

TRAINING GUIDE FOR MANAGEMENT OF PALEONTOLOGICAL RESOURCES

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INTRODUCTION

Paleontological (fossil) resources have gained significant popularity in the last few decades, and as a result, management of fossil resources on National Forest System lands has become increasingly important. Demand for access to and recovery of fossil resources comes from many publics of differing interests, including scientists, amateurs and commercial collectors.

With this increased demand comes the need for a uniform and consistent procedure for the Forest Service for paleontological resources management. This training guide provides guidelines for (1) classification of paleontological resources, (2) inventory and monitoring of paleontological resources, and (3) issuance of permits for the collection of paleontological resources from National Forest System lands, including long-term curation agreements.

PURPOSE

Paleontological resources are stewardship resources that are important to our natural resource and national heritage. Management of these resources includes preservation and protection of fossil resources, and education about the values of these resources. Paleontological resources have unique multiple-use values (1) as a legacy of the history of life on Earth for present and future generations; (2) for scientific significance and preservation of this legacy as part of the public trust; and (3) for recreational and educational opportunities to be enjoyed by all.

I. LEGISLATION AND REGULATIONS SUPPORTING PALEONTOLOGICAL RESOURCES MANAGEMENT

a. Legislation

1) Organic Administrative Act of June 4, 1897 (16 U.S.C. 551). Authorizes the use of National Forest System lands to qualified institutions and individuals for the collection of paleontological resources involving the excavation or removal of vertebrate fossil and significant invertebrate and plant fossil resources when these activities are in the public interest for administrative, scientific or educational purposes.

2) Bankhead-Jones Farm Tenant Act of 1937 (7 U.S.C.1101). Authorizes the

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Secretary to sell, exchange, lease, or otherwise dispose of, with or without consideration, property acquired under this Act, under terms and conditions the Secretary deems will best accomplish the purposes of the Act [including the preservation of natural resources], but any such sale, exchange, or grant shall be made only to public authorities and agencies and only on condition that the property is used for public purposes. Also authorizes the Secretary to make rules and regulations to conserve the property acquired by or transferred to the U.S. Department of Agriculture under this Act, the bulk of which is the National Grasslands.

- 3) Preservation of American Antiquities Act of June 8, 1906 (16 U.S.C. 431 *et seq.*). (FSM 2361.01.) This act authorizes permits for archeological and paleontological exploration involving excavation, removal, and storage of objects of antiquity or permits necessary for investigative work requiring site disturbance or sampling which results in the collection of such objects.
- 4) Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa) authorizes the use and protection of National Forest System lands for paleontological resources associated with archeological resources. The Secretary of Agriculture may issue permits for archeological research, investigations, studies, and excavations, and long-term curation agreements.
- 5) Federal Cave Resources Protection Act of 1988 (16 U.S.C. 4301) authorizes the use and protection of National Forest System lands for paleontological resources associated with cave resources.
- 6) Archeological and Historical Conservation Act of 1974 (16 U.S.C. 469). This act requires all Federal agencies to notify the Secretary of the Interior when a construction project threatens to irreparably harm or destroy significant scientific, prehistoric, historic, or archeological data. The paleontologic resource may have significant scientific and historic value.
- 7) Federal Aid Highway Act (23 U.S.C. 305). This section of the Act allows federal funding for mitigation of archeological and paleontological resources recovered pursuant to Federal aid highway projects.
- 8) Hells Canyon National Recreation Area Act of 1975 (16 U.S.C. 460gg-4) provides for the protection of paleontological sites and the interpretation of these sites for public benefit and knowledge.
- 9) National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*) states that it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to preserve important historic, cultural, and natural aspects of our national heritage.

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10) National Forest Management Act of 1976 (16 U.S.C. 1600 *et seq.*), as amended, mandates a sound ecological base for effective management, use, and protection of the Nation's renewable forest resources.

11) Federal Property and Administrative Services Act of 1949 (63 Stat. 377), as amended, allows for the long term loan of Federal property, including repository and curation agreements with museums and other qualified institutions.

b. Regulations

The following regulations provide direction for paleontological resources management on National Forest System lands:

- 1) 7 CFR 3100.41(a). This section provides for the protection of paleontological resources under the authority of the Antiquities Act of 1906 (16 U.S.C. 431 *et seq.*)¹
- 2) 36 CFR, Part 251, Subpart B. This subpart provides direction for special uses management on National Forest System lands, including paleontological resources.
- 3) 36 CFR, Part 261, Subpart A. This subpart defines "paleontological resources." It prohibits damaging or removing any natural feature, excavating, damaging, or removing any vertebrate fossil or removing any paleontological resource for commercial purposes without a special use permit; or excavating, damaging, or removing any cave resource from a cave without a special use authorization, or removing any cave resource for commercial purposes.² When provided in an order, it is prohibited to go into any area closed for the protection of objects or areas of paleontological interest. Regulations may be issued by the Regional Forester, if delegated by the Chief, prohibiting acts or omissions within all or any part of the area over which he has jurisdiction for protection of objects or places of paleontological interest.
- 4) 36 CFR, Part 290. This part provides regulations for protection of cave resources, including paleontological resources associated with caves. The primary objective of management of paleontological resources is scientific research. Paleontological

¹ NOTE: There was no distinction under the 1906 Act in regard to whether the paleontological resource was associated with the archeological resource. Fossils were considered to fall under the definition of "object of antiquity." However, in the Ninth Circuit, the term "object of antiquity" was declared to be unconstitutionally vague (U.S. v. Diaz, 499 F. 2d 113 (1974))

² NOTE: The Forest Service has had a long-standing practice to issue special use authorizations for only collecting vertebrate paleontological resources for scientific, research, and educational purposes to academic and similar institutions; and to not accept special use permit applications for commercial collecting of any paleontological resource.

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resources may only be disturbed or removed in conjunction with scientific research and only upon prior written authorization of the disturbance or removal activity.

- 5) 36 CFR, Part 292, Subpart F. This subpart provides guidance for management of paleontological resources in the Hells Canyon National Recreation Area. It includes a second definition for "paleontological resources." Paleontological resources can only be disturbed or removed in conjunction with scientific research and only upon prior written authorization of the disturbance or removal activity.
- 6) 36 CFR, Part 296. This part provides guidance for special use permits for and management of archeological resources, including associated paleontological resources. Special use permits are not required for the collection of rocks and minerals for personal use that are not considered archeological resources (36 CFR 296.5(b)(2)).
- 7) 7 CFR Parts 3016 and 3019. These are the uniform standard Federal Property Management Regulations for the Department of Agriculture.

II. CLASSIFICATION OF PALEONTOLOGICAL RESOURCES ON NATIONAL FOREST SYSTEM LANDS

a. Introduction

Fossils are any remains, trace, or imprint of past life on Earth which have been preserved by natural processes in the rock record. Paleontological resources include the rocks in which fossils are preserved because the geologic character of the rock record preserves the ecological, geographic, and evolutionary context of past life represented by fossils themselves. Paleontological resources are objects of national significance, and must be preserved for the inspiration and benefit of the people of the United States. The Forest Service recognizes its responsibility to manage and protect that part of the fossil record which occurs on National Forest System (NFS) lands as a public legacy for future generations. Fossils are also nonrenewable resources and their value may be greatly diminished or lost entirely in the absence of proper management.

Our knowledge of both the geologic and paleontologic makeup of NFS lands is being continually refined. As this occurs, the Fossil Yield Potential Classification (FYPC) system will become increasingly more important as a management tool for identifying paleontological resources at risk, and avoiding resources conflicts. This system includes the determination of (1) the scientific significance of the fossil resource, (2) the potential of the area to yield valuable fossils, and (3) the sensitivity of a site or locality to environmental and man-made impacts.

TRAINING GUIDE FOR MANAGEMENT OF PALEONTOLOGICAL RESOURCES**b. Significance Criteria for Paleontological Resources – Vertebrate, Invertebrate, Plant and Trace Fossils**

The Forest Service paleontological resources program focuses its management activities on scientifically significant fossil resources. Scientific significance may be attributed to the fossil specimen or trace fossil itself, and to its context, i.e., its location in time and space, or association with other relevant evidence. As a general rule of thumb, fossil specimens that are scientifically significant are management-relevant resources. The scientific significance of a paleontological specimen or trace, and its context, is determined by meeting any one of the following criteria:

Specimen-based criteria:

- Represents an unknown or undescribed/unnamed taxon.
- Represents a rare taxon, or rare morphological/anatomical element or feature. The "rareness" criterion comprises either absolute rareness in the fossil record, or relative or contextual rareness as described below.
- Represents a vertebrate taxon.
- Exhibits an exceptional type and/or quality of preservation.
- Exhibits remarkable or anomalous morphological/anatomical character(s) or taphonomic alteration.
- Represents "soft tissue" preservation or presence.
- Exhibits cultural affiliation, e.g., alteration or use by ancient humans. (Resources matching this criterion are protected under the Archaeological Resources Protection Act of 1979 and are not considered in the FYPC.)

Context-based criteria:

- Is associated in a relevant way with other evidence of scientific interest, providing taphonomic, ecologic, environmental, behavioral, or evolutionary information.
- Is evidence that extends and/or constrains the stratigraphic, chronologic and/or geographic range of a species or higher-level taxonomic group.

c. Fossil Yield Potential Classification**Introduction**

The Fossil Yield Potential Classification (FYPC) for classifying paleontological resources is a planning tool developed by Region 2 as part of their Paleontology Initiative. Geological units, usually at the formation or member level, are classified according to the probability of yielding scientifically significant paleontological resources that are of concern to land managers. Only

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areas where geologic bedrock is exposed or occurring in the shallow subsurface --covered by less than 1 meter of surficial material – are classified. This classification is based largely on how likely a geologic unit is to produce vertebrate fossils of terrestrial (i.e. nonmarine) origin.

FYPC values are assigned to geologic units on the basis of empirical data gathered through literary survey, database research (e.g. GEOREF), and field reconnaissance by zone paleontologists and other local Forest Service staff. The existing FYPC model can be refined by use of detailed surficial geologic maps. Detailed surficial information will yield a much more realistic FYPC map, and will allow accurate prediction of impact to concealed Class 4 units in the shallow subsurface.

The FYPC system is based on probabilities, not certainties or special circumstances. There may be exceptions to each criterion used as the basis for classification, and one particular geologic unit may be given different FYPC values in different places. Such exceptions are to be expected given the complexity of the system being modeled. The criteria given as the basis for the FYP Classification are not exhaustive, and are designed to guide the outside expert who may be recommending classification as part of planning, land exchange, or resource conflict, or a partnership, contract, or permit. A reviewing Forest Service Zone Paleontologist will assign FYPC values, and must provide the specialist recommendation for all ground disturbing activities in Class 5 areas. Assignment of FYPC values and general direction provided in the management examples are not final, and are expected to change as we gain understanding about the paleontological resources on National Forest System Lands.

The Fossil Yield Potential Classes are described below with some examples of corresponding management considerations or actions. The management examples and narrative recommendations are informal guidelines to supplement policies, regulations, and direction for the national paleontology program. These guidelines will be used in conjunction with other considerations in management decisions.

[Explanation of Fossil Yield Potential Classes](#)

FYP Class 1

Description: Igneous and metamorphic (volcanic ashes are excluded from this category) geologic units that are not likely to contain recognizable fossil remains.

Basis:

- Fossils of any kind not known to occur except in rare circumstances.
- Igneous or metamorphic origin.

Example: Vishnu Schist

TRAINING GUIDE FOR MANAGEMENT OF PALEONTOLOGICAL RESOURCES**Management Examples:**

1. After initial designation as FYP Class 1, such area/acres are not depicted on FYPC maps.
2. FYP Class 1 areas are not included in zone paleontologists plan of work.
3. Class 1 acres are documented as nonfossiliferous and are then excluded from the remainder of the NEPA process.

Management Considerations:

The land manager's concern for paleontological resources on Class 1 acres is negligible. However, significant fossil deposits are known to occur within caves or fissure fills developed in Class 1 units (e.g. Unwiley Coyote Site, Black Hills, South Dakota). Ground-disturbing activities will not require mitigation and/or monitoring for paleontology except in rare circumstances. Plans and budgets do not need to address the range of potential uses, availability or management options. Much of the acreage of high altitude, mountainous districts (igneous or batholithic core complexes) will most likely be Class 1.

FYP Class 2

Description: Sedimentary geologic units that are not likely to contain vertebrate fossils nor scientifically significant non-vertebrate fossils.

Basis:

- Non-significant fossils of low diversity occur in relative abundance.
- Vertebrate fossils known to occur *very rarely or not at all*.
- Age greater than Cambrian.
- Diagenetic alteration.
- Deep-water marine or eolian origin.

Examples: Madison Limestone; Navajo Sandstone

Management Examples:

1. After initial designation as FYP Class 2, such areas/acres will not be depicted on FYPC maps.
2. FYP Class 2 acres *generally not* included in zone paleontologists plan of work (there are exceptions).
3. Recreational (hobby) collecting of non-significant fossils in Class 2 acres allowable unless otherwise prohibited by Forest Plan or special designation.
4. Consideration under NEPA not likely to be necessary.

Management Considerations:

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The land manager's concern for paleontological resources on FYP Class 2 acres should be weighted towards high access or availability and low risk management. Ground-disturbing activities are not likely to require mitigation and/or monitoring. Class 2 acres may be designated as open to recreational collecting once cleared by an assessment (in some cases Class 2 acres may be relatively abundant with non-significant fossils). Such areas should be monitored by law enforcement to prevent commercial exploitation.

FYP Class 3

Description: Fossiliferous geologic units whose fossil content varies in significance, abundance, and predictable occurrence. Also sedimentary units of unknown fossil potential are included in this class.

Basis:

- Marine units with sporadic known occurrences of vertebrate fossils (fish scales and shark teeth, occasionally more scientifically significant specimens).
- Terrestrial units containing dominantly widespread and well-known plant remains.
- Vertebrate fossils and significant nonvertebrate fossils known to occur inconsistently--predictability known to be low.
- Poorly studied and/or poorly documented, FYPC cannot be assigned without ground reconnaissance.

Example: Chinle Formation, Greenhorn Limestone

Management examples:

1. FYP Class 3 acres are included in the zone paleontologists' plan of work. Areas may be implemented into a program of cyclical survey.
2. Recreational (hobby) collecting of non-significant fossils in Class 3 acres allowable unless otherwise prohibited by Forest Plan or special designation.
3. Field reconnaissance as part of any NEPA assessment is a necessity because such acres have unknown/unpredictable fossil potential.
4. FYP Class 3 units may be assigned another FYPC value as more geologic and paleontologic knowledge is acquired.

Management Considerations:

The land manager's concern for paleontological resources on Class 3 acres may extend across a wide variety of management actions. Some areas will require very little budget and management while providing high levels of availability and unregulated access. The land manager should be concerned with this classification because significant resources may be discovered, and require

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mitigation measures in use authorizations, monitoring during ground-disturbing activities, or funding for salvage if an agency initiated action.

FYP Class 4

Description: Class 4 geologic units are Class 5 units (see below) that have lowered risks of human-caused adverse impacts, resource conflicts, or natural degradation.

Basis:

- Significant vegetative cover (outcrop is poorly exposed).
- Outcrop area is small, and not easily accessed or visible from travel routes.
- Vertical and/or inaccessible outcrops.
- Areas that historically produced significant fossils, but have since been degraded by intense fossil collecting or extensive erosion, or no longer contain visible fossil specimens.
- Other characteristics that lower site sensitivity (see Locality Sensitivity Ranking, see section (d) below).

Example: Covered acres of Morrison Formation.

Management examples:

1. FYP Class 4 acres are managed by a program of cyclical survey and salvage within the zone paleontologists program of work.
2. Due to the sensitive nature of significant fossil resources occurring on Class 4 acres, fossil collecting of any kind requires a permit.
3. Designate as a Paleontological Special Interest Area.
4. Field reconnaissance as part of any NEPA assessment is a necessity because such acres have known potential to yield significant fossil resources.

Management Considerations:

The land manager's concern for paleontological resources on Class 4 acres may extend across a wide variety of management actions. Some areas will require very little budget and management attention until ground disturbing activities are identified. Detailed NEPA assessment and mitigation measures will be required for use authorizations. Inventory and identification of Class 4 acres in a forest will alleviate resource conflicts. Close monitoring by a paleontologist is required during ground disturbing activities in Class 4 areas. Depending upon the mitigation recommendations, reclamation including recontouring and reseeding of the disturbed area may be a necessity.

FYP Class 5

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Description: Fossiliferous geologic units that regularly and predictably produce vertebrate fossils and/or scientifically significant nonvertebrate (plant and invertebrate) fossils, and that are at risk of natural degradation, resource conflicts, and/or human-caused adverse impacts.

Basis:

- Vertebrate fossils and/or scientifically significant nonvertebrate fossils are *known and documented* to occur consistently, predictably, and/or abundantly.
- Known for high fossil yield, numerous sites per section of land.
- Known impact or high risk for impact due to resource conflict, theft, and vandalism.
- Outcrop area is well exposed, little or no vegetative cover.
- Travel routes provide easy access to geologic exposures (increased potential for illegal collection; damage by vandals and thieves).
- Other characteristics that increase site sensitivity (see Locality Sensitivity Ranking, section (d) below).

Example: White River Formation/Group

Management examples:

1. FYP Class 5 acres are managed by a program of cyclical survey and salvage within the zone paleontologists program of work.
2. Due to the sensitive nature of significant fossil resources occurring on Class 5 acres, fossil collecting of any kind requires a permit.
3. Designate as a Paleontological Special Interest Area.
4. Field reconnaissance as part of any NEPA assessment is a necessity because such acres have known potential to yield significant fossil resources.
5. Paleontological reconnaissance work should focus on poorly known areas of Class 5 acres.
6. Encourage partnerships with museums, universities, and other institutions to inventory, conduct scientific studies, and curate federal specimens.

Management Considerations:

The land manager's highest concern for paleontological resources should focus on Class 5 acres. Most un-authorized collection of fossil resources on National Forest System Lands occurs in Class 5 areas. Detailed NEPA assessment and mitigation measures will be required for use authorizations. Mitigation of ground disturbing activities is required and may be extensive. Inventory and identification of Class 5 acres in a forest will alleviate resource conflicts. Frequent use by the entire spectrum of interested publics is expected. Areas of special interest and concern, if designated, must be intensely managed. Field-based, technical training in paleontological resource management should be provided to Forest and District staff and to Law Enforcement Officers. Memoranda of Understanding, Challenge-Cost Share, and/or participating agreements with professional academic paleontologists should be sought and

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maintained in order to provide a consistent source of outside expertise. Curation agreements should be maintained with area museums so that there is always a repository for collected fossils. Class 5 acres have recreational and educational opportunities, though it is more difficult to isolate opportunity acres from surrounding critical acres, and therefore, access must be more intensely regulated. These areas should be identified and utilized under recreation fee authorities, but the delicate balance between opportunity and potential degradation of critical Class 5 paleontological resources must be recognized and addressed in planning for such use.

d. Site or Locality Sensitivity Rankings for Fossil Resources

Paleontological sensitivity rankings for fossil resources apply to paleontological sites and localities not to individual specimens. Sensitivity rankings are composite evaluations derived from individual consideration of the following four factors.

1. **Scientific significance** (Section b) of fossil specimens associated with the site. This is a qualitative ranking applied to the specimen or site by a zone paleontologist.
2. **Fossil Yield Potential Classification** (Section c) based on likelihood that geologic strata at the site are fossiliferous. This factor may be evaluated by field reconnaissance and inventory, literature search, and consultation with a professional specializing in the particular geologic interval/area in question.
3. **Values** of an educational, interpretive, and/or recreational opportunity. Public education, interpretive, and recreational values are those that utilize the capability of fossil resources to provoke insight into ancient life forms and ancient ecology, and to reveal their connections to the present and future. Educational values also enhance a stewardship ethic towards legacy resources, and stress the importance of environmental and scientific literacy.
4. **Risk** of resource degradation at the site. Risk factors include:

Biotic agents: vandalism; theft; ground disturbance from use authorizations such as grazing, mineral material sales, and oil and gas leasing; trail-use impact; hobby collecting, etc.

Abiotic agents: chemical and mechanical destruction of fossils exposed by erosion; landslides; inundation; fluvial transport, etc.

Each factor should be ranked individually on a scale of 1 to 5, where **1** is the **lowest** sensitivity ranking and **5** the **highest**. The composite ranking of sensitivity for a locality or site is the arithmetic mean of the individual rankings. The following are examples of determining paleontological site sensitivity.

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Example 1. A *category: vertebrate site* is identified in rocks of the White River Formation on the Pawnee National Grassland. Resources at the surface include fragments of horse and oreodont skeletons.

1. Scientific Significance ranking = **5**.

See Scientific Significance Criteria above. The site is comprised of vertebrate fossils, the likelihood of excellent preservation is high, and rare skeletal elements or specimens may be encountered. Context-based criterion 2 is met--the mammalian fauna of the Pawnee NG is important for better defining the biostratigraphic ranges within the Chadronian and Orellan Land Mammal Ages.

2. Fossil Yield Potential Classification = **4**.

The formation is known to produce scientifically significant fossils. Mammal fossils are likely to be found during pedestrian surveys following erosional events.

3. Values ranking = **4**.

The mammalian fauna of the White River Formation in this area is informative to questions of paleoecology and biogeography. Interpretive materials that utilize this paleontological resource would be good examples of the way scientists interpret ancient ecosystems, and how that information can be applied to modern-day problems of global change.

4. Risk factor ranking = **5**.

Biotic agents: Significant and sensitive sites are located near or on trails. These trails are advertised in area guides as "good places to pick up fossils."

Abiotic agents: Sites are located in geologic strata that erode very easily and rapidly, especially during the spring and early summer. Fossils may be easily washed out of their informative context, or removed altogether and re-buried downstream. The site occurs within a grazing allotment, and cattle have trampled the site in the past.

Composite ranking: $5 + 4 + 4 + 5 = 18$; divide by 4 = **4.5 sensitivity ranking for this site.**

Appropriate management strategies for this site would include: designation as a Special Interest Area; cost-share initiated collection of exposed resources by a professional paleontological institution (museum/university); fencing off the geologic exposures to prevent cattle from damaging the site, requiring permitted collection of all paleontological resources, and development of special orders. Potential recreational activities would include participation in research/field excavation by qualified investigators, technical educational field work by non-specialists overseen by qualified FS personnel, and guided interpretive tours for the public.

Example 2: A *category: invertebrate site* is identified in Cretaceous marine rocks (Turner Sandy Member, Carlile Shale) on the Buffalo Gap National Grassland. Resistant layers containing ammonites form a capping layer along ridges in many parts of the district.

TRAINING GUIDE FOR MANAGEMENT OF PALEONTOLOGICAL RESOURCES**1. Scientific Significance ranking = 3.**

Ammonites within the Turner Sandy Member are relatively abundant, and the majority of specimens are either *Scaphites whitfieldi* or *Prionocyclus wyomingensis*. These two particular taxa occur over a wide geographic range and their occurrence is well documented within the particular unit.

2. Fossil Yield Potential Classification = 5.

Ammonites are relatively abundant; occur in many areas of the Grassland.

3. Values ranking = 3.

The recreational public will enjoy collecting ammonites in this area. The ammonites provide a valuable biostratigraphic teaching tool for schools and universities. The distribution of this resource does not lend itself to formal interpretive displays or activities.

4. Risk factor ranking = 5.

Biotic agents: Commercial fossil hunters have significantly impacted some areas searching for the ammonites, overturning the cap-rock layer along many ridges and breaking it apart searching for ammonites. Continued collecting by the general public at the current rate will not deplete the supply of ammonites in the foreseeable future; however, the possibility that other, more significant fossils will be found and carried away exists and cannot be easily monitored.

Abiotic agents: The sandstone layers are relatively resistant and slow to erode, thus the threat of resource loss due to natural weathering is low.

Composite ranking: $3+5+3+5=16$; divide by 4 = **4 sensitivity ranking for this site.**

Appropriate management strategies for this site might include: 1) educational and interpretive field trips to the area; 2) posting signage near un-impacted sites stating that commercial collecting of fossil material is not allowed, and that no unweathered rock should be over-turned or broken; 3) request that the public report any unusual fossil finds; and 4) occasional field monitoring to determine if collecting of ammonites is threatening other resources in the area or affecting the scenic and aesthetic values of the site.

III. PALEONTOLOGICAL INVENTORY AND MONITORING**a. Paleontological Inventory**

Paleontological inventory will determine the overall nature and distribution of fossil resources in a given area. The process begins with an assessment of the overall geologic makeup of the area and a literature search to determine the geologic units likely to contain fossils. Based on the literary survey and field reconnaissance, Fossil Yield Potential Classification (FYPC) values (see Section IIc) can be assigned to geologic units in the area, and a map depicting the surface

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expression of fossiliferous units can be constructed. All known or discovered fossil sites within the inventoried area can be assigned a site sensitivity value (see Section IIId).

The procedure for paleontological inventory and documentation include:

- Conducting a literature search to determine which geologic units are fossiliferous.
- Obtaining base geologic maps at finest resolution available. ARC/INFO generated digital maps are preferable.
- Assigning an initial FYPC value to each geologic unit or subunit based on the geology and literature search.
- Conducting field reconnaissance by traversing an adequate sampling of Class 3 and Class 5 units in the area. Note the type and amount of fossil resources exposed at the surface and assess their significance.
- Refining the initial FYPC values assigned to geologic units based on the field assessment.
- Developing a fossil yield potential map of the area. Incorporation of surficial geologic or soil maps will allow depiction of covered versus exposed bedrock, and make possible the distinction between Class 4 and Class 5 units. Class 4/5 distinctions can also be made by direct field observation and geologic mapping.

b. Paleontological Monitoring

Geologic units classified as Class 4 or 5 significance with field-verified prolific fossil sites should be monitored under a cyclic inventory schedule of at least every two years for evidence of intense erosion and fossil theft. Any newly emerging fossils of significance should be stabilized. This usually entails collection of fragmented portions of the specimen on the surface (float), followed by exhumation and extraction of *in situ* remains (see Appendix E). Exceptionally large or extensive fossil sites may be stabilized by removal only in the case of immediate jeopardy due to loss to severe weathering or fossil theft or vandalism. Generally, an associated skeleton of moderate size is completely unearthed and extracted in a relatively short period of time usually days or weeks. Associated skeletons of exceptionally large mammals or dinosaurs may be unearthed and extracted over many field seasons. This is especially true of prolific bone quarries or microfossil sites where remains of multiple individuals are present.

In the case where erosion will cause the loss of the specimen and context of the site, a program of salvage may be initiated. This can be accomplished either by a challenge cost share agreement with a local museum or university or other educational institution, or a recovery program with a Forest Service zone paleontologist. Records must be kept documenting the context, nature, and location of such specimens. Prior to initiating a salvage program, there must be a curation agreement with a non-federal repository in place, or proper storage facilities arranged with the recipient Forest Service office or institution.

TRAINING GUIDE FOR MANAGEMENT OF PALEONTOLOGICAL RESOURCES**IV. SPECIAL USE PERMITS FOR COLLECTION OF PALEONTOLOGICAL RESOURCES****a. Types of Special Use Permits**

Collection of vertebrate fossils and significant non-vertebrate and plant fossils is only allowed for scientific or educational purposes, and requires a special use permit. A special use permit, memorandum of understanding or other agreement, may be used to authorize collection of paleontological resources, for protection and preservation purposes, where there is potential for unauthorized removal or imminent loss by erosion of a significant specimen. Applicants must meet certain professional qualifications. Paleontological resources collected under permit or other agreement must be curated in approved non-federal repositories, such as museums, universities, or other educational institutions, and requires a long-term curation agreement. Fossil specimens and associated records remain the property of the United States, and must be reasonably accessible to qualified researchers for scientific study and educational purposes. Commercial collection of any type of fossil specimen is prohibited except petrified wood under the Mineral Materials Act of 1947, as amended.

Two types of Special Use Permits (SUP's) under 36 CFR 251 may be authorized, (1) for inventory, survey, and other research activities with limited (up to 1 square meter) or no surface disturbing collecting of fossil specimens; and (2) for excavation greater than one square meter and associated research activities. Under an excavation permit, the surface disturbance must be returned to the near original condition within the same field season. The authorized officer may allow qualified researchers to conduct inventory and other minimal or non-surface disturbing activities without a special use permit. Authorize the use of National Forest System lands under the proper statutory or regulatory authority with terms and conditions which protect paleontological resource values and the interests of the Federal government.

Applicants for collection of federal paleontological resources from National Forest System lands must be qualified as described below. An application for special use permit must name the designated repository of the loaned federal fossil specimens. The repository must submit their qualification statement with the application for Forest Service review and approval.

b. Professional Qualifications for Special Use Permittee**Professional Paleontologist**

- A. Formal education resulting in a graduate or professional degree in paleontology, OR in a closely related field such as geology, biology, botany, or anthropology with a major emphasis in paleontology; OR

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- B. Equivalent training including at least 36 months of pertinent, professionally supervised experience with increasing responsibility leading to professional duties similar to those required by the instrument of record; AND
- Demonstrated experience in collecting, analyzing, and reporting paleontological information of the type and in the scope of the work required by the instrument of record; AND
 - Demonstrated experience in planning, equipping, staffing, organizing, and supervising crews of persons performing paleontological work of the type and in the scope of that required by the instrument of record; AND
 - Demonstrated experience in carrying through to completion projects of the type and in the scope of the work required by the instrument of record, as evidenced by timely completion and/or publication of theses, research reports, scientific papers.

Paraprofessional Paleontologist

A paraprofessional paleontologist is someone who can demonstrate completion in good standing of paraprofessional training in paleontology such as that offered through the Denver Museum of Nature and Science. Graduate students working toward an advanced paleontological degree may be designated paraprofessionals in cooperation with professional paleontologists.

c. Qualifications for an Approved Non-Federal Repository

The Forest Service Zone Paleontologist must make the determination if an institution qualifies as a suitable repository for paleontological resources from National Forest System Lands. Fossil collections must be prepared, curated, and properly stored in accordance with a contractual agreement tied to the authorization for collection. The repository receiving the materials collected under this permit must provide evidence of its capability of providing adequate long-term curatorial services, such as a physically secure and stable environment, and a professional staff qualified to catalog, care for, preserve, retrieve, and loan, where appropriate, these materials and associated records. By agreeing to accept the collections, the repository agrees to cover all costs to curate, accession, prepare, and store fossils from National Forest System lands in perpetuity for the public, as well as to make the collection available for qualified researchers.

The non-federal repository should be accredited by, or meet the standards of, the American Association of Museums. It should have an approved Curatorial/Collections Management Plan that includes procedures for accessioning, cataloging and de-accessioning of loaned federal property and meet the Forest Service minimum requirements in Appendix C for fossil repositories.

A non-accredited repository should meet the standards established by the Department of the Interior Manual 411, including a suitable Curatorial/Collections Management Plan that addresses

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procedures for accessioning, cataloging and de-accessioning of loaned federal property, and meet the Forest Service minimum requirements in Appendix C for non-federal repositories. The Forest Service Zone Paleontologist, prior to accessioning of loaned federal specimens, must approve the collection management plan in writing.

Specimens remain the property of the federal government, and fossil specimens may not be removed from the designated repository, or loaned to another institution without specific written authorization from the authorized officer. Loaned specimens remain the responsibility of the primary repository, and all tracking and reporting requirements of the specimens will continue to be coordinated through the primary repository.

d. Fossil Casts and Reproductions

Casts of vertebrate fossils are reproductions or copies of natural objects. Therefore, these casts are not subject to copyright protection which only applies to original works of authorship fixed in any tangible medium of expression. Under a curation agreement, the repository does not have ownership or intangible property rights to government property. The Federal government retains title and right of ownership of vertebrate fossil specimens, as well as molds and casts made for exhibition, scientific study and educational purposes. Molds and casts must be catalogued as part of the federal collection. Replicating a specimen for commercial purposes, in whole or in part, requires a written statement from the Forest Service to allow molding and casting, as well as loans and transfers to other institutions.

e. Requirement for Paleontological Reports

The holder of a special use permit for the collection of paleontological resources from National Forest System lands has the responsibility to submit an annual and/or final report summarizing all work that occurred during the field season under the permit. This report must be completed by December 31st of each year, or as otherwise stipulated in the authorizing agreement. An interim report must be submitted in lieu of the final report in order to meet the annual reporting requirement under the permit. Reports must include the following (see Appendix A for sample report stipulations):

Annual/ Interim Report

- Permit or agreement number
- Name of permit holder
- Name of repository and curatorial agreement
- Names of all field personnel
- Dates of fieldwork

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- A brief description of the work completed, and any new information gained during the field season.
- Legal descriptions of areas surveyed or in which collections were made. Areas surveyed must be delineated on a 7.5' topographic quadrangle map.
- A completed locality form for each site where fossils were either collected or documented (provided (Appendix XX or use institution's form) must be used to fulfill this requirement. Each locality form should correspond directly with a locality, using corrected GPS coordinates, identified on a 7.5' topographic map.
- A completed Evidence of Past Activity Form (provided) for each identified site where previous collection is noted to have occurred and/or where vandalism, theft, or unauthorized collection is suspected to have occurred.
- Completed paleontological site forms (provided) or use institution site forms.
- Listing of accession numbers/specimen numbers (previous field season specimens will be accessioned before the next field season).
- Specimens from a single locality may be batch catalogued under a single locality number, with the understanding that they will be catalogued with individual specimen and/or accession numbers as soon as practicable.

Final Report

The final report must include all data required for the interim report (i.e. data reporting is cumulative, not iterative), as well as the following:

- Description of research design
- Description of field methods and sampling strategies employed (e.g. survey intensity in persons per day over area; sampling plan for screen washing, etc.)
- A general statement of the work accomplished and research results. Research results should compare new findings with the previous understanding of the area and/or taxa involved.
- A copy of all abstracts, published and unpublished reports, and manuscripts resulting from work done under a permit, agreement or contract. Credit to USDA Forest Service is to be included within all forms of publishing material and presentations.
- A final, complete catalogue of specimens and samples collected under the permit and curated at the designated repository.
- Provide copies of field notes of all participants and Principal Investigator(s).
- Listing of accession numbers/specimen numbers curated into the collection archives.
- Areas where paleontological resources are noteworthy or absent should also be identified in this report in map form, if applicable.

TRAINING GUIDE FOR MANAGEMENT OF PALEONTOLOGICAL RESOURCES**V. OTHER MULTIPLE USE CONSIDERATIONS**Resource Conflicts and Mitigation

It is a goal of sound paleontological resources management to minimize conflicts with other uses of National Forest System lands. Ideally, this may be accomplished through appropriate consideration of paleontological resources in the forest plan, accompanied by inventory and classification of the fossil resources in the national forest. Consideration of impacts to paleontological resources must be part of the environmental (NEPA) analysis for all use authorizations on National Forest System lands. Where a Class IV or V area is identified within the area of impact of the authorization, field reconnaissance should be conducted at the same time as the cultural resource inventory to determine if there is a fossil resource that will be impacted by the proposed action, and the following stipulation should be added to the terms and conditions of the authorization:

X-17. Archaeological-Paleontological Discoveries. (FSH 2709.11_50)

The holder shall immediately notify the authorized officer of any and all antiquities or other objects of historic or scientific interest. These include, but are not limited to, historic or prehistoric ruins, fossils, or artifacts discovered as the result of operations under this authorization, and shall leave such discoveries intact until authorized to proceed by the authorized officer. Protective and mitigative measures specified by the authorized officer shall be the responsibility of the holder.

Resource Protection

Fossils from federal lands are used primarily for scientific and educational purposes. However, similar fossils on the open commercial market often have high monetary values. Escalating commercial values mean that increasingly, unauthorized collecting activity is spilling over onto federal lands. The loss of parts of the fossil record means the loss of important scientific and educational information about the history of life. These losses occur as a result of ignorance of the law or deliberate theft. Between 1991 and 1996, inventories commissioned by the Forest Service, it was found that almost one-third of the paleontological sites surveyed in the Oglala National Grassland showed evidence of unauthorized collecting.

As outlined in 36 C.F.R. 261.9, paleontological resources are protected from unauthorized activities. Paleontological resources recovered in research and other operations covered under permit, contract, or other agreement must be stored and maintained (curated) by the institution or other designated repository. Paleontological resources recovered by Forest Service personnel should be stored and maintained in authorized repositories, except when being used for display, research, evaluation, or other educational purposes. If arrangements for deposit in qualified

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institutions in the local area cannot be made, specimens and records should be deposited with the Smithsonian Institution, or with other qualified institutions.

Where possible, locality data of paleontological resources should be kept confidential. Requests for confidentiality of locality data should be incorporated into use authorizations for paleontological collection, or use authorizations issued in Class IV and V areas.

Public Use and Availability

Forest Service encourages onsite public use and enjoyment of paleontological resources where possible without damage to values. Where practicable, enhance recreational values through interpretation, restoration, and other measures. Paleontological resources and records will be available for appropriate public uses. Permits, contracts, and agreements may include provisions specifying availability of paleontological specimens and records for public use. Public use of records will consider the need to restrict access to location information that could, if inappropriately used, result in damage or destruction of *in-situ* paleontological resources. All decisions to withhold records from public use will be coordinated with the Freedom of Information Officer on the Administrative Services Staff.

Planning Considerations

1. Assess the area's potential to yield fossils of scientific or other values. The evaluation should be based on the geologic outcrop, a literature review, and paleontological expertise to determine the associated probability and potential significance of fossil yields in the planning area. Identify which lands have potential for vertebrate, invertebrate and plant paleontological resources. Locality data for vertebrate paleontological resources should be privileged.
2. Consider special management designations and/or development for areas that contain fossil resources with particularly high scientific, educational, or interpretive values (e.g. research natural area, interpretive site, research/education camp). Identify which areas have potential for interpretation, special management, or need protective measures from fossil theft of vertebrate paleontological resources. Identify which lands will be closed to casual (amateur) collection of invertebrate and plant fossils. Provide for opportunities for partnerships and further research.
3. Conduct paleontologic surveys in any area where there is a high potential to encounter paleontological resources prior to any ground-disturbing activities, for use authorizations, or land exchanges.

TRAINING GUIDE FOR MANAGEMENT OF PALEONTOLOGICAL RESOURCES**APPENDICES****A. Sample Stipulations for Special Use Permits for Paleontological Resources Collection**GENERAL

1. The authorized officer reserves the right to monitor the paleontological investigations of the holder to ensure compliance with the professional standards as designated in the permit. The holder shall correct such deficiencies as directed by the authorized officer within the specified time.
2. The holder will immediately report location of suspected theft or damage of fossil resources located on the Nebraska National Forest to the District Ranger. In order to protect the crime scene, begin resource damage assessment with the assistance and direction of USFS personnel.
3. The Survey and Limited Surface Collection Permit allows paleontological reconnaissance, collection of specimens found on the surface, and limited excavation that can be done with hand tools. Small scale surface disturbance and/or excavation (1 square meter or less) at any single location may be done under this permit. Any areas disturbed must be returned to their original condition within the same field season. Holders of this type of permit who later find a large-scale excavation necessary MUST contact the District Ranger and apply for an excavation permit PRIOR to excavating an area larger than 1 square meter.

PRESERVATION AND CURATION

4. The holder has the technical responsibility to properly collect all associated data (as per the Paleontological Permit) and fossil material. The holder understands that the fossil material collected under this permit remains the property of the U. S. Government; therefore, the fossil specimens collected will be catalogued into an appropriate repository as designated in the permit application, and shall be made accessible to the public.
5. All fossil material collected and removed from National Forest System Lands remains federal property under this permit and cannot be discarded or destroyed without Forest Service authorization.
6. Any fossil material collected, but not accessioned into the repository's collection; or determined not needed for further study; the permittee shall contact the Forest Service for further action.

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7. The repository receiving the materials collected under this permit must provide evidence of its capability of providing adequate long-term curatorial services, such as a physically secure and stable environment, and a professional staff qualified to catalog, care for, preserve, retrieve, and loan, where appropriate, these materials and associated records. By agreeing to accept the collections, the repository agrees to bear the costs of these curatorial requirements, and to make the materials available for qualified researchers.
8. Specimens remain the property of the federal government, and are not on permanent loan to the designated repository. Fossil material may not be removed from the designated repository, or loaned to another institution without specific written authorization from the authorized officer. Loaned specimens remain the responsibility of the primary repository, and all tracking and reporting requirements of the specimens will continue to be coordinated through the primary repository. Keeping federal specimens in residences is not allowed.
9. In the case of closure of the designated repository, the fossil material collected from public lands will revert back to the federal government, and shall be repositied in the alternate repository.
10. Release of site locality information and data must be approved the authorized officer.
11. Any reference to or display of specimens taken from National Forest System lands in exhibits, presentations, or publications, etc. shall contain acknowledgment that the specimens were taken from said lands.
12. Casts of fossils from public lands are also regarded as property of the U.S. Government. Fossil material may be cast and sold for research and educational purposes only, and proceeds from sales must return to the public institution for the public benefit. The authorized officer must be notified in writing if casts are made and transferred to other research or educational institutions; in the case of especially large or rare fossil specimens, casting and sales must be approved by the authorized officer.

ANNUAL AND FINAL REPORTS**A. Annual Report**

Permittees are required to provide an annual report each year while the permit is active and a final report the year the permit expires. Permittees are required to submit one copy of an annual report of work done under permit by **December 31**: Provide the copy to the Forest Supervisor's office. If no work was done under the permit, a letter to that effect must be filed with the Forest Supervisor's office.

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The annual report shall include at least:

- ◆ Permit number
- ◆ Name of permit holder
- ◆ Name of repository
- ◆ Names of all field personnel
- ◆ Dates of all field work
- ◆ A brief description of the work completed, and any new information gained during the field season.
- ◆ Legal descriptions of areas surveyed or in which collections were made. Areas surveyed must be delineated on a 7.5' topographic quadrangle map, or Mylar overlay.
- ◆ A completed locality form for each site where fossils were either collected or recorded (provided or use institution's form) must be used to fulfill this requirement. Each locality form should correspond directly with a locality identified on a 7.5' topographic map or Mylar.
- ◆ A completed Evidence of Past Activity Form (provided) for each identified site where previous collection is noted to have occurred and/or where vandalism, theft, or unauthorized collection is suspected to have occurred.
- ◆ Complete paleontological site forms (provided) or use institution site forms.
- ◆ Listing of accession numbers/specimen numbers (previous field season specimens will be accessioned before the next field season).

Specimens from a single locality may be batch catalogued under a single locality number, with the understanding that they will be catalogued with individual specimen and/or accession numbers as soon as practicable.

B. Final Report

Permittees are required to submit a copy of a final report, by **December 31** of the year when the permit expires. The final report must include, at a minimum, all data required for the current annual report (i.e. data reporting is cumulative, not iterative), plus:

- ◆ Description of research design
- ◆ Description of field methods and sampling strategies employed (e.g. survey intensity in persons per day over area; sampling plan for screen washing, etc.)
- ◆ A general statement of the work accomplished and research results. Research results should compare new findings with the previous understanding of the area and/or taxa involved.
- ◆ A copy of all abstracts, published and unpublished reports, and manuscripts resulting from work done under a permit, agreement, or contract. Credit to USFS is to be included within all forms of publishing material and presentations.
- ◆ A final, complete catalogue of specimens and samples collected under the permit and curated at the designated repository.

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- ◆ Copies of field notes of all participants and Principal Investigator(s).
- ◆ Listing of accession numbers/specimen numbers curated into the collection archives.
- ◆ Site photographs (2) of each site; one facing North for overview and the second one for site detail (prefer Black and White prints).
- ◆ Areas where paleontological resources are noteworthy or absent should also be identified in this report in map form, if applicable.

MODIFICATION AND EXTENSION OF PERMITS

Permittees should contact the Forest Supervisor in writing to request modifications or extensions. Notification of modification or extension by the Forest Supervisor will be provided to the permittee.

SUSPENSION AND REVOCATION OF PERMITS

1. Wherever practicable, acts of noncompliance should be discussed with the permittee, either in person or by telephone, in an attempt to secure willing and rapid correction of the noncompliance. Such discussions shall be made a matter of record in the permit file. Where the permittee fails to take prompt action to comply and the noncompliance is unnecessarily or unreasonably causing injury, loss or damage to surface resources, the authorized officer must take prompt noncompliance action.
2. The Zone Paleontologist, may request the Forest Supervisor, to suspend or revoke a permit for non-compliance with any terms or conditions. Non-compliance will be documented in the permit file. Permittees will receive written warning of non-compliance, and written notification of suspension or revocation. Permittees may then dispute or appeal the action, and a review will be scheduled to resolve conflicts.
3. The Forest Supervisor or designated staff may request that the Zone Paleontologist review the permittee's activities and work for compliance. If the Forest Supervisor or designee finds or suspects non-compliance on the part of the permittee, he/she may require fieldwork to be halted pending review. Upon any findings of noncompliance, the permittee will receive written notice of the noncompliance and a date when the issue is resolved. The permittee will receive written notification when work is in compliance. Work may be resumed after successful review and resolution, or the permit may be suspended or revoked by the Forest Supervisor.

APPROVAL OF ANNUAL AND FINAL REPORTS

Annual and final reports will be reviewed by the Zone Paleontologist. If the report satisfies the above requirements, it will be approved and the permittee considered to be in

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compliance with the terms and conditions of the permit. The permittee will be notified of approval and acceptance, or of non-compliance (as provided for above) in reporting. If approved, the report becomes part of the permit file. In the case of non-compliance, resolution procedures will be implemented and the permit suspended until compliance is achieved. Non-compliance after appropriate resolution attempts have been made is considered grounds for permit revocation.

EXTENSION OF EXPIRATION DATE FOR REPORTS

In cases of unavoidable delay, it is the sole responsibility of the permittee to request and acquire an extension of reporting deadline from the Forest Supervisor. Failure to request and acquire such an extension will result in delay or denial of subsequent permits, or suspension or revocation of existing permits.

B. Sample Repository Agreements

Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING
BETWEEN
(name of the Repository)
AND
USDA FOREST SERVICE, *(name of forest)* NATIONAL FOREST
FOR LONG-TERM CURATORIAL SERVICES
OF PALEONTOLOGICAL RESOURCES

THIS MEMORANDUM OF UNDERSTANDING (MOU) is entered into by and between *(name of the Repository)*, in the State of *(name of the State)*, hereinafter referred to as the Repository; and the U.S. Department of Agriculture, Forest Service, *(name of forest)* National Forest, hereinafter referred to as the FOREST SERVICE; under the provisions of under the authority of Organic Act of 1897, as amended (16 U.S.C. 551), the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-470mm), the Antiquities Act of 1906 (16 U.S.C. 432, 433), the Federal Property and Administrative Services Act of 1949 (40 U.S.C. 483-490); [and the Federal Grants and Cooperative Agreements Act of 1977 (31 U.S.C. 6301-6308.)]

I PURPOSE

To establish a general framework of cooperation between the Repository and the Forest Service. Fossil specimens found on National Forest System land need special housing, special

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preparation, and curatorial care which the Forest Service cannot provide. The Repository has the facilities, equipment, supplies, and the expert staff to provide these needs. The Forest Service and the Repository propose to work together to ensure that collected paleontological resources, records, and data are suitably protected, managed and preserved for the public good.

II STATEMENT OF MUTUAL INTEREST AND MUTUAL BENEFITS

The Parties recognize that it is national policy to preserve for public use objects of national significance, including significant paleontological resources, for the inspiration and benefit of the people of the United States.

The Forest Service has the responsibility under Federal law to preserve for future use certain collections of paleontological resources, specimens and associated records, molds and casts, herein called the Collection and is desirous of obtaining curatorial services.

The Parties recognize the Federal Government's responsibility to ensure that the Collection is suitably protected, managed and preserved for the public good as a heritage asset held for the nations' general welfare and possessing national significance.

The Repository is desirous of obtaining, housing and maintaining the Collection, and recognizes the benefits, which will accrue to it, the public and scientific interests by housing and maintaining the Collection for scientific study, exhibition, and other educational or research purposes.

The Parties hereto recognize the Federal Government's continued ownership (title) and control over the Collection, and any other U.S. Government-owned personal property, listed in Attachment C, which is attached hereto and made a part hereof, and provided to the Repository.

NOW, THEREFORE, in consideration of the above, the parties hereto mutually agree as follows:

[NOTE: Terms and conditions may be added or deleted as necessary and agreed to by the Forest Service and the Repository.]

THE REPOSITORY SHALL:

1. Provide for the professional care and management of the Collection from the (*name(s) of the location*) site(s), assigned (*list site numbers*) site numbers. The Collections were recovered in connection with the (*name of the Federal or federally-authorized project*) project, located in (*name of the nearest city or town*), (*name of the county*) county, in the State of (*name of the State*).
2. Perform all work necessary to protect the Collection in accordance with an approved Collections Management Plan or, at minimum, with the terms and conditions for the curation of

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federally-owned and administered paleontological collections stipulated in Attachment B to this MOU.

3. Assign as the Curator, the Collections Manager and the Conservator having responsibility for the work under this MOU, persons who are qualified museum professionals and whose expertise is appropriate to the nature and content of the Collection.
4. Not in any way adversely alter or deface any of the Collection except as may be absolutely necessary in the course of stabilization, conservation, scientific study, analysis and research. The Forest Service must approve any activity that will involve the intentional destruction of any of the Collection in advance and in writing.
5. Annually inspect the facilities and the Collection. Every (*number of years*) years physically inventory the Collection and provide a written record to the Forest Service.
6. Provide access to and the right to examine all records including electronic data, reports, books, papers, maps, or documents relating to the Collection and the Federal Accountable Property Program for Stewardship Resources to the Forest Service and Comptroller General of the United States or their authorized representatives.
7. Perform only those conservation treatments as are absolutely necessary to ensure the physical stability and integrity of the Collection, and report (in writing) the results of inventories, inspections and treatments within six (6) months to the Forest Service.
8. Within five (5) days of discovery, report all instances of and circumstances surrounding loss of, deterioration and damage to, or destruction of the Collection and any other U.S. Government-owned personal property to the Forest Service, and those actions taken to stabilize the Collection and to correct any deficiencies in the storage area or operating procedures that may have contributed to the loss, deterioration, damage or destruction. Any actions that will involve the repair and restoration of any of the Collection and any other U.S. Government-owned personal property must be approved in advance and in writing by the Forest Service.
9. Review and approve, or deny requests for access to or short-term loan of the Collection (or a part thereof) for scientific, educational or exhibition in accordance with the terms and conditions for the curation of federally-owned and administered paleontological collections stipulated in this MOU. In addition, refer requests for consumptive uses or destructive tests of the Collection (or a part thereof) to the Forest Service for approval or denial.
10. Not mortgage, pledge, assign, transfer, exchange, give, sublet, discard or part with possession of any of the Collection or any other U.S. Government-owned personal property in any manner to any third party either directly or in-directly without the prior written permission of the Forest Service, and redirect any such request to the Forest Service for response. In addition, not take any action whereby any of the Collection or any other U.S. Government-owned personal

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property shall or may be encumbered, seized, taken in execution, sold, attached, lost, stolen, destroyed or damaged.

11. Exhibit, photograph or otherwise reproduce and study the Collection, or portions thereof, in accordance with the terms and conditions stipulated in this MOU. All exhibits, reproductions and studies shall credit the Forest Service, and read as follows: ``Courtesy of the USDA Forest Service." The Repository agrees to provide the Forest Service with copies of any resulting publications.

12. Maintain complete and accurate records of the Collection and any other U.S. Government-owned personal property, including information on the study, use, loan and location of said Collection, which has been removed from the premises of the Repository.

13. Comply with all requirements of the Forest Service concerning special requirements of law, program requirements, and other administrative requirements.

Reproduction of Fossil Specimens

1. The Repository is authorized to produce one mold and one cast from the mold of federal fossil specimens for scientific, educational or exhibition purposes. The mold and the cast are considered federal property, and must be catalogued into the museum collection. Additional molds and/or casts must be approved by the [*Pick one: Regional Forester or Forest Supervisor or Forest Representative.*]
2. Reproduction of specimens in the Collection in the form of molds and/or casts for commercial purposes is prohibited unless otherwise authorized by the [*Regional Forester or Forest Supervisor.*]
3. Reproductions (molds and/or casts) of the Collection may be authorized for public purposes, such as exhibition, or trade with or sale to other museums and institutions, where proceeds benefit the maintenance of the Collection, and must be approved by the [*Pick one: Regional Forester or Forest Supervisor or Forest Representative.*]
4. Federal fossil specimens or casts may be loaned to other institutions for scientific or exhibition purposes. The Repository must have a sufficient method for accounting for loaned federal property in their Collections Management Plan. Reproduction of loaned federal specimens must be approved by [*Pick one: Regional Forester or Forest Supervisor or Forest Representative.*], and benefit the maintenance of the Federal collection.

THE FOREST SERVICE SHALL:

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1. Assign as the Forest Service Representative having full authority with regard to this MOU, (*name of person, title*) who meets pertinent professional qualifications.
2. Review and/or approve the Repository's Collections Management Plan to ensure that federal fossil specimens will be properly protected and maintained.
3. Every (*number of years*) year(s), jointly with the Repository's designated representative, have the Forest Service Representative inspect and inventory the Collection and any other U.S. Government-owned personal property, and inspect the repository facility.
4. Review and approve, or deny requests for destructive consumption of a vertebrate or significant Federal fossil specimen in the Collection (or a part thereof).
5. Be notified of removal of all or any portion of the Collection from the premises of the Repository for scientific, educational or exhibition purposes in accordance with the terms and conditions stipulated in this MOU.
6. Provide the Repository with the appropriate Federal Property Management Handbooks, copies of other Forest Service Manuals or Handbooks and any subsequent changes and instructions relating to the Federal Property Management program. Provision may be made via the Internet.

IT IS MUTUALLY AGREED BETWEEN THE PARTIES THAT:

1. All paleontological resources acquired and maintained by the Repository under the terms of this MOU shall be and remain the property of the United States. All items to be removed will be documented on Report of Transfer or Other Disposition or Construction of Property form (AD-107), attached hereto as Attachment A, and by this reference incorporated herein.
2. Nothing herein shall be construed as obligating the Forest Service to expend funds, or as involving the United States in any contract or other obligations for the future payment of money in excess of appropriations authorized by law and administratively allocated for this work.
3. Upon execution by both parties, this MOU shall be effective on this (*day*) day of (*month and year*), and shall remain in effect for (*number of years*) years, at which time it will be reviewed, revised, as necessary, and reaffirmed or terminated.
4. This MOU may be revised or extended by mutual consent of both parties, or by issuance of a written amendment signed and dated by both parties. Either party may terminate this MOU by providing 60 days written notice.

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5. Upon termination, the Repository shall return such Collection and any other U.S. Government-owned personal property in accordance with the MOU to the destination directed by the Forest Service and in such manner to preclude breakage, loss, deterioration and contamination during handling, packaging and shipping, and in accordance with other conditions specified in writing by the Forest Service. If the Repository terminates, or is in default of, this MOU, the Repository shall fund the packaging and transportation costs. If the Forest Service terminates this MOU, the Forest Service shall fund the packaging and transportation costs.

6. This instrument in no way restricts the Forest Service or Repository from cooperating with, receiving cooperation from, or entering into agreements with other public or private agencies, organizations, or educational institutions on prehistorical, historical or historically related matters.

7. Nothing herein shall be construed as obligating the Repository to accept paleontological resources from the *(name of forest)* National Forest.

8. This instrument is neither a fiscal nor a funds obligation document. Any endeavor or transfer of anything of value involving reimbursement or contribution of funds between the parties to this instrument will be handled in accordance with applicable laws, regulations, and procedures including those for Government procurement and printing. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the parties and shall be independently authorized by appropriate statutory authority. This instrument does not provide such authority. Specifically, this instrument does not establish authority for noncompetitive award to the cooperator of any contract or other agreement. Any contract or agreement for training or other services must fully comply with all applicable requirements for competition.

9. Changes within the scope of this instrument shall be made by the issuance of a bilaterally executed modification.

10. The Repository shall comply with all federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352), which prohibits discrimination on the basis of race, color, handicap, or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. 1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) The Indian Self-Determination Act (P.L. 93-638), which allows for Indian preference in employment and training.

ASSURANCES

The Repository further assures and certifies that:

1. It will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352, 42 U.S.C. 200d) and in accordance with Title VI of the Act, no person in the United States shall, on the grounds

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of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the applicant receives Federal financial assistance and will immediately take any measures necessary to effectuate this MOU.

2. It will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352, 42 U.S.C. 200d) prohibiting employment discrimination where discriminatory employment practices will result in unequal treatment of persons who are or should be benefiting from the MOU.

3. It will assist the Forest Service in its compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (16 U.S.C. 470), Executive Order 11593, and the Archaeological and Historic Preservation Act of 1966 (16 U.S.C. 469A-1 *et seq.*) by (a) consulting with the State Historic Preservation Officer on the conduct of investigations, as necessary, to identify property listed in or eligible for inclusion in the National Register of Historic Places that are subject to adverse effects (see 36 CFR Part 800.8) by the activity, and notify the Forest Service of the existence of any such properties, and by (b) complying with all requirements established by the Forest Service to avoid or mitigate adverse effects on such properties.

4. It will comply with the provisions of the Hatch Act, which limit the political activity of employees.

5. It will comply with the minimum wage and maximum hours provisions of the Federal Fair Labor Standards Act, as they apply to hospital and educational institution employees of State and local governments.

6. It will establish safeguards to prohibit employees from using their positions for a purpose that is or gives the appearance of being motivated by a desire for private gain for themselves or others, particularly those with whom they have family, business, or other ties.

7. It will comply with all requirements imposed by the Federal-sponsoring agency concerning special requirements of law, program requirements, and other administrative requirements.

8. It will ensure that the facilities under its ownership, lease, or supervision which shall be used in the accomplishment of the project are not listed on the Environmental Protection Agency's (EPA) list of Violating Facilities, and will notify the Forest Service of the receipt of any communication from the Director of the EPA Office of Federal Activities indicating that a facility to be used in the project is under consideration for listing by the EPA.

9. It will comply with the flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-243, 87 Stat. 975, approved December 31, 1976). Section 102(a) requires, on and after March 2, 1975, the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any Federal

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financial assistance for construction or acquisition purposes for use in any area that has been identified by the Secretary of the Department of Housing and Urban Development as an area having special flood hazards. The phrase "Federal financial assistance" includes any form of loan, grant, guaranty, insurance payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect Federal assistance.

10. It will comply with Section 504 of the Rehabilitation Act of 1973 as amended (29 U.S.C. 794) and all regulations, guidelines, and interpretations issued pursuant thereto. Section 504 provides that no otherwise qualified handicapped individual shall, solely by reason of handicap, be excluded from the participation in, be denied the benefits of, or subject to discrimination under any program or activity receiving Federal financial assistance.

IN WITNESS WHEREOF, the parties hereto have executed this agreement as of the last date written below.

(Title of Agent of the Repository authorized to sign for the Institution)

Date: _____

Forest Supervisor, USDA Forest Service

Date: _____

Attachment A: AD-107 Property Transfer Form

Inventory of the Collection

This inventory list can be provided after the specimen is collected, and is accessioned into the collection. This can be field numbers at first, and catalog numbers after the specimen is entered into the Repository's Collection Database.

Attachment B: Minimum Requirements/ Standards for Curation of Paleontological Resources

Attachment C: Inventory of any other U.S. Government-owned Personal Property *(if applicable)*

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Challenge Cost Share Agreement

**CHALLENGE COST-SHARE AGREEMENT
BETWEEN**

[Redacted]

Comment [UFS1]: Insert Cooperator's legal name.

AND

**UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE**

[Redacted]

Comment [UFS2]: Insert the Region/Station/Area/Institute name.

FOR LONG-TERM CURATION OF PALEONTOLOGICAL RESOURCES

This Challenge Cost-Share agreement is entered into by and between the [Redacted], hereinafter referred to as [Redacted] the Repository, and the United States Department of Agriculture Forest Service, hereinafter referred to as Forest Service, under the provisions of the Department of Interior and Related Agencies Appropriation Act of 1992, P.L. 102-154. Curation, protection, and disposition for paleontological resources are authorized under the Organic Act of 1897, 30 Stat. 11, the Archaeological Resources and Protection Act of 1979, P.L. 96-95, the Antiquities Act of 1906, P.L. 59-209, and regulations at 7 C.F.R. 3100 41.1.

Comment [UFS3]: Fill in the cooperator's full name.

Comment [UFS4]: Fill in the cooperator's shortened name.

Comment [UFS5]: Insert the name of the FS Region/Station/Area/Institute name.

Comment [UFS6]: If funds are going to be received, insert one of the following collection authorities in addition to P.L. 102-154. (1) the COOPERATIVE FUNDS ACT OF JUNE 30, 1914 (16 U.S.C. 504), which authorizes the Forest Service to accept money received as contributions toward cooperative work in forest investigations or protection, management, or improvement of the national forests. (2) the GRANGER-THYE ACT OF APRIL 24, 1950 (16 U.S.C. 572), which authorizes the Forest Service to perform work (a) on State, county, municipal, or private land within or near National Forest Service, (3) the ACCEPTANCE OF GIFTS ACT OF OCTOBER 10, 1978 (7 U.S.C. 2269, PUB. L. 95-442), which authorizes the Forest Service to accept cash and donations of real personal property, or (4) the INTERGOVERNMENTAL COOPERATION ACT OF 1968, AS AMENDED (31 U.S.C.6501-6508, PUB.L. 90-577), which authorizes the Forest Service to provide services to States or subdivisions of States.

I. **PURPOSE:** The purpose of this Challenge Cost-share Agreement is to establish a general framework of cooperation between the Repository and the Forest Service. Fossil specimens found on National Forest System land need special housing, special preparation, and curatorial care which the Forest Service cannot provide. The Repository has the facilities, equipment, supplies, and the expert staff to provide these needs. The Forest Service and the Repository propose to work together to ensure that collected paleontological resources, records, and data are suitably protected, managed and preserved for the public good.

Comment [UFS7]: Explain why the parties wish to cooperate and include a statement that begins:

II. **STATEMENT OF MUTUAL INTEREST AND BENEFITS:**

The Parties recognize that it is national policy to preserve for public benefit objects of national significance, including significant paleontological resources, that are part of the national heritage of the people of the United States.

Comment [UFS8]: The Forest Service's and the cooperator's interests and responsibilities should be stated separately. These interests and responsibilities should then be tied together in a summary statement which clearly establishes the mutual interest and benefits of the parties. THIS SECTION SHOULD END WITH A TRANSTION STATEMENT SIMILAR TO THE FOLLOWING: In consideration of the above premises, the parties agree as follows:

The Forest Service has the responsibility under federal law to preserve for future use certain collections of paleontological resources, specimens and associated records, molds and casts, herein called the Collection, and is desirous of obtaining curatorial services.

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The Parties recognize the Federal Government's responsibility to ensure that the Collection is suitably protected, managed and preserved for the public good as a heritage asset for the nation's welfare and possessing national significance.

The Repository is desirous of housing and maintaining the Collection, and recognizes the benefits which will accrue to it, including public and scientific interest by housing and maintaining the Collection for scientific study, research, exhibition, and other educational purposes.

The parties hereto recognize the Federal Government's continued ownership (title) and control over the Collection listed in Attachment A, which is attached hereto and made a part hereof, and provided to the Repository.

III. THE REPOSITORY SHALL:

1. Provide for the professional care and management of the Collection from the [Insert location or other identifying information here].
2. Perform all work necessary to protect the Collection in accordance with either an approved Collections Management Plan, or at minimum, with the terms and conditions for the curation of federally-owned and administered paleontological collections as stipulated in Attachment B to this Agreement.
3. Provide and maintain a repository facility having requisite equipment, space and adequate safeguards for the physical security and controlled environment for the Collection.
4. Not in any way adversely alter or deface any of the Collection except as may be absolutely necessary in the course of stabilization, conservation, scientific study, analysis and research. The Forest Service must approve any activity that will involve the intentional destruction of any of the Collection in advance and in writing.
5. Annually inspect the facilities and the Collection. Every (*number of years*) years physically inventory the Collection and provide a written record to the Forest Service.
6. Provide access to and the right to examine, all records, books, papers, maps, or documents relating to the Collection, including but not limited to digital or hardcopy.
7. Perform only those conservation treatments as are absolutely necessary to ensure the physical stability and integrity of the Collection, and report the results of inventories, inspections and treatments to the Forest Service in writing within six months.

Comment [UFS9]: Fill in the cooperator's shortened name.

Comment [UFS10]: List the activities/tasks the cooperator's will do; use numbered paragraphs

Comment [FS11]: These recitations may be modified as mutually agreed to, to meet the needs of the parties and local circumstances.

Comment [FS12]: Fill in necessary information such as geographic location data, national forest or grassland, collection number, etc.

Comment [FS13]: As agreed to by the parties.

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8. Within five (5) days of discovery, report all instances of and circumstances surrounding loss of, deterioration and damage to, or destruction of the Collection to the Forest Service, and those actions taken to stabilize the Collection and to correct any deficiencies in the storage area or operating procedures that may have contributed to the loss, deterioration, damage or destruction. Any actions that will involve the repair and restoration of any of the Collection must be approved in advance and in writing by the Forest Service.
9. Review and approve, or deny requests for access to short-term loan of the Collection (or a part thereof) for scientific, education or exhibition in accordance with the terms and conditions for the curation of federally-owned and administered paleontological collections stipulated in this Agreement. In addition, refer requests for consumptive uses or destructive tests of the Collection (or a part thereof) to the Forest Service for approval or denial.
10. Not mortgage, pledge, assign, transfer, exchange, give, sublet, discard or part with possession of any of the Collection in any manner to any third party either directly or indirectly, or otherwise deaccession the Collection without the prior written permission of the Forest Service, and redirect any such request to the Forest Service for response. In addition, not take any action whereby any of the Collection shall or may be encumbered, seized, taken in execution, sold, attached, lost, stolen, destroyed or damaged.
11. Exhibit, photograph or otherwise reproduce and study the Collection, or portions thereof, in accordance with the terms and conditions stipulated in this Agreement. All exhibits, reproductions and studies shall credit the Forest Service, and read as follows: "Courtesy of the USDA Forest Service". The Repository agrees to provide the Forest Service with copies of any resulting publications.
12. Maintain complete and accurate records of the Collection, including information on the study, use loan, and location of said Collection, which has been removed from the premises of the Repository.
13. Comply with all requirements of the Forest Service concerning special requirements of law, program requirements, and other administrative requirements.

Reproduction of Fossil Specimens [Optional, if applicable]

1. The Repository is authorized to produce one mold and one cast of federal fossil specimens for scientific, education or exhibition purposes. The mold and the cast are considered federal property, and must be catalogued into the museum collection. Additional molds and/or casts must be approved by the Forest Supervisor, [Name] National Forest.

Comment [FS14]: This section is only required if the Repository requests the ability to reproduce fossil specimens.

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2. Reproduction of specimens in the Collection in the form of molds and/or casts for commercial purposes is prohibited unless otherwise authorized by the Forest Supervisor, [Name] National Forest.
3. Reproductions (molds and/or casts) of the Collection may be authorized for public purposes, such as exhibition, or trade with or sale to other museums and institutions, where proceeds benefit the maintenance of the Collection, and must be approved by the Forest Supervisor, [Name] National Forest.
4. Federal fossil specimens or casts may be loaned to other institutions for scientific or exhibition purposes. The Repository must have a sufficient method of accounting for loaned federal property in their Collections management Plan. Reproduction of loaned federal specimens must be approved by the Forest Supervisor, and must benefit the maintenance of the Federal collection.

IV. THE FOREST SERVICE SHALL:

1. Review and/or approve the Repository's Collections Management Plan to ensure that federal fossil specimens will be properly protected and maintained.
2. Every (*number of years*) year(s), jointly with the Repository's designated representative, have the Forest Service Representative inspect and inventory the Collection and any other U.S. Government-owned personal property, and inspect the repository facility.
3. Be notified in advance and in writing of any intentional destruction of the federal fossil specimens. Forest Service will review and approve, or deny requests for destructive consumption of a vertebrate or significant Federal fossil specimen in the Collection (or a part thereof).
4. Be notified in advance of removal of all or any portion of the Collection from the premises of the Repository for scientific, educational or exhibition purposes in accordance with the terms and conditions stipulated in this Agreement.
5. Be notified in advance of the deaccessioning of any or all of the Collection.
6. Be notified of any theft, loss or destruction of any or all of the Collection.
7. Provide the Repository with the appropriate Federal Property Management Handbooks, copies of other Forest Service Manuals or Handbooks and any subsequent

Comment [UFS15]: List the activities/tasks the Forest Service will do; use numbered paragraphs.

Comment [FS16]: These recitations may be modified to meet the needs of the local Forest Service office.

Comment [FS17]: Insert the time when the Forest Service will inspect the collection within the 5 year timeframe of the agreement.

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changes and instructions relating to the Federal Property Management program. Provision may be made via the Internet.

V. IT IS MUTUALLY UNDERSTOOD AND AGREED BY AND BETWEEN THE PARTIES THAT:

1. FOREST SERVICE ACKNOWLEDGED IN PUBLICATIONS AND AUDIOVISUALS.

Forest Service support shall be acknowledged in any publications and audiovisuals developed as a result of this instrument.

2. COLLECTION OF AMOUNTS DUE THE FEDERAL GOVERNMENT. Any funds paid to a cooperator in excess of the amount to which the cooperator is finally determined to be entitled under the terms and conditions of the award constitute a debt to the Federal Government. If not paid within a reasonable period after the demand for payment, the Federal awarding agency may reduce the debt by:

- (1) Making an administrative offset against other requests for reimbursements.
- (2) Withholding advance payments otherwise due to the cooperator
- (3) Taking other action permitted by statute.

Except as otherwise provided by law, the Federal awarding agency shall charge interest on an overdue debt.

3. TAXPAYER IDENTIFICATION NUMBER. The cooperator shall furnish their tax identification number upon execution of this instrument.

4. RIGHT TO TRANSFER EQUIPMENT AND SUPPLIES. Equipment and supplies approved for purchase under this instrument are available only for use as authorized. The Forest Service reserves the right to transfer title to the Federal government of equipment and supplies, valued over \$5,000 per unit, purchased by the recipient/cooperator using any Federal funding. Upon expiration of this instrument the recipient/cooperator shall forward an equipment and supply inventory to the Forest Service, listing all equipment purchased throughout the life of the project and unused supplies. Disposition instructions will be issued by the Forest Service within 120 calendar days.

5. FUNDING EQUIPMENT AND SUPPLIES. Federal funding under this instrument is not available for reimbursement of recipient/cooperator purchase of equipment (and supplies).

6. FREEDOM OF INFORMATION ACT (FOIA). Any information furnished to the Forest Service under this instrument is subject to the Freedom of Information Act (5 U.S.C. 552).

Comment [UFS18]: The following clauses are standard provisions taken from FSH 1509.11, Section 72, Exhibit 01. Delete any that are not applicable and number the remaining in sequential order.

Comment [UFS19]: When development of publication or production of audiovisuals is approved, this is mandatory.

Comment [UFS20]: This is mandatory when the Forest Service is transferring or exchanging funds.

Comment [UFS21]: Unless the cooperator has already furnished the TIN, this is mandatory when the Forest Service is transferring funds to other than another federal agency. For CO agreements; if a Bill for Collection is to be generated or if a refund is possible, FFIS requires a TIN be used. Otherwise for CO use of this provision is optional.

Comment [UFS22]: When the purchase of equipment or supplies are approved using any Federal funds, and the Forest Service intends to invoke right to transfer of equipment, this is mandatory. Refer to disposition and instruction of equipment in 7CFR 3016.32 and 7CFR 3019.34.

Comment [UFS23]: Select and use the appropriate one.

Comment [UFS24]: Select and use the appropriate one

Comment [UFS25]: Include "supplies" where applicable. When no equipment is approved for purchase, this is mandatory.

Comment [UFS26]: Select and use the appropriate one.

Comment [UFS27]: Include supplies if applicable, if not delete "and supplies".

Comment [UFS28]: This is mandatory, except for Inter and Intra-agency agreements.

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7. **ALTERNATE DISPUTE RESOLUTION.** In the event of any issue of controversy under this Agreement, the parties may pursue Alternate Dispute Resolution procedures to voluntarily resolve those issues. These procedures may include, but are not limited to conciliation, facilitation, mediation, and fact finding.

8. **RETENTION AND ACCESS REQUIREMENTS FOR RECORDS.** The Forest Service, Inspector General, or Comptroller General, through any authorized representative, shall have access to and the right to examine all records related to this instrument. As used in the provision, “records” includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form. All records pertinent to the award shall be retained for a period of 3 years.

Comment [UFS29]: This is mandatory, except for Inter or Intra-agency agreement.

9. **MODIFICATION.** Modifications within the scope of the instrument shall be made by mutual consent of the parties, by the issuance of a written modification, signed and dated by all parties, prior to any changes being performed.

Comment [UFS30]: This is mandatory. Optional use for Inter or Intra-agency Agreements depending on the type in IA used.

The Forest Service is not obligated to fund any changes not properly approved in advance.

Comment [UFS31]: Add this sentence as the last sentence in the provision if this agreement is for (DG, CA, CS, PA, JV, CR).

10. **NONDISCRIMINATION.** The recipient/cooperator shall comply with all Federal statutes relating to nondiscrimination and all applicable requirements of all other Federal laws, Executive orders, regulations, and policies. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d, 2000e-16), which prohibits discrimination on the basis of race, color, disability, or national origin; (b) Title IX of the Education amendments of 1972, as amended (20 U.S.C. 1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; and Section 504 of the Rehabilitation Act of 1973 as amended (29 U.S.C. 794) which prohibits discrimination on the basis of disabilities. The nondiscrimination statement which follows shall be posted in primary and secondary recipient/cooperator offices, at the public service delivery contact point and included, in full, on all materials regarding such recipients'/cooperators' programs that are produced by the recipients/cooperators for public information, public education, or public distribution:

Comment [UFS32]: This is mandatory. All agreements that produce public information, public education, or public distribution of materials or information.

Comment [UFS33]: Select and use the appropriate one.

“In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. (Not all prohibited bases apply to all programs.)

Comment [UFS34]: Select and use the appropriate one.

Comment [UFS35]: Select and use the appropriate one.

Comment [UFS36]: Select and use the appropriate one.

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.”

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If the material is too small to permit the full statement to be included, the material will at minimum include the statement, in print size no smaller than the text, that “This institution is an equal opportunity provider.”

11. **PROPERTY IMPROVEMENTS**. Improvements placed on National Forest System land at the direction of either of the parties, shall thereupon become property of the United States, and shall be subject to the same regulations and administration of the Forest Service as other National Forest improvements of a similar nature. No part of this instrument shall entitle the cooperator to any share or interest in the project other than the right to use and enjoy the same under the existing regulations of the Forest Service.

Comment [UFS37]: When improvements result from a project on National Forest System lands, this mandatory.

12. **LEGAL AUTHORITY**. The cooperator has the legal authority to enter into this instrument, and the institutional, managerial and financial capability (including funds sufficient to pay nonfederal share of project costs) to ensure proper planning, management, and completion of the project.

Comment [UFS38]: This is mandatory.

13. **PARTICIPATION IN SIMILAR ACTIVITIES**. This instrument in no way restricts the Forest Service or the Cooperator(s) from participating in similar activities with other public or private agencies, organizations, and individuals.

Comment [UFS39]: This is mandatory.

14. **COMMENCEMENT/EXPIRATION DATE**. The instrument is executed as of the date of the last signature and is effective through [] at which time it will expire unless extended.

Comment [UFS40]: This is mandatory. For IA, use is optional depending on narrative type agreement or agency form used, where this information may already be captured.

15. **EXTENSION OF PERFORMANCE PERIOD**. The Forest Service, by written modification may extend the performance period of this instrument for a total duration not to exceed 5 years from its original date of execution.

Comment [UFS41]: Insert the expiration date no greater than 5 years.

Comment [UFS42]: When open-ended funded instruments are contemplated (FSM 1581 and FSM 1587.03), this is mandatory for the original instrument, but not for modifications to the instrument. This provision is not applicable to Inter and Intra-agency agreements.

16. **TERMINATION**. Any of the parties, in writing, may terminate the instrument is whole, or in part, at any time before the date of expiration.

Comment [UFS43]: This is mandatory. Check 1509.11 chapter 72 there is more to this provision. (Also, when refunds are required by statute, add the following sentence: Excess funds shall be refunded within 60 days after the effective period.

Neither party shall incur any new obligations for the terminated portion of the instrument after the effective date and shall cancel as many obligations as possible. Full credit shall be allowed for each Party’s expenses and all non-cancelable obligations properly incurred up to the effective date of termination.

a. Upon termination of this agreement, the Repository shall return such Collection and any other U.S. Government-owned personal property in accordance with the Agreement to the destination directed by the Forest Service, and in such manner to preclude breakage, loss, deterioration and contamination during handling, packaging and shipping, and in accordance with other conditions specified in writing by the Forest Service.

Comment [FS44]: Need to know what happens to the Collection if the agreement is terminated and not renewed.

17. **PRINCIPAL CONTACT**. The principal contacts for this instrument are:

Comment [UFS45]: This may be changed to accommodate the citing of each party’s technical and business representatives, if necessary. However, this is mandatory. For Inter and Intra-agency agreements use is optional depending on narrative form of agreement or other agency form used where this information may already be captured.

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Forest Service Project Contact	Cooperator Project Contact
Phone:	Phone:
FAX:	FAX:
E-Mail:	E-Mail:

Forest Service Administrative Contact	Cooperator Administrative Contact
Phone:	Phone:
FAX:	FAX:
E-Mail:	E-Mail:

18. **AVAILABILITY OF FUNDS.** Funds in the amount of \$ _____ are currently available for performance of this instrument through _____. The Forest Service’s obligation for performance of this instrument beyond this date is contingent upon the availability of appropriated funds from which payment can be made. No legal liability on the part of the Forest Service for any payment may arise for performance under this instrument beyond _____, until funds are made available to the Forest Service for performance and until the recipient/cooperator receives notice of availability by written modification by the Forest Service.

Comment [UFS46]: When open-ended funded instruments are contemplated (FSM 1581 and FM 1587.03), this is MANDATORY. This provision shall be incorporated in the original instrument and must be incorporated and updated on modifications for subsequent performance periods. His provision is not applicable to Inter and Intra-agency agreements.

Comment [UFS47]: Insert the award amount.

Comment [UFS48]: Insert the expiration date.

Comment [UFS49]: Insert the expiration date.

Comment [UFS50]: Select and use the appropriate one.

Comment [UFS51]: This is mandatory when it is anticipated that the cooperator will be contracting with another party for public works and service type contracts.

19. **DAVIS-BACON OR SERVICE CONTRACT ACT.** Federal wage provisions (Davis-Bacon or Service Contract Act) are applicable to any contract developed and awarded under this instrument where all or part of the funding is provided with Federal funds. Davis-Bacon wage rates apply on all public works contracts in excess of \$2,000 and Service Contract Act wage provisions apply to service contracts in excess of \$2,500. The Forest Service will award contracts in all situations where their contribution exceeds 50 percent of the costs of the contract. If a cooperator is approved to issue a contract it shall be awarded on a competitive basis.

20. **COPYRIGHTING (1).** The cooperator is granted sole and exclusive right to copyright _____, including the right to publish and vend throughout the world in any language and in all media and forms, in whole or in part, for the full term of the copyright and all renewals thereof in accordance with this instrument. However, the cooperator shall not sell, or grant copyrights to a third-party designee who intends to sell, the document as a profit-making venture. The cooperator will not release detailed field locality data in accordance with Attachment B. No original text or graphics produced and submitted by the Forest Service shall be copyrighted. The Forest Service reserves a royalty-free, nonexclusive, and irrevocable right to reproduce, publish,

Comment [UFS52]: When cooperator publications are or may be developed, this is mandatory.

Comment [UFS53]: Insert name of publications.

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or otherwise use, and to authorize others to use, the work for Federal government purposes. This right shall be transferred to any sub-agreements or subcontracts. This provision includes:

- a. The copyright in any work developed by [] under this instrument.
- b. Any rights of copyright to which [] purchases ownership with any Federal contributions.

Comment [UFS54]: Insert the cooperator's name

Comment [UFS55]: Insert the cooperator's name

21. **PUBLICATION SALE.** The cooperator may sell any publication resulting from the project. The publication may initially be sold at fair market value, which is defined in this instrument to cover costs of development, production, marketing, and distribution. After the costs of development and production have been recovered, fair market value is defined in this instrument to cover the costs of marketing, printing, and distribution only. Fair market value must exclude any in-kind or Federal government contribution to the total costs of the project.

Comment [UFS56]: When publications are or may be developed, this is mandatory.

22. **ELECTRONIC FUNDS TRANSFER.** The recipient/cooperator shall designate a financial institution or an authorized payment agent through which a Federal payment may be made in accordance with U.S. Treasury Regulations, Money and Finance at 31 CFR 208, which requires that Federal payments are to be made by electronic funds transfer (EFT) to the maximum extent possible. A waiver may be requested and payment received by check by certifying in writing that one of the following situations apply:

Comment [UFS57]: Unless the recipient/cooperator is already using EFT, this is mandatory. If changes occur to the phone numbers or the World Web address, make those changes accordingly.

Comment [UFS58]: Select and use the appropriate one.

1. The payment recipient/cooperator does not have an account at a financial institution.
2. EFT creates a financial hardship because direct deposit will cost the payment recipient more than receiving check.
3. The payment recipient/cooperator has a physical or mental disability, or a geographic, language, or literacy barrier.

Comment [UFS59]: Select and use the appropriate one.

To initiate receiving your payment(s) by electronic transfer, contact the National Finance Center (NFC) on the worldwide web at www.nfc.usda.gov, or call the NFC at 1-800-421-0323, or (504) 255-4647. Upon enrollment in the program you may begin to receive payment by electronic funds transfer directly into your account.

23. **PAYMENT /REIMBURSEMENT.** Reimburse the cooperator for the Forest Service's proportionate share [] percent of actual expenses incurred, not to exceed \$[], reduced by program income, and other Federal and nonfederal cash contributions, as shown in the incorporated Financial Plan (Attachment C). If program income generated from the project exceeds the cooperator's actual expenses, the Forest Service share is zero. The cooperator is approved to submit [] billings(s). The Forest will make payment for its proportionate share of project costs upon receipt of an invoice. Each invoice shall display the cooperator's actual expenditures to date of the invoice (not just the Forest Service share of actual expenditures), display by separate

Comment [UFS60]: When reimbursable payments are required, this is mandatory. Remove the reference to program income when not applicable. Remove reference to paragraph b if not required by the Forest Service.

Comment [UFS61]: Insert percentage number.

Comment [UFS62]: Insert dollar amount.

Comment [UFS63]: Select and insert the appropriate on (monthly, quarterly, semi-annual, a lump-sum).

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Attachment B: Minimum Requirements for Curation of Paleontological Resources (See Appendix C.)

Attachment C: Financial Plan, Forest Service and Cooperator Non-Federal Repository (See Appendix D.)

C. Minimum Curation Standards for a Forest Service Federal Repository (Attachment B)

The following standards are usually attached to a Memorandum of Understanding or a Challenge Cost Share Agreement as “Attachment B,” “Minimum Requirements/ Standards for Curation of Paleontological Resources.” Minimum standards and requirements may be added or deleted as necessary and agreed to by the Forest Service and the Repository.

ATTACHMENT B

MINIMUM REQUIREMENTS / STANDARDS FOR CURATION OF PALEONTOLOGICAL RESOURCES

Comment [FS70]: These standards may be modified to add additional standards, or revised as technology changes.

General

The Repository should be accredited with the American Association of Museums, and have an approved Curatorial/Collections Management Plan that includes procedures for accessioning, cataloging and de-accessioning loaned property.

A non-accredited Repository should meet the standards established by the Department of the Interior Manual 411, including a suitable Curatorial/Collections Management Plan that addresses procedures for accessioning, cataloging and de-accessioning loaned federal property, and meet the Forest Service minimum requirements and standards below for non-federal repositories. The Forest Service representative, or Forest Service paleontologist, prior to accessioning of loaned specimens must approve this plan in writing.

The Repository must have a designated alternative Repository approved by the Forest Service representative in case the facility closes.

The Repository must have a paleontologist on staff, trained in the curation and preparation of paleontological resources.

The Repository must bear all costs to curate, accession, prepare, and hold federally owned paleontological specimens (the Collection) in perpetuity for the public.

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The Repository must provide access to the Collection for scientific, research, educational, or exhibition purposes.

Site-specific locality information for the Collection must be kept confidential. The Forest Service representative must approve release of site-specific information.

The Repository should have a code of ethics regarding behavior of curatorial staff, while handling the Collection in the facility.

The Repository should have a code of ethics regarding personal and commercial collection.

Environmental Standards

The Repository must house specimens with appropriate temperature, humidity and other environmental controls suitable for the fossil material type to reduce the rate of deterioration, prolong its life, and minimize the need for conservation treatment.

The Repository/museum staff must keep the facility free of insects, vermin, mold, and mildew.

Security Standards

The Repository must have security measures in place to prevent theft and vandalism of the Collection.

The Repository must have a fire prevention/suppression plan and equipment in place.

The Repository must have a visitor sign-up and sign out sheet for publics accessing the Collection.

Storage Standards

The Repository must keep all flammable liquids away from the area where the Collection is housed (the storage area.)

The Repository must exercise strict control to maintain collections facility integrity, i.e., drinking, smoking, and eating must not occur in the storage area. The facility should have regular janitorial attention with periodic checking for insect and vermin infestation. Cabinets and shelves should be vacuumed routinely.

The Collection should not be stored in areas with water/sewer pipes. The Repository should have preventative maintenance measures and procedures in place in the event of flooding.

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The Repository must have secure and stable cabinets, (steel not required, but preferred), with smoothly moving drawers and adequate clearance above each specimen.

The Repository must ensure that all fossils are stored in a stable condition. When possible, specimens should be kept in ethafoam-lined boxes within drawers; each fossil should be kept from rolling, preferably by custom-fit ethafoam walls built to hold fossils snug.

The Repository must use acid-free paper and boxes to house fossils and documentation.

Quality Control

The Repository will ensure that all pertinent contextual information (excavation/quarry maps, field notes, preparation notes including all consolidates/glues applied to the specimen, modifications) are stored with the specimen(s).

Specimen(s) must have all modifications, preparation techniques, etc. documented and linked with the specimen.

The Repository must have a monitoring plan for specimen checkout while in preparation, storage, on-exhibit or on-loan.

The Collection must be labeled as Forest Service specimens both on specimen tags and in catalog/database system for ease of identification during federal property inventories.

Exhibit Standards

Specimens from the Collection must be exhibited so as to minimize theft or damage, and best preserve, protect and maintain the integrity of the specimen.

Specimens from the Collection must be labeled, "Courtesy of USDA Forest Service" in the interpretive information.

D: Financial Plan, Forest Service and Cooperator Non-Federal Repository (Attachment C)

ATTACHMENT C: FINANCIAL PLAN

					USFS Agreement No.:				
					Cooperator Agreement No.:				
Financial Plan									

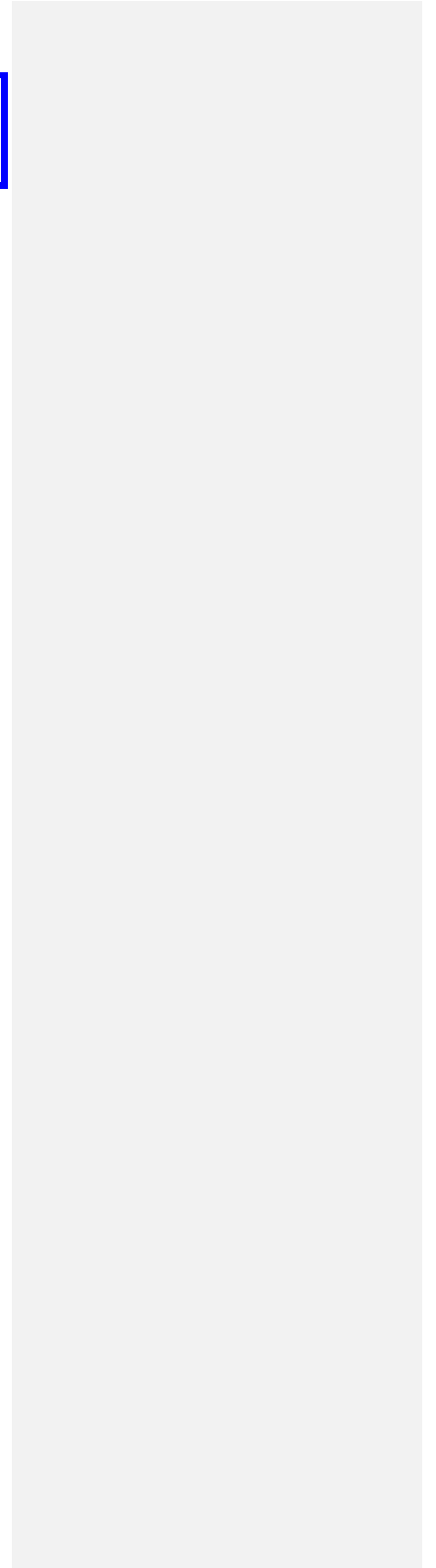
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	Forest Service			Cooperator - Non-Federal					
	(a)	(b)	(c)	(d)	(e)	(f)			
		Value of	Reimb.		Value of	Cash			
Cost Elements	Non-Cash	In-Kind	Coop.	Non-Cash	In-Kind	Contrib.	(j)		
	Contrib.	Contrib.	Expenses	Contrib.	Contrib.	to F.S.	Total		
Direct Costs									
Salaries/Labor							\$0.00		
Travel							\$0.00		
Equipment Use							\$0.00		
Supplies							\$0.00		
Materials							\$0.00		
Printing							\$0.00		
Subtotal	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		
Indirect Costs									
Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		
				(k) Estimated Program Income (subtract from total of column (j):			\$100.00		
				(l) Net Total Project Value:			- \$100.00		
Matching Costs Determination					Reimbursement Calculation				
Total Forest Service Share =			(m)	Forest Service Reimbursement percent			(p)		
(a+b+c) ÷ (l)			0.00%	(c) ÷ [(c+d+f)-(k)] =					0.00%
= (m)				(p)					
Total Cooperator Share =			(n)	Cooperator expenses NOT reimbursed by Forest Service			(q)		
[(d+e) - (k)] ÷ (l) = (n)			100.00%	[(d+f)-(k)] ÷ [(c+d+f) - (k)] = (q)					100.00%
Total = (m+n) = (o)			100%	Reimbursable Amount = Total actual cost incurred to date					
(should equal 100%)				(sum of cost elements from the Cooperator invoice as prescribed					
				in provisions		and		multiplied by	
				0.00%			(p) minus any previous Forest Service payments,		
				not to exceed the total amount listed in column (c), minus any					
				estimated program income (k).					
Instructions									

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<p><i>Use Cost Elements that apply to the particular project. The Cost Elements listed are examples of those commonly used. Delete those that don't apply. Value assessed for volunteer labor should be commensurate with local labor rates for similar work. Donated materials, equipment and supplies should be valued at rates and prices available in the current local market. Cite a collection authority if columns (f) or (i) are used.</i></p>										
<p>(a) Forest Service Non-Cash Contribution: Forest Service employee salaries, travel, equipment, supplies, etc., provided toward completion of the project. Total Forest Service indirect cost (overhead) is also included in this column. All the costs listed here are an expense to the Forest Service.</p>										
<p>(b) Value of Forest Service In-Kind Contribution: Forest Service contributions toward completion of the project for which the Forest Service has incurred no expense. These contributions include such items as volunteer labor, donated materials, equipment, supplies, etc., contributed by third parties directly to the Forest Service. Forest Service volunteer and/or equipment rental agreements should be used to document the donated services.</p>										
<p>(c) Reimbursable Cooperator Non-Federal Expenses: The figure(s) listed are both the maximum Forest Service funds to be obligated for reimbursement and Cooperator #1 expenses that are not included anywhere else on this form. This is an expense to the Forest Service.</p>										
<p>(d) Cooperator Non-Federal Non-Cash Contribution: Cooperator employee salaries, travel, equipment, supplies, etc., provided toward completion of the project. Total Cooperator indirect cost (overhead) is also included in this column. All the costs listed here are an expense to the Cooperator.</p>										
<p>(e) Cooperator Non-Federal Value of In-Kind Contribution: Cooperator #1 non-cash contributions provided toward completion of the project for which the Cooperator has incurred no expense. These contributions can be made from the Cooperator or through the Cooperator by other entities and include such items as volunteer labor, donated materials, equipment, supplies, etc. These values are not reimbursable and can only be used to satisfy the Cooperator's matching requirement.</p>										
<p>(f) Cooperator Non-Federal Cash Contribution to the Forest Service: Cooperator cash contribution provided to the Forest Service for use in completing the project. This is an expense to the Cooperator. Display by Cost Element where these funds will be expended.</p>										
<p>(j) Gross Total Project Value: The sum of all the values provided toward the project. This figure reflects the true estimated cost of the project.</p>										
<p>(k) Estimated Program Income: The gross income estimated to be generated under the project between the effective date of award and completion of the project, such as conference or workshop fees received, rental fees earned from renting real property or equipment acquired with agreement funds, or the sale of commodities or items developed under the project.</p>										
<p>(l) Net Total Project Value: The sum of all the values provided toward the project with Estimated Program Income deducted. This figure reflects the true estimated cost of the project.</p>										

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E. Sample Paleontological Locality Site Form

I. CONTEXTUAL DATA

Date: _____ Recorder: _____

FS Contact: _____

Forest/Grassland: _____ District: _____ Pasture # _____

_____ Section _____ Township _____ Range _____ PM _____

County _____ State _____

USGS 7.5' quadrangle name _____

GPS coordinates (UTM) _____

Northing: _____ Easting: _____

Elevation: _____

Evidence of previous collection? _____ Vandalism _____ Theft _____

If yes, please describe: _____

Site/Locality Name _____

Site/ Locality Number _____

Description of Site/Locality: (outcrop color, character, topography, detailed location)

Formation/Horizon/Geologic Age:

II. PALEONTOLOGICAL DATA

Fossil Type (invertebrate, vertebrate, plant, trace, combination):

Taxonomy:

Common Name (e.g. turtle, bird):

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Description of Paleontological Resources observed:

Specimens collected:

Collector: _____ **Field #** _____

Location of specimens (Repository): _____

III. MANAGEMENT DATA (FS only)

Overall Significance of site/locality (1-5, qualitative ranking based upon significance criteria)

Locality/Site Sensitivity Ranking Values__

(1) Significance ____ (2) FYPC ____ (3) Values ____ (4) Risk

Sensitivity Ranking (1 + 2 + 3 + 4 / 4)

Known Collections/Excavations/Publications/Other Forms:

Research/Values Potential:

Management recommendations/further work:

Other comments:

IV. ADMINISTRATIVE DATA (FS Only)

Project clearance (Yes or No) _____

Activities Completed

Record____ **Collect**____ **Map**____ **Test**_____

Partial Excavation____ **Total Excavation**____ **Stabilized** _____

Other _____

TRAINING GUIDE FOR MANAGEMENT OF PALEONTOLOGICAL RESOURCES**Excavation Site Reclaimed?** _____**Theft - Incident or Case Report #** _____**Existing Protection****None**___ **Marked**___ **Fenced**___ **Patrolled**___ **Access controlled**___**Other** _____**F. General Procedure for Removal of Fossil Bones and Skeletons**

Do not attempt the following procedure without proper instruction from a zone or other paleontologist.

Carefully remove overburden and expose enough fossil material to delineate extent of specimen, e.g., is it a whole skeleton or an isolated bone or two. Expose as little of the specimen as possible in the field.

Apply consolidant and/or glue to the specimen as needed to keep the specimen from fragmenting prior to jacketing. There are many acceptable products available, including plastic polymers dissolved in alcohol or acetone (Butvar, Vinac), cyanoacrylates (super-glues), and quick-set and extended cure epoxies. Each of these materials has an appropriate application medium depending upon preservation and nature of the fossil material.

Delineate the block of matrix containing fossil bone(s) to be encapsulated within a single jacket. This involves digging a trench around the specimen that will be under-cut beneath the specimen. Digging/trenching can be accomplished with a variety of tools depending upon matrix type, for example, semi-consolidated sediments to well-consolidated dolomitic limestone. Trowels and small hand tools may be sufficient for shaley or friable matrix, and pneumatic hammers and gas-powered saws may be necessary for well-indurated matrix.

Cover the fossil material with a cushioning separator to keep jacketing material from touching the fossil. Use damp paper towel, toilet paper, thin plastic wrap, or aluminum foil. Using large amounts of damp paper towel or other separator material, especially for heavy blocks, provides cushioning for the specimen when it is rolled over for further jacketing and transport.

Cover the specimen in plaster of paris bandages. Pre-moistened burlap strips are cut and dipped in a plaster of paris slurry. For small blocks, pre-mixed plaster-coated gauze bandages can be used. Care must be taken to soak the burlap strips in water prior to dipping them into plaster, or they will not absorb enough of the mixture and will result in a much weaker jacket.

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Once the main block has been encapsulated in two or three layers of plaster of paris bandages, the often laborious process of under-cutting the block begins. This can be the most risky part of the fossil extraction, particularly in shaley units. It is very important to angle back the side-wall at the maximum angle of repose possible before adding plaster wraps along the sides (“belly-wraps”). Continue trenching and adding plaster wraps to the sidewalls until only a small pedestal remains, and there is no danger of losing the specimen when it is over-turned – it will look like a large mushroom where the matrix is extremely friable.

Be sure to have an adequate amount of people or mechanical power on hand to roll the specimen over onto its side. Remove as much matrix from beneath the specimen as possible to lighten the jacket. Cover the bottom in plaster of paris bandages to completely encapsulate the specimen and strengthen the jacket. For large jackets or highly fractured specimens, a wood frame may be incorporated into the jacket. Rope handles may also be incorporated along the sides.