of the Nacimiento Formation (5,000-6,000 ft).	NP

Sources: BLM 2005, New Mexico Natural Heritage Program 2005, NM Rare Plant 1999, USFWS 2007.

Status* SMS = BLM Special Management Species C = Federal Candidate NM-E = State of NM Endangered NM-T = State of NM Threatened

Presence** K = Known, documented observation within project area. S = Habitat suitable and species suspected to occur within the project area. NS = Habitat suitable but species is not suspected to occur within the project area. NP = Habitat not present and species unlikely to occur within the

Status* SMS = BLM Special Management Species C = Federal Candidate NM-E = State of NM Endangered NM-T = State of NM Threatened

Presence** K = Known, documented observation within project area. S = Habitat suitable and species suspected to occur within the project area. NS = Habitat suitable but species is not suspected to occur within the project area. NP = Habitat not present and species unlikely to occur within the project area.

The proposed project area provides potential foraging habitat for the American peregrine falcon, prairie falcon, golden eagle, and ferruginous hawk. The proposed project area does not provide nesting habitat for the four raptors. There are no recorded SMS raptor nest (golden eagle) sites in the proposed action area.

3.2.2. *Impacts from the No Action*

Direct and Indirect Impacts

There will be no impacts to T&E and Special Status species in the proposed excavation areas under the No Action Alternative.

Cumulative Impacts

There will be no cumulative impacts to T&E and Special Status species in the proposed excavation areas under the No Action Alternative.

3.2.3. *Impacts from the Proposed Action*

Direct and Indirect Impacts

There will be no impacts to T&E and Special Status species in the proposed excavation areas under the No Action Alternative.

Cumulative Impacts

There are no cumulative impacts to Threatened or Endangered or SMS species under the Proposed Action or either alternative.

Mitigation Measures and Residual Impacts

Due to the minor direct and indirect impacts from the Proposed Action and the lack of reasonably foreseeable future actions proposed in the area, there will be no impacts to Threatened or Endangered or SMS species.

3.3. Soils

3.3.1. *Affected Environment*

Surface geological material in the project areas are composed of surficial deposits weathered from the Kirtland Formation. The formation is the product of lower coastal plain, alluvial, deltaic, and lagoonal deposits. Primary rock type is fine-grained mixed clastic deposits of sandstone, siltstone, and mudstone.

The United States Department of Agriculture, Natural Resources conservation Service (NRCS 1980) has surveyed the soils in the proposed excavation site. Soils of the proposed site are mapped as the Badland-Monierco-Rock outcrop complex a moderately steep soil unit:

> The map unit is on hills, ridges, and mesas. Slope is 0 to 30 percent. The native veget5ation is mainly grass. Elevation is 4,800 to 6,400 feet. The average annual precipitation is about 8 inches, the average annual air temperature is about 53 degrees F, and the average frost-free period is about 150 days.
>
> The map unit is 40 percent Badland, 5 to 30 percent slopes; 30 percent Monierco fine sandy loam, O to 8 percent slopes; and 20 percent Rock outcrop, 5 to 30 percent slope. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.
>
> Included in this unit are small areas of Avalon, Shepard, and Shiprock soils on mesas and plateaus and Doak soils on mesas, plateaus, and terraces, included areas make up about 1O percent of the total acreage.
>
> Badland consists of nonstony, barren shale uplands that are dissected by deep, intermittent drainage ways and gullies.

The Monierco soil is shallow and well drained. It formed in alluvial and eolian material derived dominantly from shale.

Rock outcrop consists of barren sandstone on ridges, benches, and escarpments.

Potential plant community on the Monierco soil is mainly Indian ricegrass, galleta, winterfat,

and big sagebrush.

3.3.2. Impacts from the No Action

Direct and Indirect Impacts

There will be no impact to the soils of the proposed excavation areas under the No Action Alternative.

Cumulative Impacts

There will be no cumulative impacts to the soils of the proposed excavation areas.

3.3.3. Impacts from the Proposed Action

Direct and Indirect Impacts

The proposed excavation would result in 192 square feet (<0.0045 acres) of new soil disturbance within the Badland-Monierco-Rock outcrop complex soil unit. Soils at the excavation site, including compaction around the site, would be disturbed and displaced. Once disturbed, these soils can be subject to increased erosion, dependent upon storm events of water and/or wind. The amount of soils that would be lost to erosion is unknown, however it is assumed that effects to soils would be low based on the small area of disturbance, soil types, varying slope ratios, and mitigating measures.

Past excavation sites are extremely difficult to find. The barren land heals its visual scars given a heavy precipitation event. Effects would primarily be short-term due to the nature and clay composition of the soil material at the excavation site.

Surface run-off from precipitation events and snowmelt would produce very little run-on to the project area. This run-off collects in unnamed ephemeral upland drainages that empty into the Chaco River. The project area is small and would have a small influence to the areas by changing erosion patterns.

Cumulative Impacts

The proposed excavation areas are un-vegetated and could be responsible for existing soil erosion. Erosion is expected to be minor in the area due to a small excavation site, topography and erosion potential of the soil.

Mitigation Measures and Residual Impacts

Soils at the excavation sites would be disturbed, compacted, structurally mixed, displaced and exposed to the elements of wind and water erosion. The amount of soils that would be lost to erosion is unknown, however it is assumed that effects to soils would be low based on the small area of disturbance, soil types, varying slope ratios, and mitigating measures. To decrease long term effects to the soil, the crew will be required to rehabilitate the site using a combination of back-filling, re-contouring, and raking the surface to match the color, line, texture, and contrast of the surrounding, unexcavated land. Multiple sedimentary strata will be piled separately and returned to the site in the order in which they were removed.

3.4. Wilderness and Recreati

3.4.1. Affected Environment

The proposed action is in the Ah-Shi-Sie-Pah WSA and Bisti/De-Na-Zin WA. The Farmington Field Office manages the 6,592 acres Ah-shi-sle-pah Wilderness Study Area and the 44,792 acres of the Bisti/De-Na-Zin Wilderness Area. The FFO has set aside the WSA and WA to preserve the natural, solitude, unconfined and primitive recreation values while granting permits only for scientific endeavors.

The WSA and WA were established in 1984 with passage of the San Juan Basin Wilderness Act. The area is managed under the prescriptions set forth in the Wilderness Act of 1964 and the San Juan Basin Wilderness Act of 1984.

Recreation in both the WSA and WA are managed for their primitive values. The areas provide recreational opportunities for local, in-state, out-of-state, and international visitors. The WAS and WA provide opportunities for the public to enjoy a variety of recreational activities and challenges, including hiking, backpacking, photography, viewing of petrified wood, fossils, and wildlife, and enjoying the solitude found there. Management Prescriptions apply semi-primitive non-motorized objectives to the Recreation Opportunity Spectrum. The WSA and WA are closed to motorized and mechanized equipment. This action will not restrict access to the either the WSA or WA.

3.4.2. Impacts from the No Action

Direct and Indirect Impacts

Under the No Action Alternative there will be no impact to the public in enjoying recreational activities within the WSA or WA.

Cumulative Impacts

There will be no cumulative impacts from this alternative.

3.4.3. Impacts from the Proposed Action

Direct and Indirect Impacts

An increase in human activity in the WSA and WA associated with the excavations could affect recreational activities and primitive values. Sightseeing opportunities related to paleontological values of the WSA and WA would be less due to the removal of the *Pentaceratops* skulls and partial skeletons.

Cumulative Impacts

The excavation process will be conducted during a short field session. Any impacts to the values of the WSA will be minimal and short lived.

Mitigation Measures and Residual Impacts

The proposed project is a onetime short duration project with a small number *of* field assistants. It is located in an isolated area of the WSA where the public doesn't enter for recreational opportunities. It is very doubtful that the excavation would be noticed or would diminish the primitive values of the WSA for visitors to the area.

3.5. Paleontology

3.5.1. Affected Environment

The proposed excavation is located in the Upper Cretaceous outcrops of the Kirtland Formation. World-class specimens have been discovered in the outcrops of the Kirtland Formation. The formation has yielded macroscopic fossil vertebrates, principally dinosaurs, turtles, and crocodilians.

The Upper Cretaceous rocks that contain the dinosaurs, and other fossil vertebrates, represent intervals in time that are largely unknown and unrepresented elsewhere in the world. Their unique temporal position and their unique dinosaur faunas make this dinosaur of the utmost scientific importance.

3.5.2. Impacts from the No Action

Direct and Indirect Impacts

Under the No Action Alternative the *Pentaceratops* skulls and partial skeletons would be left exposed to deterioration as it erodes from the outcrop under natural conditions or risk being collected illegally by recreationists or fossil hunter. The fossil would not be collected and preserved for scientific study and educational opportunities for the public.

Cumulative Impacts

There are no Cumulative Impacts from this action.

3.5.3. Impacts from the Proposed Action

Direct and Indirect Impacts

Paleontological resources are currently known to occur within the proposed project areas and could be impacted by surface disturbance associated with the excavations and repeated traffic in and out of the project sites. An increase in human activity in the areas could also increase the possibility of unauthorized removal or other alterations to paleontological resources in the area. The excavations would not seriously affect undisturbed natural systems. The project could affect erosion patterns *at* the excavation site.

Cumulative Impacts

There are no cumulative impacts to paleontological resources due to this project.

Mitigation Measures and Residual Impacts

The proposed project has been mitigated by applying minimum tool principles and project specific stipulations to the execution of the project. Project stipulations will require reclamation of the site to a substantially unnoticeable condition, using a combination of back-fill, re-contouring, and raking the surface to match the color, line, texture, and contrast of the surrounding, unexcavated land. In the highly erosive sediments of the WSA and WA areas, this would prevent future evidence of the excavation as the surface eroded and the mottled area of intermingled strata was revealed. The disturbed area peripheral to the actual excavation will also be hand raked to remove any signs of foot traffic in the area.

4. SUPPORTING INFORMATION

4.1. List of Preparers

The BLM staff identified in Table 5 assisted in the preparation of this document.

Table 5, List of Preparers

Name	TitJe	Task
Sherrie Landon	Paleontological Coordinator	Author
Jim Copeland	Archaeologist	Archaeology
Elise Athens	Geographjc Information Specialist	Maps, Arc GIS, Data
Dale Wirth	Branch Cruef Range &Multi Resources	Soil/Air
Amanda Nisula	Planning & Environmental Coordinator	Reviewed Document/Content
John Kendall	Wildlife Biologist	Threatened & Endangered Species
Janelle Alleman	Outdoor Recreation Specialist	Recreation/Wilderness
Marcella Martinez	Planning and Environmental Specialist	NEPA

4.2. References

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APPENDIX A.

A.1. Figures

A.1.1.

Figure 1.....3
Figure 2.....6

SPECIAL STIPULATIONS FOR EA DOI-BLM-NM-F010-2014-0071

In golden eagle, ferruginous hawk, and prairie falcon nest sites, no excavation or airlift activities shall be conducted between March 1 to June 30 in a radius of 1/3 mile around active nest sites.

All activity related to the staging area will be kept within the 40 foot Right-Of-Way on CR 7290. The outer edges of the ROW will be flagged to ensure vehicle traffic is kept to existing two-track road.

The FFO Paleontology Coordinator (Sherrie Landon, 505-419-1491) will be contacted 48 hours prior to the beginning of airlift activities.