

**UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

Farmington District  
Farmington Field Office  
6251 N College Blvd., Ste. A  
Farmington, NM 87402

**DECISION RECORD**

for the

**Removal of Two Pentaceratops Partial Skeletons from the  
Bisti/De-Na-Zin Wilderness Area and a Pentaceratops Skull and  
Partial Skeleton from the Ah-shi-sle-pah Wilderness Study Area**

NEPA No. DOI-BLM-NM-FO10-2015-0197-EA

**I. Decision**

I have decided to select the proposed action for implementation as described in the September 2015 Removal of Two Pentaceratops Partial Skeletons from the Bisti/De-Na-Zin Wilderness Area and a Pentaceratops Skull and Partial Skeleton from the Ah-shi-sle-pah Wilderness Study Area Environmental Assessment (EA). Based on my review of the EA and project record, I have concluded that the proposed action was analyzed in sufficient detail to allow me to make an informed decision. I have selected this alternative because the proposed treatments will provide recovery of scientifically important fossils in order to provide for the study of those fossils and to preserve the wilderness character they represent in the form of scientific and educational values from BLM managed lands.

**II. Conformance and Compliance**

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-Sle-Pah WSA and Bisti/De-Na-Zin WA.

The land use plan in conformance with the BLM's responsibility under the Federal Land Policy and Management Act (FLMPA) to respond to the request for a paleontology permit to remove excavated fossils. FLMPA (P.L. 94-579.) requires that public lands be managed in a manner that protects the quality of scientific and other values.

The Paleontological Resources Preservation Act (P.L. 111-11), and the Wilderness Act (P.L. 88-577).

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 ACT Public Law 88-577 (16 U.S. C. 1131-1136) 88th Congress, Second Session  
September 3, 1964.

(BLM Manual 6340) "Management of Designated Wilderness Areas" allows for the regulated collection of fossils when needed to preserve wilderness character.

(BLM Manual 6330) "Management of Designated Wilderness Study Areas" allows for the recovering and recording of important scientific data that clearly benefit the wilderness characteristics of the WSA.

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.

BLM Farmington Field Office compliance with Section 106 of the National Historic Preservation Act is adhered to by following the State Protocol Agreement between New Mexico BLM and New Mexico State Historic Preservation Officer (BLM-SHPO 2014), which is authorized by the National Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (NPA 2012), and other applicable BLM handbooks.

The proposed project would not be in conflict with any state, county, or local plans.

### **III. Finding of No Significant Impact**

I have reviewed the direct, indirect and cumulative effects of the proposed activities documented in the EA for the Removal of Two *Pentaceratops* Partial Skeletons from the Bisti/De-Na-Zin Wilderness Area and a *Pentaceratops* Skull and Partial Skeleton from the Ah-shi-sle-pah Wilderness Study Area. I have also reviewed the project record for this analysis. The effects of the proposed action and alternatives are disclosed in the Alternatives and Environmental Consequences sections of the EA. I have determined that the proposed action to recover, study, and preserve the wilderness character they represent in the form of scientific and educational values meets the goals/objectives as described in the EA will not significantly affect the quality of the human environment. Accordingly, I have determined that the preparation of an Environmental Impact Statement is not necessary.

### **IV. Other Alternatives Considered**

Under the No Action Alternative, the FFO would not grant the removal permit described in the Proposed Action. Under this alternative the *Pentaceratops* skulls and partial skeletons would be left in plaster jackets and exposed to eventual deterioration from natural weathering processes and the possible destruction by souvenir hunters (p. 9).

Two alternatives were considered but eliminated from detailed study.

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 removal by amateurs thus adversely threatening the significance of the resource. Until new technology is developed 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.

An additional alternative considered was to use pack animals and sleds to remove fossils from the Wilderness, however this was eliminated due to the expected impacts of sleds to the soils and vegetation. Sleds would be expected to cause considerable rutting, trampling and depressions to the soil and damage to vegetation which would be a lasting visual impact and disruption to water flow which would result in gullies and eventually larger soil impacts (p. 9)

## **V. Rationale for the Decision**

The removal of two pentaceratops partial skeletons from the Bisti/De-Na-Zin Wilderness Area and a pentaceratops skull and partial skeleton from the Ah-shi-sle-pah Wilderness Study Area will provide significant information to the scientific community as well as provide opportunities to the general public.

I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)). The proposed activities are not located in an ACEC containing relevant and important cultural values. Cultural resource surveys were completed prior to implementation. Known cultural resources will be avoided by project activities. Tribal Consultation was completed on August 31, 2015. The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). The project area does not contain any known populations or designated critical habitat. Refer to section 3.2.1.

The proposed activities will not threaten any violation of Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)). Sections 1.4 and 1.5 of the EA describe the relationship of the proposed activities to relevant laws, policies, regulations, and plans.

## **VI. Public Involvement**

This EA was posted and made available on the BLM Farmington District homepage for public comment. The public comment period was from September 11, 2015 and ended on October 11, 2015 and no comments were received.

## **VII. Administrative Review and Appeal**

Chapter 3 This decision may be appealed to the Interior Board of Land Appeals (IBLA), Office of the Secretary, in accordance with the regulations contained in 43 CFR Part 4. Any appeal must be filed within 30 days of this decision. Any notice of appeal must be filed with Victoria Barr, District Manager, Bureau of Land Management, Farmington Field Office, 6251 College Boulevard, Suite A, Farmington, NM 87402. The appellant shall serve a copy of the notice of appeal and any statement of reasons, written arguments, or briefs on each adverse party named in the decision, not later than 15 days after filing such document (see 43 CFR 4.413(a)). Failure to serve within the time required will subject the appeal to summary dismissal (see 43 CFR 4.413(b)). If a statement of reasons for the appeal is not included with the notice, it must be filed with the IBLA, Office of Hearings and Appeals, U. S. Department of the Interior, 801 North Quincy St., Suite 300, Arlington, VA 22203 within 30 days after the notice of appeal is filed with Victoria Barr, Farmington District Manager.

Notwithstanding the provisions of 43 CFR 4.21(a)(1), filing a notice of appeal under 43 CFR Part 4 does not automatically suspend the effect of the decision. The decision is issued full force and effect under 43 CFR 6300. If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal.

A petition for a stay is required to show sufficient justification based on the following standards:

- (1) The relative harm to the parties if the stay is granted or denied;
- (2) The likelihood of the appellant's success on the merits;
- (3) The likelihood of immediate and irreparable harm if the stay is not granted; and
- (4) Whether the public interest favors granting the stay.

In the event a request for stay or an appeal is filed, the person/party requesting the stay or filing the appeal must serve a copy of the appeal on the Office of the Field Solicitor: United States Dept. of the Interior, Office of the Solicitor, Southwest Regional Office, 505 Marquette Avenue NW, Suite 1800, Albuquerque, NM 87102.



\_\_\_\_\_  
Victoria Barr  
Farmington District Manager

10/16/15

Date

**UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

Farmington District  
Farmington Field Office  
6251 N College Blvd., Ste. A  
Farmington, NM 87402

**Finding of No Significant Impact**

**Removal of Two Pentaceratops Partial Skeletons from the Bisti/De-Na-Zin Wilderness Area and a Pentaceratops Skull and Partial Skeleton from the Ah-shi-sle-pah Wilderness Study Area**

**NEPA No. DOI-BLM-NM-F010-2015-0197-EA**

**FINDING OF NO SIGNIFICANT IMPACT**

I have determined that the proposed action, as described in Environmental Assessment (EA) DOI-BLM-NM-F010-2015-0197-EA will not have any significant impact, individually or cumulatively, on the quality of the human environment. Because there would not be any significant impact, an Environmental Impact Statement is not required.

In making this determination, I considered the following factors:

**Context**

The Farmington Field Office (FFO) is located in northwestern New Mexico. The field office boundaries include approximately 7,800,000 acres, 1.4 million surface acres and an additional 1 million acres of mineral estate of which are managed by the BLM. The distribution of BLM-managed lands is fairly well consolidated in the north and becomes increasingly mingled with Tribal lands to the south. BLM-managed lands abut the Navajo Reservation to the west and south, Jicarilla Apache Nation Reservation to the east, and the Ute Mountain Reservation and Southern Ute Indian Reservation to the north. Aztec Ruins National Monument and Chaco Cultural National Historical Park, managed by the National Park Service, lie within the field office boundaries. The BLM manages approximately 18% of lands within a 10 mile radius of Chaco Cultural National Historical Park.

The Farmington Field Office encompasses the New Mexico portion of the San Juan Basin. The San Juan Basin and surrounding areas have been occupied by varied cultures since the Paleo Indian period (circa 10,000 BC). The San Juan Basin and Four Corners area have one of the most extensive prehistoric and protohistoric occupations in the United States. The most commonly known archaeological resources are the Anasazi structures at Chaco Cultural Historical Park, Mesa Verde National Park, and other National Park Service sites. Scattered across BLM-managed lands are similar, but smaller structures, which were probably related to these larger sites. Twenty-three Chacoan outliers are known to exist within the FFO. Each contains at least one Chacoan structure and most have associated communities, prehistoric roads, and great kivas along with features such as herraduras and special use areas. The FFO contains an extensive system of finely engineered roads radiating out from Chaco Canyon and extending a considerable distance to outlying sites through the San Juan Basin and beyond. These roads are remarkably straight and carefully constructed. The most notable is the Great North Road, which starts at Chaco Canyon and run north to the Aztec Ruins.

Located within the boundary of the FFO is much of Dinétah, the ancestral homeland to the

Navajo. Here the Navajo constructed forked-stick hogans, shades, sweat lodges, and other structures over a several hundred year span. During a short period between 1680 and the mid-1700s, pueblitos were constructed, often associated with other structures. Although not firmly dated, extensive Navajo pictograph and petroglyph sites were painted, etched, pecked, or ground onto the sandstone cliffs of the canyons of Dinéah. Most are believed to be ceremonial art which is no longer traditionally executed in a permanent form.

Native American Traditional and Sacred Areas are known to exist across the FFO. Many are associated with narrative accounts of origin or other traditional stories. Most of the identified sacred areas are associated with the Navajo culture. These places are still important in Navajo ceremonies and daily activities.

Historic Hispanic or Spanish and Anglo sites within the San Juan Basin primarily date from the late 1800s to the present. Although there are some early Spanish land grants in the southern portion of the FFO, most historic sites located on public lands are either Hispanic or Anglo homesteads with associated structures from the late 1800s and early 1900s. Associated with many clusters of homesteads were a school house and often a church which was visited every few months by a priest.

Cultural resource inventories have been conducted throughout the FFO for project undertakings, management studies, and scientific inquiries. As of April 2014, approximately 760,000 acres of the 7,800,000 acres in the FFO boundaries have been inventoried. Over 46,000 sites have been identified ranging from small artifacts to the 800-room structures in Chaco Canyon. Many of these sites are listed on the National Register of Historic Places and Chaco Culture National Historical Park along with several of the Chacoan sites which have been placed on the World Heritage List. The FFO manages 79 ACECs for relevant and important cultural values, including five World Heritage Sites.

The San Juan Basin is an important area for mammalian and reptilian fossils. A variety of paleontological resources exist in the FFO including animal fossils, fossil leaves, palynomorphs, petrified wood, and trace fossils occurring in the Triassic, Jurassic, Cretaceous, and Tertiary rocks. Dinosaur and other fossils have made significant contribution to the scientific record have been found and excavated in the FFO. Paleontological resources are present in the Bisti De-Na-Zin Wilderness Area, Ah-Shi-Sle-Pa Wilderness Study Area, Fossil Forrest Research Natural Area, and seven fossil areas identified in the 2003 Farmington Resource Management Plan.

The San Juan Basin is one of the largest natural gas fields in the nation and has been under development for more than 60 years. Oil was discovered by accident in the Seven Lakes area of McKinley County in 1911. Natural gas was discovered near Aztec, New Mexico, in 1920-1921 with oil of commercial quantity discovered near the Hogback in 1922 (Barnes 1951). Several small pipelines were built to carry the oil and gas from these discoveries to Aztec and Farmington, respectively. Development began in earnest in the late 1940s and early 1950s as the demand for natural gas increased. The Farmington Field office manages 2,765 active oil and gas leases in the San Juan Basin consisting of 2.1 million acres. Leasing began in the mid-1930s and accelerated in the late 1940s. By 1950, over 1 million acres were under lease.

In 1951, El Paso Natural Gas completed the first interstate pipeline out of the San Juan Basin to California. That same year, oil was discovered in the Mancos Shale in Dogie Canyon (Barnes 1951). Since that time, over 30,000 oil and gas wells have been drilled in the San Juan Basin with approximately 16,000 associated rights-of-way. Approximately 23,000 wells are currently producing. Since Stanolind Oil introduced hydraulic fracturing in 1949, nearly every well in the San Juan Basin has been fracture stimulated.

## Intensity

1. The activities described in the proposed action do not include any significant beneficial or adverse impacts (40 CFR 1508.27(b)(1)). Per 40 CFR 1500.1(b), the EA concentrated on issues that are truly significant to the action in question, rather than amassing needless detail. Issues have a cause and effect relationship with the proposed action or alternatives; are within the scope of the analysis; have not been decided by law, regulation, or previous decision; and are amendable to scientific analysis rather than conjecture (BLM 2008, page 40). The following issues were identified for the proposed activities: How would the proposed action impact paleontological resources, soils, Cultural resources, Wilderness Characteristics and Recreation. The EA includes a description of the expected environmental consequences of the proposed activities for those issues in Chapter 3.

2. The activities included in the proposed action would not significantly affect public health or safety (40 CFR 1508.27(b)(2)). The following design features have been included in the proposed action to address any impacts to public health and safety: vehicular activity is restricted to existing roads outside the Bist/De-Na-Zin Wilderness Area and the Ah-shi-she-sle-pah Wilderness Study Area.

3. The proposed activities would not significantly affect any unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas (40 CFR 1508.27(b)(3)). Unique characteristics are generally limited to those that have been identified through the land use planning process or other legislative, regulatory or planning processes (BLM 2008, page 71). The FFO does not contain any prime and unique farmlands, suitable or designated wild and scenic rivers, or designated caves. Table 1 discloses the distance of the proposed activities to wetlands delineated by the Army Corps of Engineers. Table 2 discloses the distance of the proposed activities to National Park Service units and Congressionally designated areas. Impacts to Areas or Critical Environmental Concerns are disclosed in Section 1.63. Impacts to historic or cultural resources are described in the Cultural Resources section of the EA and discussed further under item 8.

Table 1 . Distance of the Proposed Activities from Wetlands

Delineated Wetlands	Distance from Proposed Activities
Bancos	57.82 miles (WA project) 42.61 miles (WSA project)
Blanco	34.58 miles (WA project) 37.75 miles (WSA project)
Bloomfield	32.58 miles (WA project) 38.00 miles (WSA project)
Cutter Canyon	38.78 miles (WA project) 39.42 miles (WSA project)
Carrizo Oxbow	49.30 miles (WA project) 42.61 miles (WSA project)
Desert Hills	29.56 miles (WA project) 32.59 miles (WSA project)
Valdez	31.97 miles (WA project) 33.41 miles (WSA project)

Table 2 . Distance of the Proposed Activities from Park Lands and Ecologically Critical Areas

Park Land or Ecologically Critical Area	Distance from Proposed Activities
Ah-Shi-Sle-Pah Wilderness Study Area	Project located in area.
Aztec Ruins National Monument	38.16 miles (WA project) 47.27 miles (WSA project)
Bisti De-Na-Zin Wilderness Area	Project located in area.
Chaco Cultural National Historical Park	18.39 miles (WA project) 6.06 miles (WSA project)
Fossil Forest Research Natural Area	8.93 miles (WA project) and 8.31 miles (WSA project)

4. The activities described in the proposed action do not involve effects on the human environment that are likely to be highly controversial (40 CFR 1508.27(b)(4)). Controversy in this context means disagreement about the nature of the effects, not expressions of opposition to the proposed action or preference among the alternatives (BLM 2008, page 71). Oil and gas development has occurred in the San Juan Basin for more than 60 years. While there may be controversy over the appropriateness of oil and gas development, there is not a high level of controversy or substantial scientific dispute over the impacts of that activity. The impacts of the proposed activities are described in Chapter 3 of the EA.

5. The activities described in the proposed action do not involve effects that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)). As described under Context, oil and gas development has occurred in the San Juan Basin since the late 1940s and early 1950s. The field office has permitted over 30,000 wells and 16,000 rights-of-way. Hydraulic fracturing has occurred on nearly every well in the San Juan Basin since the 1950s. As such, the FFO has decades of experience and is knowledgeable about the impacts and risks associated with the proposed activities.

6. My decision to implement these activities does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)). Approval of these activities in no way assures approval of any future activities.

7. The effects of the proposed activities would not be significant, individually or cumulatively, when considered with the effects of other actions (40 CFR 1508.27(b)(7)). Direct, indirect, and cumulative impacts are described in Chapter 3 of the EA.

8. I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)). The proposed activities are not located in an ACEC containing relevant and important cultural values. Cultural resource surveys were completed prior to implementation. Known cultural resources will be avoided by project activities. Tribal Consultation was completed on August 31, 2015. The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). The project area does not contain any know populations or designated critical habitat. Refer to section 3.2.1.

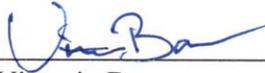
9. The proposed activities will not threaten any violation of Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)). Sections 1.4 and 1.5 of the EA describe the relationship of the proposed activities to relevant laws, policies, regulations, and plans.

## REFERENCES

Barnes, Frank C., 1951. History of development and production of oil and gas in the San Juan Basin. In *The south and west sides of the San Juan Basin, New Mexico and Arizona*, Smith, C.T.; Silver, C. ed(s), New Mexico Geological Society, Guidebook, 2nd Field Conference, pp. 155-160.

BLM. 2008. *National Environmental Policy Handbook. H-1790-1*. Bureau of Land Management. National Environmental Policy Act Program.

## APPROVED:



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Victoria Barr  
District Manager  
BLM Farmington Field Office

Date: 10/16/15



# United States Department of the Interior



## BUREAU OF LAND MANAGEMENT

Farmington District Office  
6251 College Blvd., Suite A  
Farmington, New Mexico 87402  
[www.blm.gov/nm](http://www.blm.gov/nm)

In Reply Refer To:  
6300 (F00000)

**SEP 11 2015**

Dear Reader:

The Bureau of Land Management (BLM) Farmington Field Office (FFO) is providing you with a copy of the preliminary Environmental Assessment (EA) DOI BLM NM F010-2015-0197-EA and unsigned Finding of No Significant Impact (FONSI) for the removal of two Pentaceratops skeletons from the Bisti/De-Na-Zin Wilderness Area and one Pentaceratops skeleton from the Ah-shi-sle-pah Wilderness Study Area by National Guard helicopter airlift.

The enclosed document serves as notice of the environmental analysis process to fulfill the requirement of the National Environmental Policy Act. A 30-day public comment period will begin on September 11, 2015 and end on October 11, 2015.

Comments must be in writing, substantive, and timely in order to merit a written response. Comments should be as specific as possible. The following guidelines will help ensure your comments will be considered:

A. Include your complete name, address, and phone number.

1. Please note that public comments submitted for this review, including names, e-mail addresses, and street addresses of respondents will be available for public review and disclosure at the above address during regular business hours (7:45 am to 4:30 pm), Monday through Friday, except holidays. Individual respondents may request confidentiality.
2. If you wish BLM to withhold your name, e-mail address, or street address from public review or from disclosure under the Freedom of Information Act, you must state this plainly at the beginning of your written comment. Such requests will be honored to the extent allowed by law.
3. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

- B. Identify the part of the document on which you are commenting; at a minimum, provide the chapter, section, and page number.
- C. Ensure your comments are substantive. Substantive comments do one or more of the following:
1. Question, with reasonable basis, the accuracy of information in the EA (example: “Based on 2009 surveys by the Wildlife Department, the number of beaver dams appears to be incorrect.”).
  2. Question, with reasonable basis, the adequacy of, methodology for, or assumptions used for the environmental analysis (example: “The Department of Environmental Quality uses a more accurate methodology for calculating water quality.”). Describe the alternative methodology you prefer be used and explain why.
  3. Present new information relevant to the analysis (example: “Based on a 2009 survey by the Fish and Game Department, pike minnow also inhabit Cedar Creek.”).
  4. Present reasonable alternatives other than those analyzed in the EA (example: “Please find enclosed a Maximize Geothermal Development alternative.”).
  5. Cause changes or revision in one or more of the alternatives (example: “Construction of a new road is not necessary in Alternative A because County Road 635 could be used.”).
- D. Comments that are not considered substantive include the following:
1. Comments in favor of or against the proposed action or alternatives without reasoning that meet the criteria listed above (examples: “We disagree with Alternative A and believe the BLM should select Alternative C.” or “I like Alternative C.”).
  2. Comments that only agree or disagree with BLM policy or resource decisions without justification or supporting data that meet the criteria listed above (example: “Camping should be prohibited.”).
  3. Comments that don’t pertain to the project area (example: “All roads in New Mexico should remain open.”).
  4. Comments outside the scope of the action (example: “The BLM should not allow any livestock grazing.”).
  5. Comments that take the form of vague, open-ended questions (example: “What about restoration?”).
- E. Comments are more helpful if they:
1. Are clear, concise, and relevant.
  2. Are solution-oriented and provide specific examples.
  3. Respond to the Purpose and Need for the action.

F. We request you respond by supplying your written or e-mail comments to:

Address: Bureau of Land Management  
Attn: Doug McKim, Outdoor Recreation Planner  
Farmington Field Office  
6251 College Blvd, Suite A  
Farmington, New Mexico 87402

E-mail: [blm\\_nm\\_ffo\\_comments@blm.gov](mailto:blm_nm_ffo_comments@blm.gov)  
(Please add "F010-2015-0197" in the subject line)

G. The EA will be available on the Farmington BLM homepage at:

[http://www.blm.gov/nm/st/en/fo/Farmington\\_Field\\_Office/ffo\\_nepa/ffo\\_natural\\_resources.html](http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_nepa/ffo_natural_resources.html)

H. If you have any questions regarding these permit renewals, please contact Doug McKim at (505) 564-7676 in Farmington, New Mexico.

Sincerely,

A handwritten signature in blue ink, appearing to read "Victoria Barr".

Victoria Barr  
District Manager

Enclosure: Unsigned Finding of No Significant Impact (FONSI) (5 pages)

**United States Department of the Interior  
Bureau of Land Management**

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Environmental Assessment DOI-BLM-NM-F010-2015-0197

*Removal of Two Pentaceratops Partial Skeletons from the  
Bisti/De-Na-Zin Wilderness Area  
And a Pentaceratops Skull and Partial Skeleton from the Ah-  
Shi-Sle-Pah Wilderness Study Area*

September 2015

U.S. Department of the Interior  
Bureau of Land Management  
Farmington District  
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BLM

**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.**

# TABLE OF CONTENTS

1.	Purpose and Need for Action .....	1
1.1.	Background .....	1
1.2.	Purpose and Need for Action .....	1
1.3.	Decision to be Made.....	1
1.4.	Conformance with Applicable Land Use Plan(s).....	5
1.5.	Relationship to Statutes, Regulations or Other Plans .....	5
1.6.	Scoping, Public Involvement, and Issues.....	5
2.	Proposed Action and Alternative(s).....	7
2.1.	Proposed Action .....	7
2.2.	No Action Alternative .....	9
2.3.	Alternatives Considered but Eliminated from Detailed Study .....	9
3.	Affected Environment and Environmental Consequences.....	10
3.1.	Cultural Resources and American Indian Religious Concerns .....	10
3.2.	Special Management Species.....	11
3.3.	Soils.....	13
3.4.	Wilderness and Wilderness Study Areas .....	15
3.5.	Paleontology.....	17
3.6.	Recreation .....	17
4.	Supporting Information .....	18
4.1.	Tribes, Individuals, Organization, or Agencies Consulted .....	18
4.2.	List of Preparers .....	19
4.3.	References .....	19
	Appendix .....	22

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# 1. PURPOSE AND NEED FOR ACTION

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## 1.1. Background

The San Juan Basin, including the Bisti/De-Na-Zin Wilderness Area (WA) and Ah-Shi-Sle-Pah Wilderness Study Area (WSA), are two 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 these areas are frequently of high scientific or educational importance and are managed as a sensitive resource, not every fossil is planned for excavation and will be evaluated on an individual basis.

The BLM has authorized excavation of two fossils of high scientific value; one each in the Bisti/De-Na-Zin Wilderness and Ah-Shi-Sle-Pah WSA. The fossils are approximately 2,000 lbs. at the first site and 4,923 lbs. at the second site. The excavation sites are located approximately 51 miles south of Farmington, NM. The excavation site located in the Ah-Shi-Sle-Pah WSA is in Section 6 of T22N R10W (Figure 2) and in the Bisti/De-Na-Zin WA are in Section 23 of T24N R13W (Figure 3).

## 1.2. Purpose and Need for Action

The purpose for the proposed action is to recover scientifically important fossils in order to provide for the study of those fossils and to preserve the wilderness character they represent in the form of scientific and educational values from BLM managed lands.

The need for the action is to remove previously excavated fossils at a site within the Bisti/De-Na-Zin WA and at a site within the Ah-Shi-Sle-Pah WSA so that scientific information is not lost thus diminishing the supplemental values of the Wilderness and WSA.

## 1.3. Decision to be Made

The BLM will decide whether or not to issue a paleontological permit to remove fossils from the Bisti/De-Na-Zin WA and from the Ah-Shi-Sle-Pah WSA 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 Farmington District Manager is the responsible officer who will decide either:

- To approve the permit with stipulations 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.

Figure 1. Project overview

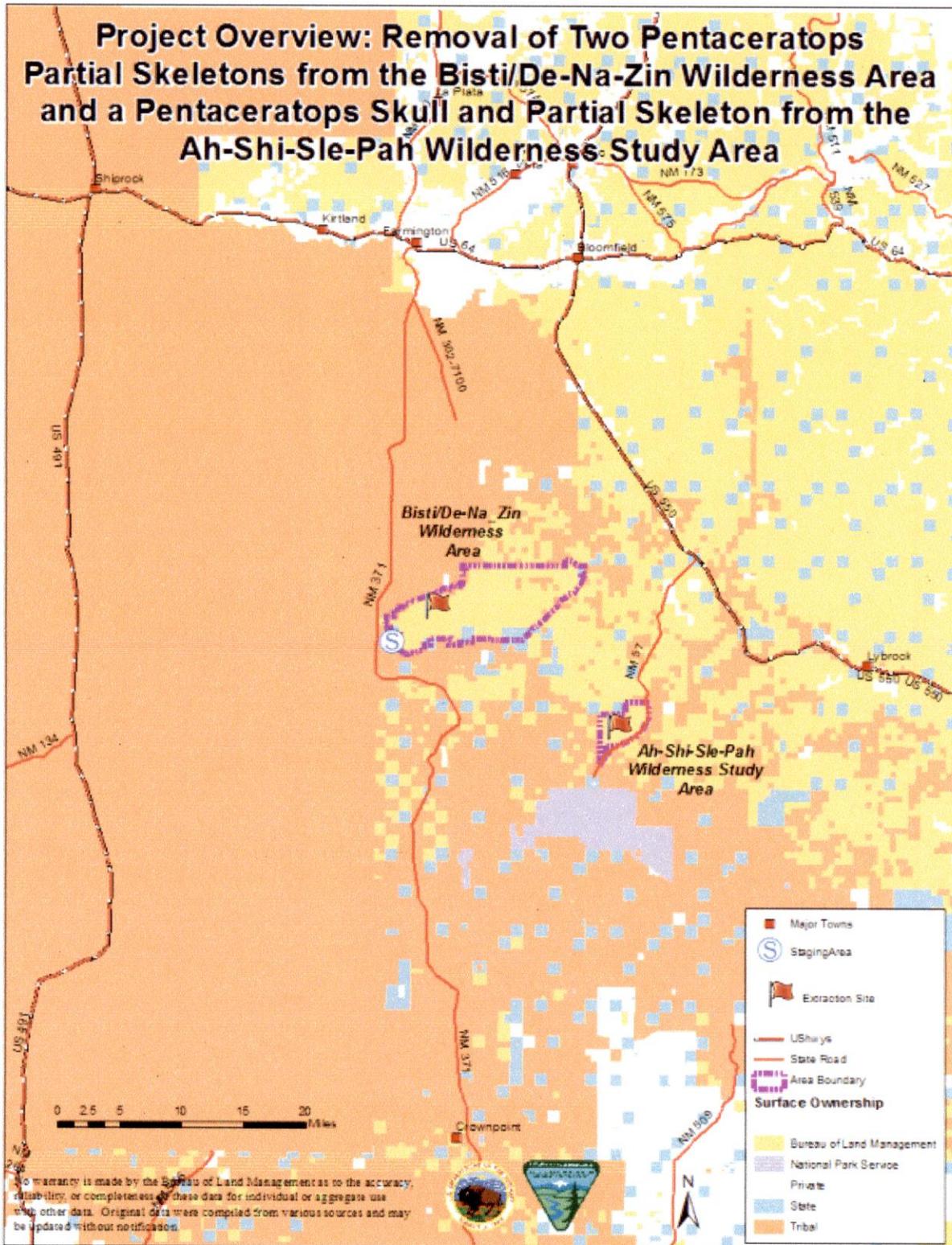


Figure 2. Map of Ah-Shi-Sle-Pah Wilderness Study Area Extraction Site

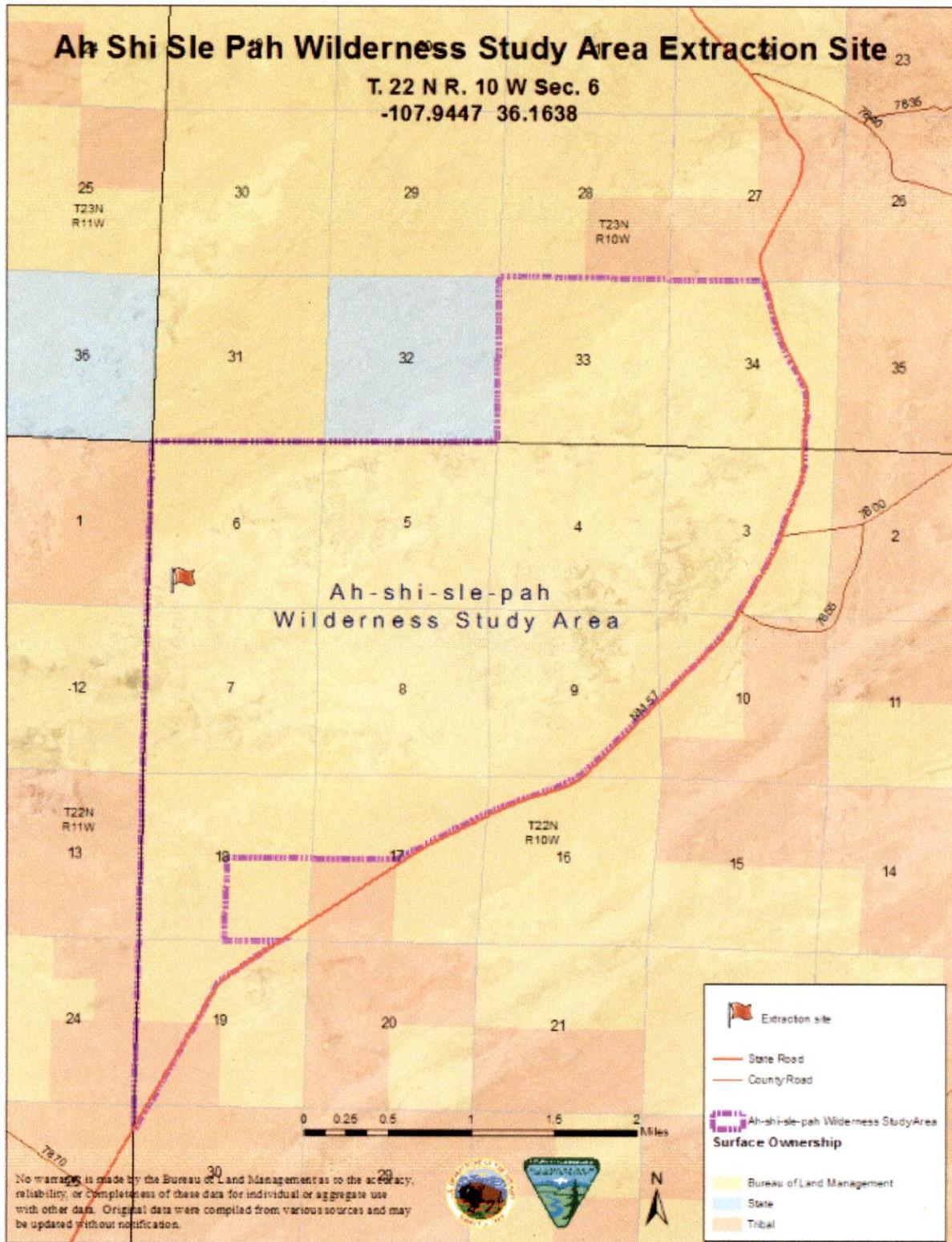
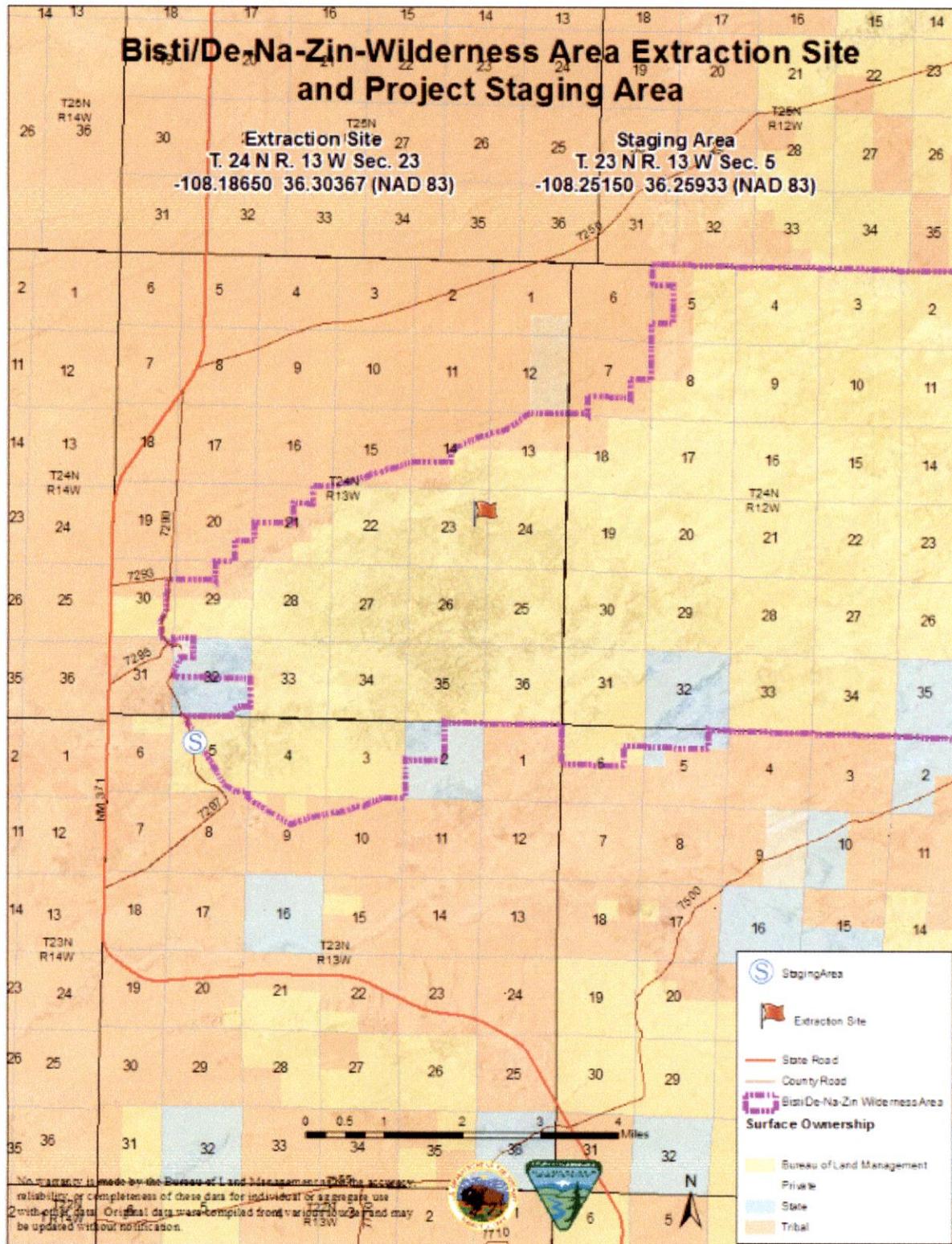


Figure 3. Map of Bisti/De-Na-Zin Wilderness Area Extraction Site and Staging Area



## **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-Sle-Pah WSA and Bisti/De-Na-Zin WA.

## **1.5. Relationship to Statutes, Regulations or Other Plans**

The land use plan in conformance with the BLM's responsibility under the Federal Land Policy and Management Act (FLMPA) to respond to the request for a paleontology permit to remove excavated fossils. FLMPA (P.L. 94-579.) requires that public lands be managed in a manner that protects the quality of scientific and other values.

The Paleontological Resources Preservation Act (P.L. 111-11), and the Wilderness Act (P.L. 88-577).

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 ACT Public Law 88-577 (16 U.S.C. 1131-1136) 88th Congress, Second Session September 3, 1964.

(BLM Manual 6340) "Management of Designated Wilderness Areas" allows for the regulated collection of fossils when needed to preserve wilderness character.

(BLM Manual 6330) "Management of Designated Wilderness Study Areas" allows for the recovering and recording of important scientific data that clearly benefit the wilderness characteristics of the WSA.

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.

BLM Farmington Field Office compliance with Section 106 of the National Historic Preservation Act is adhered to by following the State Protocol Agreement between New Mexico BLM and New Mexico State Historic Preservation Officer (BLM-SHPO 2014), which is authorized by the National Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (NPA 2012), and other applicable BLM handbooks.

The proposed project would not be in conflict with any state, county, or local plans.

## **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 permit was introduced and discussed by FFO resource specialist on August 17, 2015 at the weekly FFO NEPA meeting. Resource issues discussed included, paleontology, wilderness, recreation, soil, cultural values, and special status species. Potential tools that may be utilized were discussed including helicopter airlift, motor vehicles, and non-motorized means to remove three excavated fossil jackets.

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 Wilderness Character of the Wilderness area?
- How would the proposed action impact Wilderness Characteristics of the WSA?

- 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?
- How would the proposed action affect Recreation in the project area?

## 2. PROPOSED ACTION AND ALTERNATIVE(S)

### 2.1. Proposed Action

The BLM is proposing to issue a permit to Dr. Spencer Lucas for the removal of two partial *Pentaceratops* skeletons from the Bisti/De-Na-Zin WA (Figure 4) and a *Pentaceratops* skull and partial skeleton from the Ah-Shi-Sle-Pah WSA (Figure 5). All operations would be completed by the permit holder and personnel under his direction, and would be monitored by BLM staff.

Figure 4. Photo at Bisti/De-Na-Zin Wilderness Area, 36.30367 -108.18650 NAD83



Figure 5. Photo at Ah-Shi-Sle-Pah Wilderness Study Area Extraction Site, 36.16383 -107.97767 NAD83



The proposal is to remove the three excavated fossils from the Wilderness and WSA by helicopter and to load them on a semi-truck at the parking area located off of Hwy 371 as shown in Figure 6. The airlift would take place within 3-4 hours on a weekend day. The permit would be valid for one calendar year, until the fossils are removed. The National Guard helicopter, semi-truck, and associated activities would be staged outside of the WA (Figure 6). Personnel working on the removal would be at the staging site to direct traffic. The helicopter would not land within the WA or WSA. Four personnel would walk to the excavation site to prepare the jacketed fossils for airlift and to attach them to the lift lines.

**Figure 6. Staging Area at Bisti Parking Access**



After the fossils have been removed, the excavated site will be reclaimed by hand tools.

The proposed projects would be granted under a BLM issued Paleontological permit by the New Mexico State Office (NMSO). The permit would be issued from the date the Decision Record (DR) and Finding of No Significant Impacts (FONSI) is approved.

Dr. Lucas would coordinate the timing of the proposed project with appropriate staff at the FFO and the BLM New Mexico State Office to assure that BLM staff are available to monitor the project.

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### **2.1.1. Design Features**

The removal and transportation of the fossils will use the below design features to minimize the impacts to the WSA, WA and the environment:

- Access to the sites within the Wilderness and WSA would be allowed only on foot;
- Foot travel in the Wilderness and WSA would be on existing animal trails or wash bottoms, to the extent possible;
- No fences will be cut or closed gates left open in order to access the excavation site.
- Remnants or fragments of plaster, other jacketing material, or any other items used during the excavation process will be removed from the sites (these are not to be buried);

- Reclamation of the site would be to a substantially unnoticeable condition, using a combination of back-fill, re-contouring, and raking the surface in a manner which would match the color, line, texture, and contrast of the surrounding, unexcavated land.
- The staging area and roads would not be used during wet periods which would leave tire tracks deeper than 1 inch.
- Vehicular activity other than the helicopter is restricted to existing roads outside of the WA and WSA.
- All refuse including human feces and toilet paper will be packed out and disposed of in a certified disposal facility.
- In the event cultural artifacts are discovered the permit holder must stop work and immediately notify the FFO.

## **2.2. No Action Alternative**

Under the No Action Alternative, the FFO would not grant the removal permit described in the Proposed Action. Under this alternative the *Pentaceratops* skulls and partial skeletons would be left in plaster jackets and exposed to eventual deterioration from natural weathering processes and the possible destruction by souvenir hunters.

## **2.3. Alternatives Considered but Eliminated from Detailed Study**

Two alternatives were considered but eliminated from detailed study.

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 removal by amateurs thus adversely threatening the significance of the resource. Until new technology is developed 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.

An additional alternative considered was to use pack animals and sleds to remove fossils from the Wilderness, however this was eliminated due to the expected impacts of sleds to the soils and vegetation. Sleds would be expected to cause considerable rutting, trampling and depressions to the soil and damage to vegetation which would be a lasting visual impact and disruption to water flow which would result in gullies and eventually larger soil impacts.

## 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

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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

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#### 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. Consultation by letter dated July 27, 2015 with the Navajo Nation Historic Preservation Department, Huerfano Chapter House, and Nageezi Chapter House yielded no concerns or objections based on traditional issues.

Cultural resources within the entire Area of Potential Effect (APE) for the Proposed Action were identified by a literature review and an archaeological BLM Class III level (100%) pedestrian survey by BLM cultural resources staff and a report was prepared (2015(III)007F). The Class III inventory identified no cultural sites within the APE. No TCPs are known to exist in the APE.

#### 3.1.2. *Impacts from the No Action*

##### Direct and Indirect Impacts

There would 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

There are no known historic properties within the APE. The Proposed Action will have no direct or indirect impacts on historic properties (no historic properties affected).

#### Cumulative Impacts

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

## 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 1.

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.

**Table 1. Special Management Species of the BLM/FFO and their potential to occur in the proposed action area.**

Common Name ( <i>Scientific name</i> )	Status*	Habitat Associations	Presence**
<b>BIRDS</b>			
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	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 ( <i>Buteo regalis</i> )	SMS	Breed in open country, usually prairies, plains and badlands; semidesert grass-shrub, sagebrush-grass & piñon-juniper plant associations.	S
Golden eagle ( <i>Aquila chrysaetos</i> )	SMS	In the west, mostly open habitats in mountainous, canyon terrain. Nests primarily on cliffs and trees.	S
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	SMS NM-T	Nests in forested areas adjacent to large bodies of water.	NP
Burrowing Owl	SMS	Open grasslands or	S

<i>(Athene cunicularia)</i>		desert scrub. Presence of suitable nest burrow is critical prerequisite (often prairie dog burrows).	
Prairie falcon ( <i>Falco mexicanus</i> )	SMS	Forages in open grassland, desert scrub, rangeland, and agricultural areas; nests in cavities and trees, and on ledges, cliffs, and power structures.	S
Mountain plover ( <i>Charadrius montanus</i> )	SMS	Lowland grasslands, sites with grassland characteristics (alkali flats, agricultural lands).	NP
Yellow-billed cuckoo ( <i>Coccyzus americanus</i> )	SMS C		NP
<b>PLANTS</b>			
Brack's hardwall cactus ( <i>Sclerocactus cloveriae</i> ssp <i>brackii</i> )	SMS NM-E	Sandy clay strata of the Nacimiento Formation in sparse shadscale	NP
Aztec gilia ( <i>Aliciella formosa</i> )	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 2008, New Mexico Natural Heritage Program 2013, NM Rare Plant 1999, USFWS 2015.

**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.

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### **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.

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### **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.

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## **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 (BA) soil unit. The staging area is located in the Sheppard-Huerfano-Notal Complex (SC).

The Badland mapping unit is classified as somewhat excessively drained and highly erodible. Badlands are steep or very steep, commonly non-stony, barren land dissected by many intermittent drainage channels. Runoff potential is very high, and geologic erosion is active (USDA/SCS 1980). The Badland soil type consists of nonstony barren shale uplands that are dissected by deep intermittent drainages and gullies, and is located on slopes ranging from 5 to 80 percent. The badland soils do not support vegetation in significant quantities, but can be utilized by wildlife. The native vegetation is mainly sparse grasses. Elevation is 4,800 to 7,200 feet.

The Sheppard-Huerfano-Notal Complex map unit is primarily located on valley bottoms, fans, mesas, and plateaus. The map unit has slopes ranging from 0 to 8 percent and the primary vegetation are grasses. The map unit consists of: 40 percent Sheppard loamy fine sand, 30 percent Huerfano sandy clay loam, and 20 percent Notal clay loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

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.

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### **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.

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### **3.3.3. Impacts from the Proposed Action**

#### **Direct and Indirect Impacts**

The proposed excavation sites resulted in 192 square feet (<0.0045 acres) of new soil disturbance within the Badland soil unit. Soils at the excavation site, including compaction around the site, were disturbed and displaced by hand tool extraction. 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 minimal based on the small area of disturbance, and design features.

Related vehicle traffic would be restricted to the existing roads and the staging area. The proposed staging area would not be used during periods of excessive moisture, to prevent excessive rutting and soil compaction. The temporary use of the proposed staging area would not remove the vegetation down to bare ground and would cause minimal soil erosion. For a short period of time (approximately 10 minutes), the helicopter would hover over the casted fossils while they are attached to a sling to carry them out of the WA and WSA. Rotor wash from the helicopter may displace some of the loose surface soil in a small confined area, however, this is expected to be an area smaller in size than previous disturbance.

The proposed action would have less than 0.01 acres of bare ground disturbance; therefore the proposed project would not be required to meet the FFO Bare Soil Reclamation Procedures.

Past excavation sites are extremely difficult to find. The barren land heals its visual scars given heavy precipitation events. Effects from the proposed action would 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 cumulative impact analysis area for the proposed actions is the De-na-zin Wash, Hunter Wash, and Kim-me-ni-oli Wash-Chaco River (hydrologic unit code 10 (HUC 10)). The total acreage for the analysis area is approximately 422,479 acres, which encompasses both the Bisti /De-Na-Zin Wilderness and the Ah-Shi-Sle-Pah WSA. Past, present, and future impacts to the analysis area include: recreation, grazing, unauthorized grazing, and O&G development. Past, present, and future developments are expected to result in a range of short- and long-term impacts to soils, including disturbance, temporary or permanent increases in erosion prior to reclamation, and reduction of soil loss to erosion where reclamation and re-vegetation occurs. Three hundred thirty seven (337) oil and gas wells have been developed in the analysis area. These wells have resulted in approximately 1,170 acres of surface disturbance. Based on the RFD (Engler et al. 2014), oil and gas development in the three watersheds may result in approximately 1,220 additional acres of disturbance. Approximately 935 of those acres would be short-term disturbance and 285 acres would be long-term disturbance. The proposed action would result in a miniscule amount of disturbance when compared to cumulative impacts within the analysis area. Impacts from the proposed action are not expected to contribute appreciably to cumulative impacts to soils when added to past, present, and reasonably foreseeable actions.

## **3.4. Wilderness and Wilderness Study Areas**

### **3.4.1. Affected Environment**

The proposed action includes one site in the 44,792 acre Bisti/De-Na-Zin Wilderness and one site in the 6,592 acre Ah-Shi-Sle-Pah WSA.

The first site is within the Bisti/De-Na-Zin Wilderness. The Farmington Field Office manages the 44,792 acre Bisti/De-Na-Zin Wilderness to preserve its wilderness character. The wilderness character of the Bisti/De-Na-Zin include its many opportunities for solitude and the unique badland sand stone features. There are no regular or ongoing trammeling activities in the wilderness, the wilderness has a high degree of the untrammled quality. The wilderness is mostly natural, that is there are few occurrences of non-native plants with native plants and animals within their normal range of variability. Natural processes are able to operate freely. The area is largely undeveloped, except for approximately 28 miles of fence line and 3.7 miles of former vehicle routes that area within the wilderness. Approximately 3,758.62 acres of non-BLM inholdings and edge holdings are located within the Wilderness. There are no regularly authorized vehicle uses in the wilderness. The Wilderness has abundant outstanding opportunities primitive recreation in the form of day hiking, overnight backpacking, nature study, exploring broadly without the presence of trails, and photography in a setting of unusual geological formations of high scenic value. The opportunity for solitude is very great, except within a two mile radius from the Bisti and De-Na-Zin trailhead parking areas where solitude is less possible during the weekends due to the high popularity of the scenic values near these access points.

Paleontological resources are a supplemental feature unique to the Bisti/De-Na-Zin Wilderness and an important part of its wilderness character. Regulated collection of fossil materials is allowed in wilderness when the fossil material is of important scientific value and removal is integral to preserving the wilderness character of the area so that the scientific and educational benefits may be realized. The benefits of wilderness derived from research can be significant and benefit the understanding of the wilderness and its value by those visiting. The benefits to wilderness provided by any scientific activity must outweigh the impacts the activity may cause to other elements of wilderness character.

The second site is within the Ah-Shi-Sle-Pah Wilderness Study Area. The Farmington Field Office manages the 6,592 acres Ah-shi-sle-pah WSA so as to not impair it's suitability for preservation as wilderness. The WSA was determined to be natural with several substantially unnoticeable developments including four earthen dams, eight miles of fence, four miles of primitive routes, five drill sites, and six monitoring gauges. Outstanding opportunities were identified in association with the badland geology which provides seclusion and areas of interest for hiking, camping, horseback riding, sightseeing and photography. Scenic, geologic, scientific, and education special features were identified in association with the badland and fossil geology. Recreation in the WSA is managed for its primitive values. The area provides recreational opportunities for local, in-state, out-of-state, and international visitors. The WSA provides 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 unique scenery and solitude found there. Solitude in the WSA is high because the nearby Bisti/De-Na-Zin offers similar or more dramatic scenery and is better known. Management Prescriptions apply semi-primitive non-motorized objectives to the Recreation Opportunity Spectrum. The WSA is closed to motorized and mechanized equipment.

Exceptions to the non-impairment standard that apply to the proposal are limited to the exception for projects that enhance wilderness characteristics or values. Certain projects that recover or record important scientific paleontological data serve to preserve the data and enhance the data's value to the WSA by making the natural history of the WSA available for scientific study and more known and readily available to visitors seeking educational and interpretive experiences.

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### **3.4.2. Impacts from the No Action**

#### **Direct and Indirect Impacts**

The No Action alternative would not authorize the removal of the fossils from either the Bisti/De-Na-Zin Wilderness or Ah-Shi-Sle-Pah WSA. Under this alternative, there would be no impact to the untrammeled, natural, undeveloped, or outstanding opportunities of the Bisti/De-Na-Zin Wilderness. There would be no impairing impact to the Ah-Shi-Sle-Pah WSA. The supplemental values of paleontological scientific importance would be available for very limited study on site, but would be gradually lost to erosion. The unrealized scientific value of the wilderness would be lost over time and the educational values provided to wilderness visitors and offsite educational values would be reduced and eventually lost over time.

#### **Cumulative Impacts**

There will be no cumulative impacts from this alternative.

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### **3.4.3. Impacts from the Proposed Action**

#### **Direct and Indirect Impacts**

Impacts to solitude would be mitigated by conducting the removal during the weekend when visitors expectation for solitude are less than during weekdays when fewer people visit. The scientific value of the paleontological resources would be greater through removal, making this quality of wilderness character more fully realized to future visitors to the wilderness, as well as those benefiting from the wilderness off-site.

Under the proposed action removal of fossils from the Bisti/De-Na-Zin Wilderness and Ah-Shi-Sle-Pah WSA would be authorized. Under this alternative, there would be no impact to the untrammeled or natural qualities of the Bisti/De-Na-Zin Wilderness. The undeveloped quality would be impacted by the use of a helicopter to airlift the fossil out. This would be a temporary impact of approximately 30 minutes to an hour. As visitors are most sensitive to disruption of solitude during the week when visitation is low and the expectation of solitude is the greatest, the impact to solitude would be partially mitigated by conducting the activity during the weekend. Opportunities for outstanding solitude and the related primitive recreation would be impacted concurrently. Helicopter overflights to airlift the plaster jackets out of the WA and WSA can affect the wilderness character and visitor experience. Helicopter flights and the presence of field crews would diminish the sense of isolation and remoteness from the sights and sounds of human activities

The proposed action would satisfy the non-impairment standard in the Ah-Shi-Sle-Pah WSA, as the proposal is solely to remove the fossils. The previous excavation was an impairing activity but was not analyzed in this EA. The scientific value of the paleontological resources would be greater through removal, making this quality of wilderness characteristics more fully realized to future visitors to the WSA, as well as those benefiting from the WSA off-site. There would be no impairing impact to the Ah-Shi-Sle-Pah WSA. There would be a temporary loss of solitude during the operation, but not an impairment based on solitude loss. There would be a direct impact of the removal creating a loss to the public opportunity to view the bones in the natural environment. The supplemental values of paleontological scientific importance would be available for very limited study on site, but would be gradually lost to erosion. The unrealized scientific value of the wilderness would be lost over time and the educational values provided to wilderness visitors and offsite educational values would be reduced and eventually lost over time.

#### **Cumulative Impacts**

Authorizing use of the helicopter will increase the amount of human influence within the WA and WSA potentially altering the perception of the wilderness as a place generally free of mechanization. There are no physical cumulative effects expected from the use of the helicopter. 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.

## **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 crocodylians.

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.

## **3.6. Recreation**

### **3.6.1. Affected Environment**

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 WA and WSA 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 WA and WSA are closed to motorized and mechanized equipment. This action will not restrict access by the public to either the WA or WSA.

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### 3.6.2. 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 are no cumulative impacts from this action.

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### 3.6.3. 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.

Primitive recreation, and the solitude which enhances that recreation, would be impacted by helicopter overflights to airlift the plaster jackets out of the WA and WSA. The overflights and field crews would affect the quality of the visitor's experience, diminishing the sense of isolation and remoteness typically experienced by a person enjoying primitive recreation. This would be a temporary impact of approximately 30 minutes to one hour, and would be partially mitigated by conducting the activity during the weekend when the expectation of solitude is the least.

#### Cumulative Impacts

There are no cumulative impacts to recreation based resources due to this project.

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## 4. SUPPORTING INFORMATION

### 4.1. Tribes, Individuals, Organization, or Agencies Consulted

Table 1 contains a list of tribes, individuals, organizations, and agencies invited to attend the on-site for the project.

**Table 1. Tribes, Individuals, Organizations, and Agencies Invited to the On-Site**

Name	Tribe, Organization, or Agency	Attended On-Site
Navajo Nation Historic Preservation Office	Navajo Nation	No
Huerfano Chapter	Navajo Nation	No
Nageezi Chapter	Navajo Nation	No

The BLM fulfills its responsibilities under the National Historic Preservation Act (NHPA) through a number of agreements. The National Programmatic Agreement (NPA; 2012) between the BLM, Advisory Council on Historic Preservation (ACHP), and the National Council of State Historic Preservation Officers (NCSHPO) allows the agency to fulfill its NHPA responsibilities according to the provisions of the NPA in lieu of 36 CFR 800.3 through 800.7 regulations. The NPA, which applies to all BLM activities below specified thresholds, provides among other things, regulatory relief in many instances from the

requirement for case-by-case review by State Historic Preservation Officers (SHPOs) and the ACHP, in exchange for managers' maintenance of appropriate staff capability and observance of internal BLM standards as set out in the 8100 Manual series.

The New Mexico BLM has a two-party protocol with the New Mexico SHPO (2014) specifically encouraged by the NPA. This protocol details how the New Mexico BLM and SHPO will regulate their relationship and consult. Specifically, this document outlines among other things, how and when consultation will be conducted between the BLM, SHPO, Tribes, and the public. The protocol also outlines when case-by-case SHPO consultation is or is not required for specific undertakings and the procedures for evaluating the effects of common types of undertakings and resolving adverse effects to historic properties. These common types of undertakings regularly include the common actions undertaken in the BLM FFO.

## 4.2. List of Preparers

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

Name	Title	Affiliation
Sherrie Landon	Environmental Protection Specialist/Paleontological Coordinator	BLM-FFO
Jim Copeland	Archaeologist	BLM-FFO
Craig Willems	Natural Resource Specialist/Soils	BLM-FFO
Timothy Wakefield	Acting Field Manager	BLM-FFO
Marcella Martinez	Planning & Environmental Specialist	BLM-FFO
John Kendall	Wildlife Biologist T&E	BLM-FFO
Doug McKim	Outdoor Recreation Specialist	BLM-FFO
Sarah Scott	Supervisory Multi-Resource Specialist	BLM-FFO
James Sippel	NLCS Wilderness Lead	NLCS/WO

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The Endangered Species Act of 1973

The Federal Land Policy and Management Act of 1976 (P.L. 94-579)

The National Environmental Policy Act of 1969 (P.O. 91-190)

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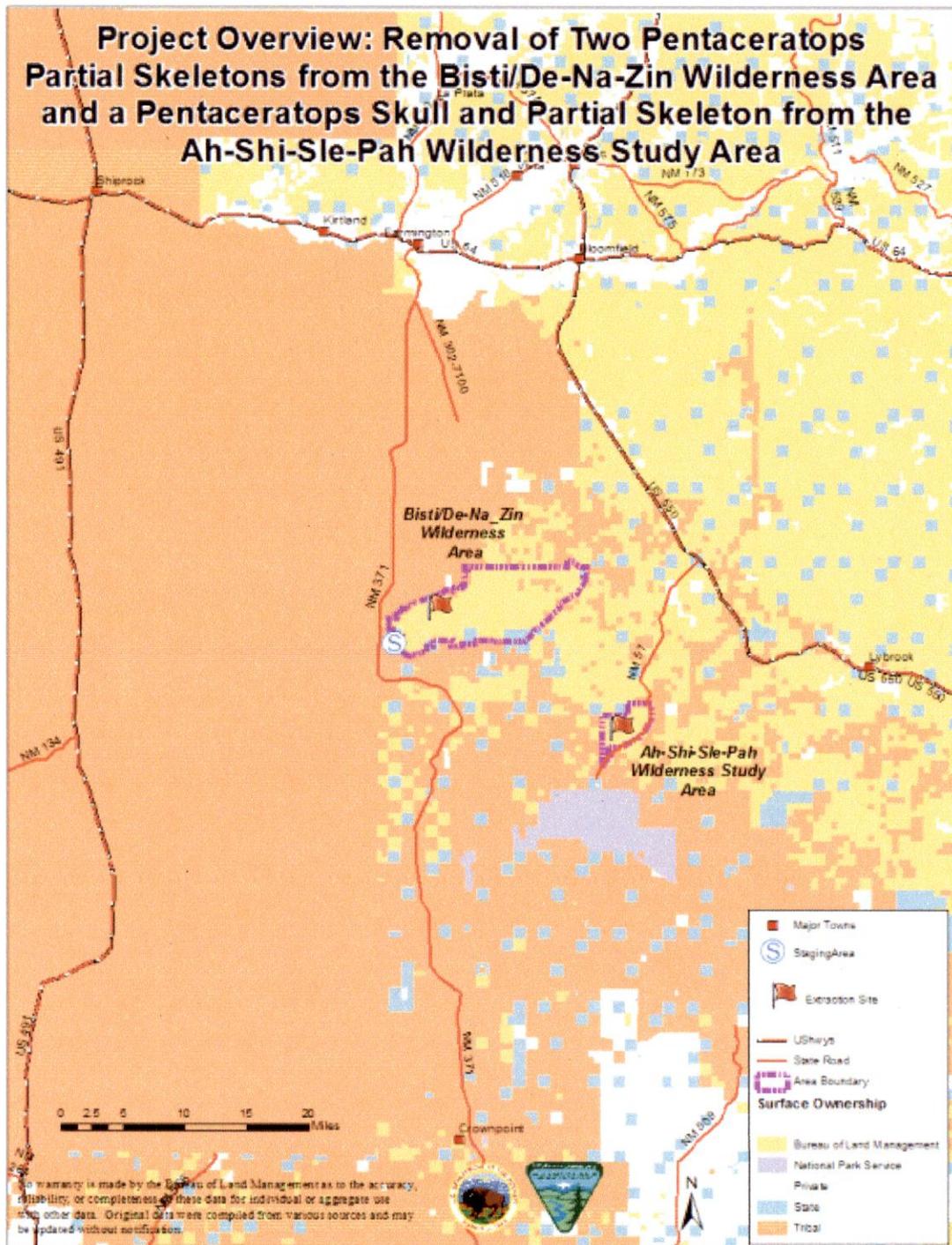
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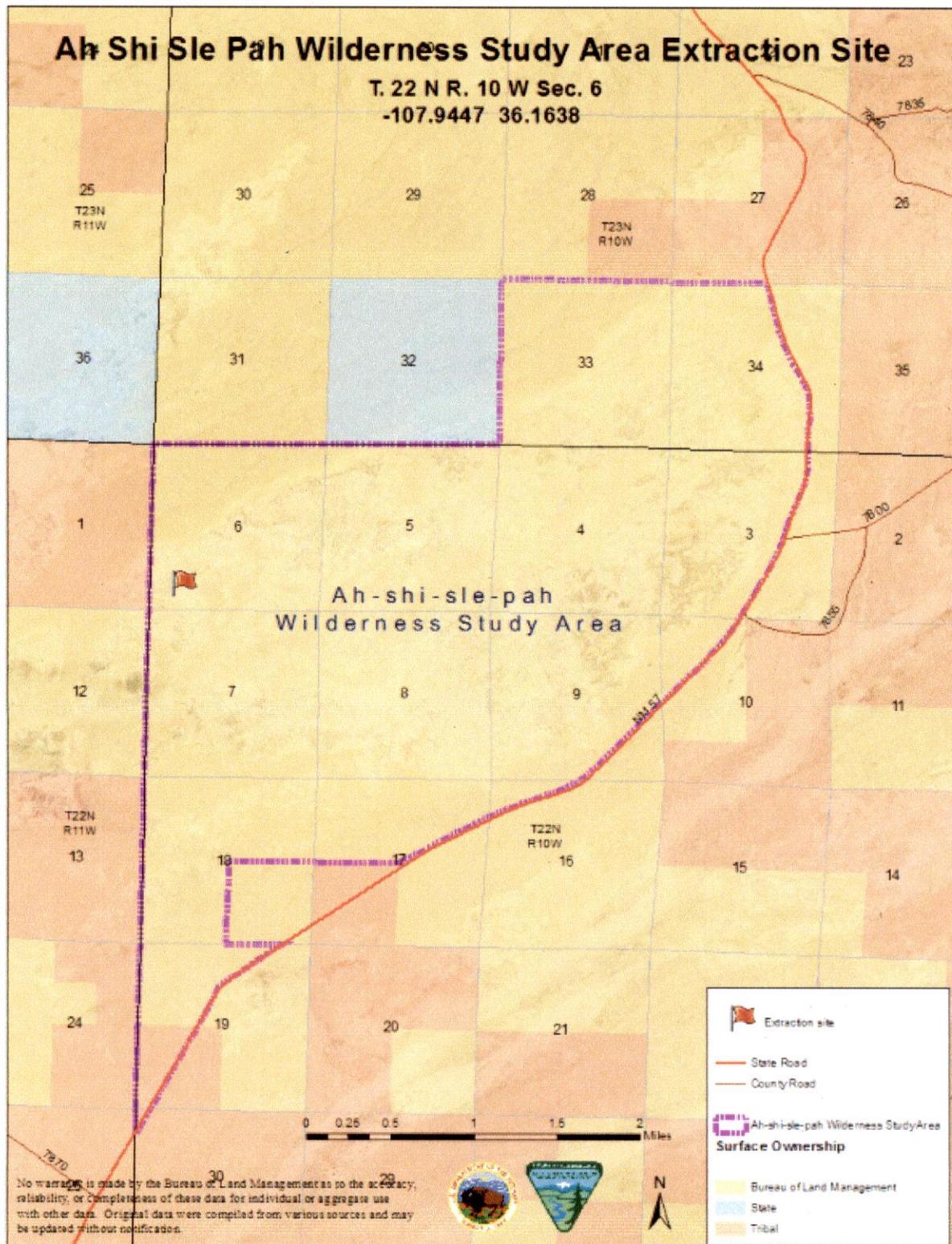
# APPENDIX

## A.1. Figures

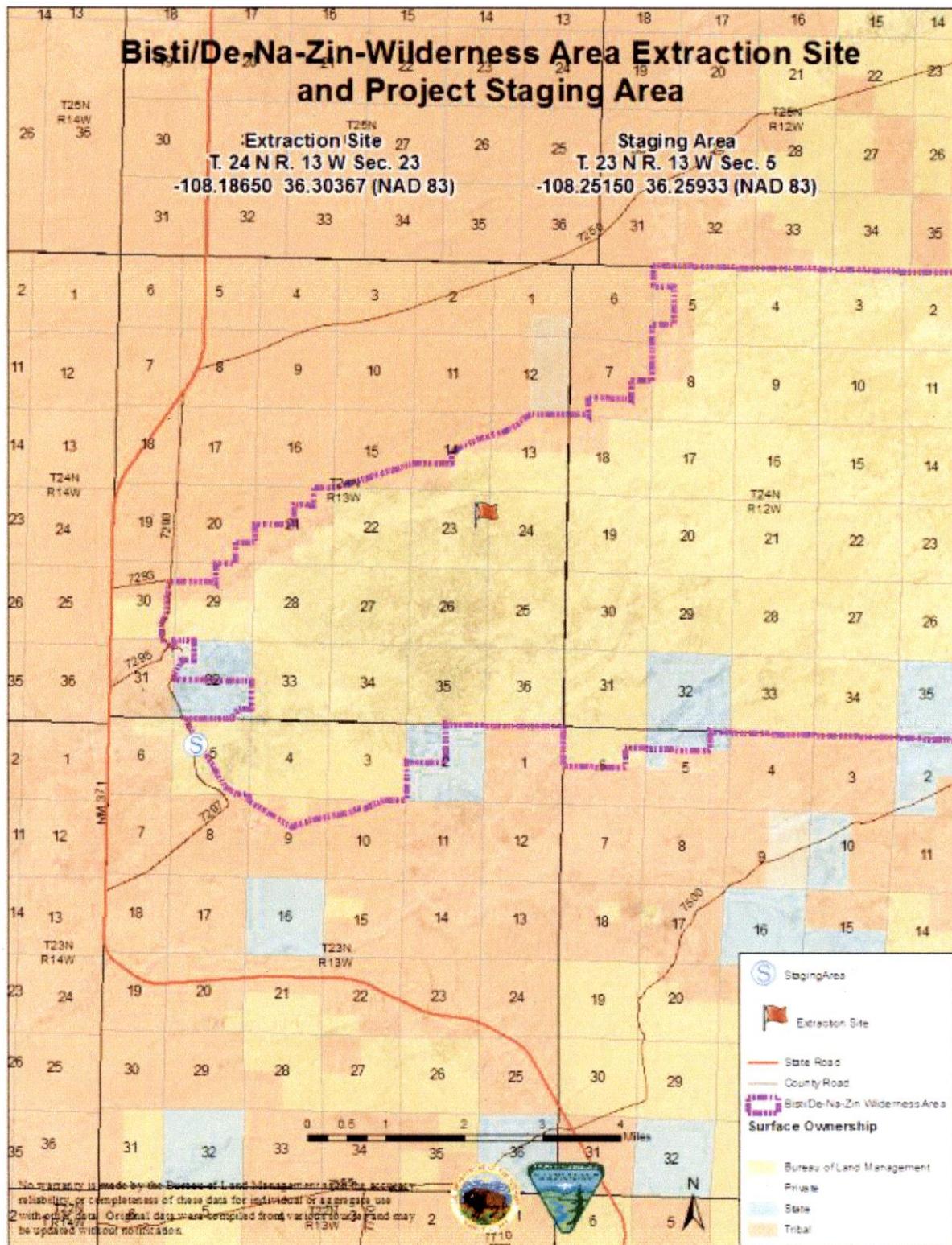
A.1.1. Figure 1. Overview Map



A.1.2. Figure 2. Map of Ah-Shi-Sle-Pah extraction site

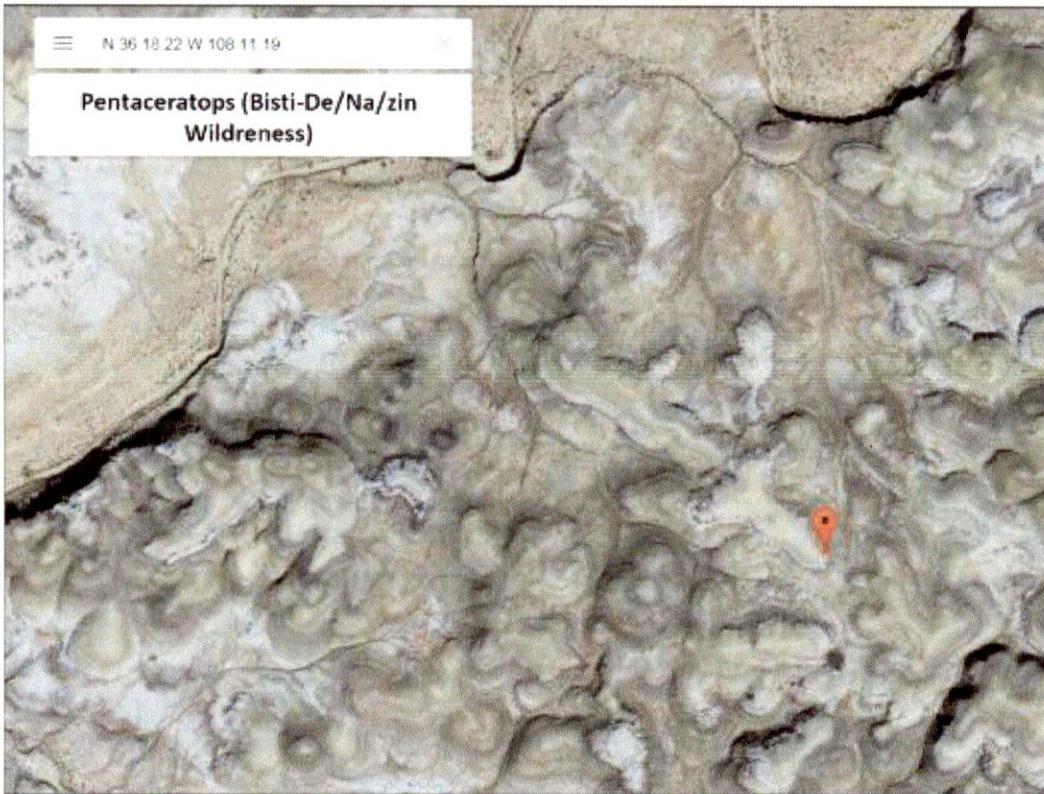


A.1.3. Figure 3. Map of Bisti/De-Na-Zin Wilderness Area extraction site

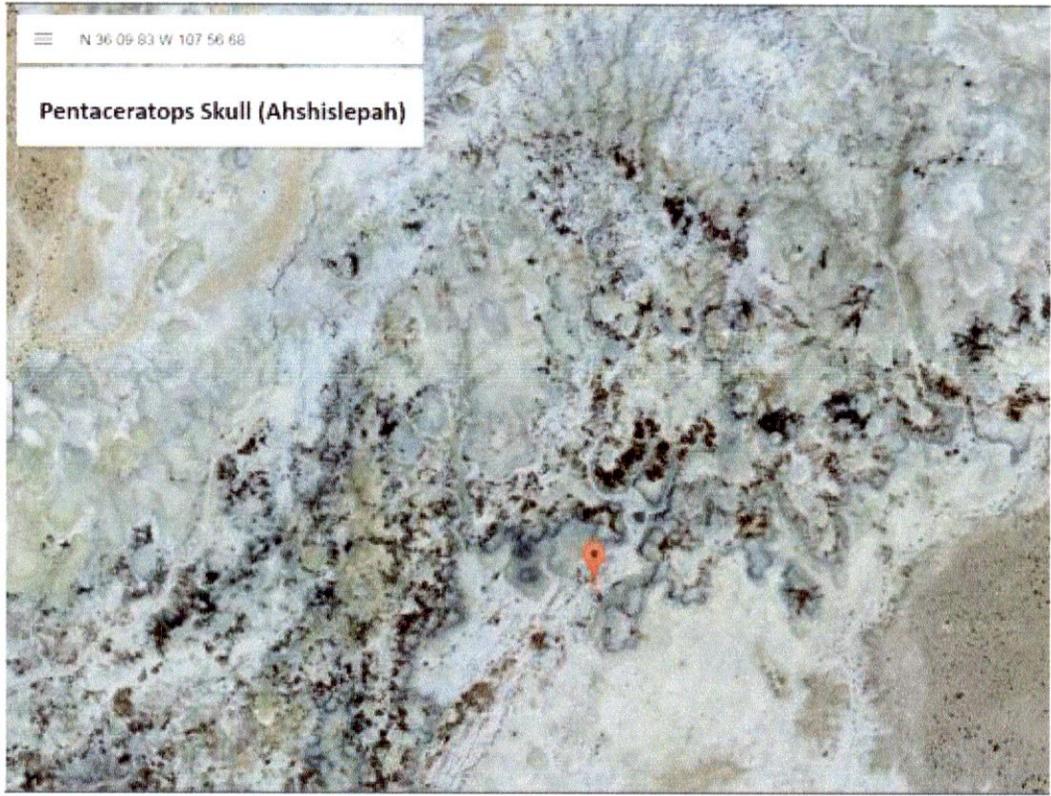


## A.2. Photos

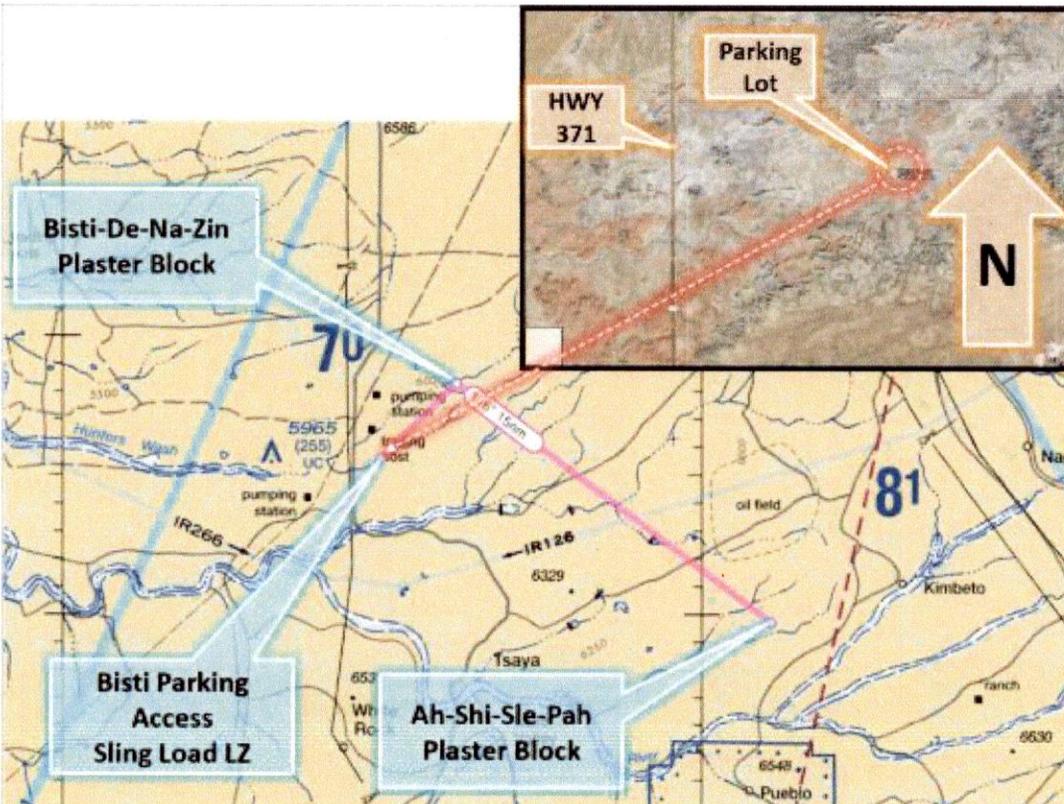
**A.2.1. Bisti Wilderness excavation site**



A.2.2. Ah Shi Sle Pah Wilderness Study Area excavation site



### A.2.3. Staging Area





ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

# MINIMUM REQUIREMENTS DECISION GUIDE WORKBOOK

“...except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act...”

-- The Wilderness Act of 1964

*Recovery of scientific value of Two Pentasaurtop  
Partial Skeletons from the Bisti/De-Na-Zin Wilderness*

Project Title:

### MRDG Step 1: Determination

*Determine if Administrative Action is Necessary*

#### Description of the Situation

*What is the situation that may prompt administrative action?*

Dr. Spencer Lucas was permitted in 2014 to excavate two Pentaceratops Partial Skeletons from the Bisti/De-Na-Zin Wilderness Area. At the time of the excavation the fossils would be removed because the extent of and quality of the find was not determined. It has now been determined that the fossils are of scientific importance. The fossils are of large size and weigh approximately 1,000 pounds, making their removal a task requiring extraordinary efforts to recover the scientific values they possess.

#### Options Outside of Wilderness

*Can action be taken outside of wilderness that adequately addresses the situation?*

YES **STOP – DO NOT TAKE ACTION IN WILDERNESS**

NO **EXPLAIN AND COMPLETE STEP 1 OF THE MRDG**

Explain:

*Two Pentaceratops Partial Skeletons are located in the Bisti/De-Na-Zin Wilderness. Because of their location there is not an option for action outside of the Wilderness Area.*

#### Criteria for Determining Necessity

*Is action necessary to meet any of the criteria below?*

**A. Valid Existing Rights or Special Provisions of Wilderness Legislation**

1. *Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that **requires** action? Cite law and section.*

YES  NO

Explain:

**B. Requirements of Other Legislation**

2. *Is action necessary to meet the requirements of other federal laws? Cite law and section.*

YES  NO

Explain:

**C. Wilderness Character**

3. *Is action necessary to preserve one or more of the qualities of wilderness character, including: Untrammeled, Undeveloped, Natural, Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation, or Other Features of Value?*

4. UNTRAMMELED

YES  NO

Explain:

No action is necessary to preserve the untrammeled quality of wilderness.

5. UNDEVELOPED

YES  NO

Explain:

No action is necessary to preserve the undeveloped quality of wilderness.

6. NATURAL

YES  NO

Explain:

By utilizing air lift by helicopter the disturbance area will be minimized allowing the area to be reclaimed a natural condition. No action is necessary to preserve the natural quality of wilderness.

7. SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

YES  NO

Explain:

No action is necessary to preserve the undeveloped quality of wilderness.

8. OTHER FEATURES OF VALUE

YES  NO

Explain:

The Bisti/De-Na-Zin Wilderness contains a scientifically important fossil resource which has been determined to be a part of its wilderness character. To fully realize the scientific value of this feature in order to provide on-site and off-site benefits, action must be taken to study and record the fossil.

**Step 1 Decision**

*Is administrative action necessary in wilderness?*

Decision Criteria

A. Existing Rights or Special Provisions  YES  NO

B. Requirements of Other Legislation  YES  NO

C. Wilderness Character

Untrammeled  YES  NO

Undeveloped  YES  NO

Natural  YES  NO

Outstanding Opportunities  YES  NO

Other Features of Value  YES  NO

9. Is administrative action necessary in wilderness?

YES **EXPLAIN AND PROCEED TO STEP 2 OF THE MRDG**

NO **STOP – DO NOT TAKE ACTION IN WILDERNESS**

Explain:

The need to study these paleontological discoveries necessitates administrative action. The excavations were analyzed and authorized in an Environmental Assessment (EA) DOI-BLM-NM-F010-2014-0071. After the excavation was complete the fossils were determined to be of scientific importance and the size and weight of the fossil became known.

**MRDG Step 2**  
Determine the Minimum Activity

**Other Direction**

Is there "special provisions" language in legislation (or other Congressional direction) that explicitly **allows** consideration of a use otherwise prohibited by Section 4(c)?

**AND/OR**

Has the issue been addressed in agency policy, management plans, species recovery plans, or agreements with other agencies or partners?

- YES    **DESCRIBE OTHER DIRECTION BELOW**  
 NO    **SKIP AHEAD TO TIME CONSTRAINTS BELOW**

Describe Other Direction:

**Time Constraints**

Dr Lucas, would like to complete removal in mid to late October 2015. This is an optimal time because of typical weather patterns.

**Components of the Action**

*What are the discrete components or phases of the action?*

Component X:	<i>Example: Transportation of personnel to the project site</i>
Component 1:	Transportation of personnel to and from the project site
Component 2:	Transportation of equipment and materials to and from the project site
Component 3:	Preparation of the fossil for recovery
Component 4:	Recovery of the scientific values of the fossil
Component 5:	Reclamation of the site

**Proceed to the alternatives.**

Refer to the [MRDG Instructions](#) regarding alternatives and the effects to each of the comparison criteria.

## MRDG Step 2: Alternatives

Alternative 1: Pack animals will be used to remove fossils from the Wilderness

### **Description of the Alternative**

*What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken?*

This alternative considers the use of pack animals for the removal of the fossils from the Wilderness. The weight of the plaster jacketed fossil is such that it would require large draft horses and wagons or a sled to remove the fossils.

### **Component Activities**

*How will each of the components of the action be performed under this alternative?*

<u>Component of the Action</u>		Activity for this Alternative
X	<i>Example: Transportation of personnel to the project site</i>	<i>Example: Personnel will travel by horseback</i>
1	Transportation of personnel to and from the project site	Personnel would travel by foot or draft horses. (8 to 10 people) two round trips total.
2	Transportation of equipment and materials to and from the project site	Transportation of tools and materials would be by wagon or sled pulled by draft horses.
3	Preparation of the fossil for recovery	The tools needed would include a large tripod and block and tackle to lift the fossils.
4	Recovery of the scientific values of the fossil	The fossils would be removed in their entirety by wagon or sled pulled by draft horses.
5	Reclamation of the site	Hand tools (rakes, shovels) to reclaim the disturbed areas by re-contouring soils and raking out tracks.

**Wilderness Character**

*What is the effect of each component activity on the qualities of wilderness character? What mitigation measures will be taken?*

## UNTRAMMELED

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	Personnel would travel by foot or draft horses. (8 to 10 people) two round trips total.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation of tools and materials would be sled pulled by draft horses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	The tools needed would include a large tripod and block and tackle to lift the fossils.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	The fossils would be removed in their entirety by sled pulled by draft horses.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Hand tools (rakes, shovels) to reclaim the disturbed areas by re-contouring soils and raking out tracks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Number of Effects			1	NE
<u>Untrammeled Total Rating</u>		1		

Explain:

Not allowing the fossils to degrade naturally would be an intervention in allowing natural processes to work on them.

## UNDEVELOPED

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	Personnel would travel by foot or draft horses. (8 to 10 people) two round trips total.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation of tools and materials would be by sled pulled by draft horses.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3	The tools needed would include a large tripod and block and tackle to lift the fossils.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	The fossils would be removed in their entirety by sled pulled by draft horses.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Hand tools (rakes, shovels) to reclaim the disturbed areas by re-contouring soils and raking out tracks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Number of Effects			-2	NE
<u>Undeveloped Total Rating</u>		<b>-2</b>		

Explain:

Although no permanent development will be constructed, the use of horse and sled would cause a degradation of the undeveloped quality of wilderness.

#### NATURAL

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Personnel would travel by foot or draft horses. (8 to 10 people) two round trips total.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation of tools and materials would be by sled pulled by draft horses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	The tools needed would include a large tripod and block and tackle to lift the fossils.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	The fossils would be removed in their entirety by sled pulled by draft horses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Hand tools (rakes, shovels) to reclaim the disturbed areas by re-contouring soils and raking out tracks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Number of Effects			0	NE
<u>Natural Total Rating</u>		<b>0</b>		

Explain:

The proposal would not have an effect on the ecological systems of the wilderness.

SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Personnel would travel by foot or draft horses. (8 to 10 people) two round trips total.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation of tools and materials would be by sled pulled by draft horses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	The tools needed would include a large tripod and block and tackle to lift the fossils.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	The fossils would be removed in their entirety by sled pulled by draft horses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Hand tools (rakes, shovels) to reclaim the disturbed areas by re-contouring soils and raking out tracks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Number of Effects			0	NE
<u>Solitude or Primitive &amp; Unconfined Rec. Total Rating</u>		<b>0</b>		

Explain:

The activity would be at a scale that would not likely interfere with other users to create a negative effect on solitude. There would be no impact to primitive recreation.

OTHER FEATURES OF VALUE

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Personnel would travel by foot or draft horses. (8 to 10 people) two round trips total.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Transportation of tools and materials would be by wagon or sled pulled by draft horses.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	The tools needed would include a large tripod and block and tackle to lift the fossils.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	The fossils would be removed in their entirety by wagon or sled pulled by draft horses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5	Hand tools (rakes, shovels) to reclaim the disturbed areas by re-contouring soils and raking out tracks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Number of Effects		1		NE
<u>Other Features of Value Total Rating</u>		1		

Explain:

The scientific value of the paleontological resources would be realized through removal, making this quality of wilderness character more fully realized to future visitors to the wilderness, as well as those benefiting from the wilderness off-site.

### Traditional Skills

*What is the effect of each component activity on traditional skills?*

#### TRADITIONAL SKILLS

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	Travel by horse and sled, personnel and equipment to work site.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Transportation of tools and materials would be by wagon or sled pulled by draft horses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The tools needed would include a large tripod and block and tackle to lift the fossils.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	The fossils would be removed in their entirety by wagon or sled pulled by draft horses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Hand tools (rakes, shovels) to reclaim the disturbed areas by re-contouring soils and raking out tracks.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Number of Effects		4		1
<u>Traditional Skills Total Rating</u>		4		

Explain:

Positive effect, The use of draft horses and wagons along with block and tackle will be a positive use of traditional skills.

**Economics***What is the estimated cost of each component activity?***COST**

<u>Component Activity for this Alternative</u>		Estimated Cost
X	<i>Example: Personnel will travel by horseback</i>	\$1,900
1	Travel by horse and sled, personnel and equipment to work site.	\$3,500
2	Transportation of tools and materials would be by wagon or sled pulled by draft horses.	\$1,000
3	The tools needed would include a large tripod and block and tackle to lift the fossils.	\$1,000
4	Tools used on site	\$1,500
5	Hand tools (rakes, shovels) to reclaim the disturbed areas by re-contouring soils and raking out tracks.	\$4,000
<u>Total Estimated Cost</u>		<b>\$11,000</b>

Explain:

4 experienced stock handlers and sled drivers 3-4 10 hour days, include transportation to the Wilderness boundary, one team of draft horses, Sled and associated feed and tools. =\$3,500

1 Truck, including fuel to haul tools and equipment to Wilderness boundary = \$1,000

2 Vans, including fuel to bring personnel and personal equipment to Wilderness boundary= \$1,000

Onsite tools and equipment for extraction and site reclamation, 3 shovels, 4 rakes, other= \$1,500

8-10 persons to reclaim extraction site = \$4,000

**Safety of Visitors & Workers***What is the risk of this alternative to the safety of visitors and workers? What mitigation measures will be taken?*

RISK ASSESSMENT	Probability of Accident				
	Severely of Accident	Frequent	Likely	Common	Unlikely
Catastrophic: Death or permanent disability	1 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input checked="" type="checkbox"/>
Critical: Permanent partial disability or temporary total disability	1 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>
Marginal: Compensable injury or illness, treatment, lost work	2 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	4 <input type="checkbox"/>
Negligible: Superficial injury or illness, first aid only, no lost work	3 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
<a href="#">Risk Assessment</a>					

Risk Assessment Code

<b>1 = Extremely High Risk</b>	<b>2 = High Risk</b>	<b>3 = Moderate Risk</b>	<b>4 = Low Risk</b>
--------------------------------	----------------------	--------------------------	---------------------

Explain:

Working with livestock is unpredictable and as such has a moderate level of risk. This risk can be mitigated to Low by only allowing trained and experienced handlers to work with the stock and sled. Lifting and maneuvering heavy unbalanced objects also has a moderate level of risk that can be mitigated to Low Risk by using best practices described in the Risk Hazard Analysis and a proper tailgate session be embarking on the project. The use of hand tools is mostly equated with superficial injury, blisters, splinters, bruising treated with first aid not loss of work and is Low Risk.

**Summary Ratings for Alternative 1**

Wilderness Character	
<a href="#">Untrammeled</a>	-2
<a href="#">Undeveloped</a>	-2
<a href="#">Natural</a>	-2
<a href="#">Solitude or Primitive &amp; Unconfined Recreation</a>	NE
<a href="#">Other Features of Value</a>	NE
<b>Wilderness Character Summary Rating</b>	<b>-6</b>

<b>Traditional Skills</b>	
<a href="#">Traditional Skills</a>	3
<b>Economics</b>	
<a href="#">Cost</a>	\$11,000
<b>Safety</b>	
<a href="#">Risk Assessment</a>	Mitigated to Low Risk

## MRDG Step 2: Alternatives

Alternative 2: Removal of fossils from within the Bisti/De-Na-Zin WA sites by helicopter

### **Description of the Alternative**

*What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken?*

The BLM is proposing to issue a permit to Dr. Spencer Lucas for the evacuation of two partial *Pentaceratops* skeletons from the Bisti/De-Na-Zin Wilderness Area (WA) and a *Pentaceratops* skull and partial skeleton from the Ah-Shi-Sle-Pah Wilderness Study Area. The evacuation will take place during the last two weeks in October 2015. Dr. Lucas is proposing to use a helicopter airlift to remove the three excavated fossils from the WA and WSA. Mitigation will be in the form of short duration of incursion into the Wilderness and reclamation to the excavation site.

### **Component Activities**

*How will each of the components of the action be performed under this alternative?*

<u>Component of the Action</u>		Activity for this Alternative
X	<i>Example: Transportation of personnel to the project site</i>	<i>Example: Personnel will travel by horseback</i>
1	Transportation of personnel to the site	3 people will take two trips in and out to the three separate project sites. Travel will be by foot. Dispersed travel will be encouraged to limit the creation of trails to and from the site.
2	Tools used on site and Transportation of tools to the site	Hand tools will be brought to the site and removed when restoration is finished. Tools and associated equipment for the airlift will be brought to the site by individuals carrying them.
3	Removal of the fossils	The fossils will be prepared for transportation by a three person crew. The crew will hike in the day before the helicopter lift and prepare the fossils with a harness and sling to be attached to the helicopter. The crews will then

		hike out and come back in the morning to hook the load to the hovering helicopter. The helicopter will not land in the Wilderness and the actual time in the Wilderness will be less than 30 min per load.
4	Site and disturbance area reclamation	Hand tools, rakes and shovels will be used to reclaim the site.
5	Transportation to the museum	The helicopter will airlift the fossils to a semi-truck outside of the Wilderness boundary for transportation to the museum.

**Wilderness Character**

*What is the effect of each component activity on the qualities of wilderness character? What mitigation measures will be taken?*

UNTRAMMELED

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3 people will take two trips in and out to the three separate project sites. Travel will be by foot. Dispersed travel will be encouraged to limit the creation of trails to and from the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Hand tools will be brought to the site and removed when restoration is finished. Tools and associated equipment for the airlift will be brought to the site by individuals carrying them.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Hand tools, rakes and shovels will be used to reclaim the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	The helicopter will airlift the fossils to a semi-truck outside of the Wilderness boundary for transportation to the museum.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Number of Effects				NE
<u>Untrammeled Total Rating</u>		<b>NE</b>		

Explain:

No effect

UNDEVELOPED

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3 people will take two trips in and out to the three separate project sites. Travel will be by foot. Dispersed travel will be encouraged to limit the creation of trails to and from the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Hand tools will be brought to the site and removed when restoration is finished. Tools and associated equipment for the airlift will be brought to the site by individuals carrying them.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Hand tools, rakes and shovels will be used to reclaim the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	The helicopter will airlift the fossils to a semi-truck outside of the Wilderness boundary for transportation to the museum.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Number of Effects				NE
<u>Undeveloped Total Rating</u>		<b>NE</b>		

Explain:

No effect

NATURAL

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3 people will take two trips in and out to the three separate project sites. Travel will be by foot. Dispersed travel will be encouraged to limit the creation of trails to and from the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Hand tools will be brought to the site and	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	removed when restoration is finished. Tools and associated equipment for the airlift will be brought to the site by individuals carrying them.			
3	Hand tools, rakes and shovels will be used to reclaim the site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	The helicopter will airlift the fossils to a semi-truck outside of the Wilderness boundary for transportation to the museum.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Total Number of Effects				NE
<u>Natural Total Rating</u>		<b>-2</b>		

Explain:

Should a visitor come to the site during the airlift or before reclamation it will impact their experience of the natural environment. The impact is only temporary and will be removed within the allotted time frame.

#### SOLITUDE OR PRIMITIVE & UNCONFINED RECREATION

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3 people will take two trips in and out to the three separate project sites. Travel will be by foot. Dispersed travel will be encouraged to limit the creation of trails to and from the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Hand tools will be brought to the site and removed when restoration is finished. Tools and associated equipment for the airlift will be brought to the site by individuals carrying them.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Hand tools, rakes and shovels will be used to reclaim the site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	The helicopter will airlift the fossils to a semi-truck outside of the Wilderness boundary for transportation to the museum.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Total Number of Effects				NE
<u>Solitude or Primitive &amp; Unconfined Rec. Total Rating</u>		<b>-3</b>		

Explain:

The sight of 3 people carrying hand tools and harnessing equipment could affect the Wilderness experience of others seeking a primitive experience. The use of the helicopter will have a temporary impact on visitors from the sight and sounds.

OTHER FEATURES OF VALUE

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3 people will take two trips in and out to the three separate project sites. Travel will be by foot. Dispersed travel will be encouraged to limit the creation of trails to and from the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Hand tools will be brought to the site and removed when restoration is finished. Tools and associated equipment for the airlift will be brought to the site by individuals carrying them.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Hand tools, rakes and shovels will be used to reclaim the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	The helicopter will airlift the fossils to a semi-truck outside of the Wilderness boundary for transportation to the museum.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Number of Effects				NE
<u>Other Features of Value Total Rating</u>		<b>NE</b>		

Explain:

**Traditional Skills**  
*What is the effect of each component activity on traditional skills?*

TRADITIONAL SKILLS

<u>Component Activity for this Alternative</u>		Positive	Negative	No Effect
X	<i>Example: Personnel will travel by horseback</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3 people will take two trips in and out to the three	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	separate project sites. Travel will be by foot. Dispersed travel will be encouraged to limit the creation of trails to and from the site.			
2	Hand tools will be brought to the site and removed when restoration is finished. Tools and associated equipment for the airlift will be brought to the site by individuals carrying them.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Hand tools, rakes and shovels will be used to reclaim the site.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	The helicopter will airlift the fossils to a semi-truck outside of the Wilderness boundary for transportation to the museum.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total Number of Effects				NE
<u>Traditional Skills Total Rating</u>		<b>1</b>		

Explain:

The use of hand tools is a positive for the use of traditional skills.

**Economics**

*What is the estimated cost of each component activity?*

**COST**

<u>Component Activity for this Alternative</u>		Estimated Cost
X	<i>Example: Personnel will travel by horseback</i>	\$1,900
1	3 people will take two trips in and out to the three separate project sites. Travel will be by foot. Dispersed travel will be encouraged to limit the creation of trails to and from the site.	\$1,000
2	Hand tools will be brought to the site and removed when restoration is finished. Tools and associated equipment for the airlift will be brought to the site by individuals carrying them.	\$500
3	Hand tools, rakes and shovels will be used to reclaim the site.	\$1,000
4	The helicopter will airlift the fossils to a semi-truck outside of the Wilderness boundary for transportation to the museum.	No Cost, National Guard Training

	Mission
<u>Total Estimated Cost</u>	<b>\$4,400</b>

Explain:

**Safety of Visitors & Workers**  
*What is the risk of this alternative to the safety of visitors and workers? What mitigation measures will be taken?*

RISK ASSESSMENT Severity of Accident	Probability of Accident				
	Frequent	Likely	Common	Unlikely	Rare
Catastrophic: Death or permanent disability	1 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input checked="" type="checkbox"/>
Critical: Permanent partial disability or temporary total disability	1 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input checked="" type="checkbox"/>	4 <input type="checkbox"/>
Marginal: Compensable injury or illness, treatment, lost work	2 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input checked="" type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
Negligible: Superficial injury or illness, first aid only, no lost work	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
<u>Risk Assessment</u>					

Risk Assessment Code

<b>1 = Extremely High Risk</b>	<b>2 = High Risk</b>	<b>3 = Moderate Risk</b>	<b>4 = Low Risk</b>
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Explain:

The activity of removal by helicopter can be high risk, but because it is being done by highly trained military personnel the risk is mitigated to Low. The on the ground mitigation carries negligible risk for superficial injury to include blisters, sprains, splinters, these type of injuries are mitigated with a risk hazard analysis and safety tailgate session.

<b>Summary Ratings for Alternative 2</b>	
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<b>Wilderness Character</b>	
<a href="#">Untrammeled</a>	NE
<a href="#">Undeveloped</a>	NE
<a href="#">Natural</a>	-2
<a href="#">Solitude or Primitive &amp; Unconfined Recreation</a>	-3
<a href="#">Other Features of Value</a>	
<b>Wilderness Character Summary Rating</b>	<b>-5</b>

<b>Traditional Skills</b>	
<a href="#">Traditional Skills</a>	1

<b>Economics</b>	
<a href="#">Cost</a>	\$4,400

<b>Safety</b>	
<a href="#">Risk Assessment</a>	Mitigated to Low

## MRDG Step 2: Alternative Comparison

Alternative 1: Pack animals will be used to remove fossils from the Wilderness

Alternative 2: Removal of fossils from within the Bisti/De-Na-Zin WA sites by helicopter.

Wilderness Character	<u>Alternative 1</u>		<u>Alternative 2</u>		<u>Alternative 3</u>		<u>Alternative 4</u>	
	+	-	+	-	+	-	+	-
Untrammeled		-2						
Undeveloped		-2						
Natural		-2		-2				
Solitude/Primitive/Unconfined				-3				
Other Features of Value								
Total Number of Effects								
<b>Wilderness Character Rating</b>	-6		-5					

Traditional Skills	<u>Alternative 1</u>		<u>Alternative 2</u>		<u>Alternative 3</u>		<u>Alternative 4</u>	
	+	-	+	-	+	-	+	-
Traditional Skills	3		2					
<b>Traditional Skills Rating</b>	3		2					

Economics	<u>Alternative 1</u>	<u>Alternative 2</u>	<u>Alternative 3</u>	<u>Alternative 4</u>
Cost	\$16,000	\$5,400		

Safety of Visitors & Workers	<u>Alternative 1</u>	<u>Alternative 2</u>	<u>Alternative 3</u>	<u>Alternative 4</u>
Risk Assessment	Low	Low		

## MRDG Step 2: Determination

Refer to the [MRDG Instructions](#) before identifying the selected alternative and explaining the rationale for the selection.

<b>Selected Alternative</b>
-----------------------------

- |  |   |
|--|---|
| <input type="checkbox"/> <a href="#">Alternative 1:</a>            | Pack animals will be used to remove fossils from the Wilderness         |
| <input checked="" type="checkbox"/> <a href="#">Alternative 2:</a> | Removal of fossils from within the Bisti/De-Na-Zin sites by helicopter. |

Explain Rationale for Selection:

Describe Monitoring & Reporting Requirements:

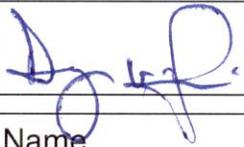
<b>Approvals</b>
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Which of the prohibited uses found in Section 4(c) of the Wilderness Act are approved in the selected alternative and for what quantity?

<u>Prohibited Use</u>	<u>Quantity</u>
<input checked="" type="checkbox"/> Mechanical Transport:	One helicopter to sling load fossils/not landing
<input type="checkbox"/> Motorized Equipment:	
<input type="checkbox"/> Motor Vehicles:	
<input type="checkbox"/> Motorboats:	
<input type="checkbox"/> Landing of Aircraft:	
<input type="checkbox"/> Temporary Roads:	
<input type="checkbox"/> Structures:	
<input type="checkbox"/> Installations:	

Record and report any authorizations of Wilderness Act Section 4(c) prohibited uses according to agency policies or guidance.

Refer to agency policies for the following review and decision authorities:

Prepared	Name		Position	
	Doug McKim		Outdoor Recreation Planner	
	Signature		Date	
			9/10/15	

Recommended	Name		Position	
	Jeff Tafoya		Supervisor, Multiple Resources	
	Signature		Date	
			9/10/2015	

Recommended	Name		Position	
	Signature		Date	

Approved	Name		Position	
	Victoria Barr		Farmington District Manager	
	Signature 		Date	
			9/10/2015	