

Index and Appendices



Yucca

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APPENDIX A

ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER



MINIMUM REQUIREMENT DECISION GUIDE

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

– Wilderness Act, 1964

Instructions and worksheets for the Minimum Requirement Analysis for actions, projects, and activities in Wilderness

The Minimum Requirement Decision Guide (MRDG) is designed for wilderness administrators to effectively analyze proposed actions to minimize negative impacts to wilderness character and values. It assumes a basic knowledge of the Wilderness Act of 1964, agency policies, and specific provisions of the wilderness designation legislation for each unit. This guide is suggested for wilderness administrators for the four federal land management agencies, the Bureau of Land Management, the National Park Service, the U.S. Fish & Wildlife Service and the U.S. Forest Service.

Section 4(c) of the Wilderness Act of 1964 prohibits certain activities in wilderness by the public, and, at the same time allows the agencies to engage in those prohibited activities in some situations. Section 4(c) states:

“... except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.”

Therefore, unless a generally prohibited use is allowed by specific unit designation, most of these activities are prohibited. However, in the above language, Congress acknowledged that there are times when exceptions are allowed to meet the minimum required administration of the area as wilderness.

How to Use This Guide

The MRDG displays a two-step process to assist in making the right decision for wilderness. First, the administrator must decide if a problem or issue in the wilderness unit needs administrative action, and then, and only then, the administrator must decide what tool/action/method, available from a range of identified alternatives, would minimize negative impacts on wilderness character and values. This guide includes templates for documenting both steps of the decision-making process, instructions for completing each step, and a cover sheet for signatures. The MRDG and future revised editions of the MRDG can be found on the Arthur Carhart National Wilderness Training Center page at www.wilderness.net.

STEP 1 – DETERMINING THE MINIMUM REQUIREMENT

SHEET 1

Is Administrative Action Needed?

What is the problem/issue that **may** require administrative action? Do not include methods or tools here. This sheet only refers to the issue or problem, not proposed action/project, or tools to be used. Include references from other legislation, policy, or plans, decisions, analyses, and how this issue is addressed in those documents.

Briefly describe the issue/problem:

- Loss of natural fire regime in pinon-juniper woodlands.
- Decrease in herbaceous ground cover due to historic land use practices and fire exclusion.
- Increased soil erosion removing top soil layers and degrading and damaging archeological resources.
- Need to restore healthy-sustainable vegetative communities in pinon-juniper woodlands to prevent further degradation of cultural resources, restore herbaceous ground cover, reduce erosion, and promote natural fire regime in pinon-juniper woodlands.

The following questions assist in analyzing whether the issue needs to be resolved in wilderness. Do not consider what tools are to be used here. Please circle **Yes** or **No**, and explain your reasoning:

1. Is this an emergency? **Yes** **No** If yes, follow established procedures for Search and rescue (SAR), fire or other plans/policies. If no, please continue.

2. Is this problem/issue subject to valid existing rights, such as access to valid mining claim, state lands, etc? **Yes** **No**

If no, continue with **Sheet 1**.

If yes, briefly explain here and then proceed to **Sheet 3**

3. Can the problem/issue be addressed by administrative actions outside a wilderness area? (For example, the administrative actions could be an information program at the visitor center or trailhead instead of a physical action in the wilderness, etc) **Yes** **No**

If yes, conduct actions outside wilderness. If no, continue with **Sheet 2**.

4. Is there a special provision in legislation (the 1964 Wilderness Act or subsequent laws), that allows this project or activity? (For example, maintenance of dams or water storage facilities, access to private inholdings, etc.) **Yes** **No** If yes, Go to SHEET 3; if no, Go To SHEET 2.

STEP 1: DETERMINING THE MINIMUM REQUIREMENT (Continued)

Is Administrative Action Needed? (Continued)

The following questions are provided to evaluate whether resolving the issue protects wilderness character and values identified in the Wilderness Act. Answer the questions in terms of the need to resolve the issue/problem. If the answer to most of the questions is yes, then the issue/problem probably requires administrative action. **Please circle Yes or No for each answer, and briefly explain.**

1. If the issue/problem is not resolved, or action is not taken, will the natural processes of the wilderness be adversely affected?

Yes No Why/How?

Continued soil erosion will further degrade soil conditions and alter natural fire regimes. This will lead to continued loss of biodiversity and site productivity.

2. If the issue/problem goes unresolved, or action is not taken, will the values of solitude or primitive and unconfined type of recreation be threatened?

Yes **No** Why/How?

3. If the issue/problem goes unresolved or action is not taken will evidence of human manipulation, permanent improvements, or human habitation be substantially noticeable?

Yes No Why/How?

Further loss of soil and fire exclusion would continue to show evidence of past human land use practices and human manipulation.

4. Does addressing the issue/problem or taking action protect the wilderness as a whole as opposed to a single resource?

Yes No Why/How?

Yes, it would protect all values of wilderness including wildlife, vegetation, natural fire regimes, soils, cultural resources, and vegetation. This would enhance wilderness users experience in the long term.

5. Does addressing this issue/problem or taking action contribute to protection of an enduring resource of wilderness for future generations?

Yes No Why/How?

Yes, it will preserve and protect cultural resources, reduce soil erosion, restore the natural fire regime, and increase biodiversity and site productivity.

6. Is this an issue for reasons other than convenience or cost of administration?

Yes No Why/How?

To promote ecologically sustainable conditions in pinon-juniper woodlands and to better protect cultural resources for which the Monument was created.

If administrative action is warranted, then proceed to Sheet 3 to determine the minimum tool or method for resolving the problem.

STEP 2: DETERMINING THE MINIMUM TOOL

SHEET 3: Determining the Minimum Tool: Fill out a Sheet 3 for each alternative.

Identify and describe a range of alternatives including those that utilize traditional tools and non-motorized and mechanized means as well as other methods.

Alternative # ___I___

Describe briefly or attach description:

Hand tools only (traditional and non-motorized tools) to complete thin and slash treatments.

Circle yes or no:

Does this alternative involve:

use of temporary road?	Yes	No
use of motor vehicles?	Yes	No
use of motorized equipment?	Yes	No
use of motorboats?	Yes	No
landing of airplanes?	Yes	No
landing of helicopters?	Yes	No
use of mechanical transport?	Yes	No
creating a structure or installation?	Yes	No
Other impacts to wilderness character?		
___visual, vegetation, noise, soils___	Yes	No

The next set of descriptions may be put on Optional SHEET 3a, if desired:

Describe the biophysical effects/benefits of this alternative: *More workers needed, increasing adverse impacts due to increase in treatment times (could be up to 20 years for hand tool use only).*

Describe the social/recreation effects/benefits: *Presence of humans, visual impacts of stumps and worker trails, decrease in quality solitude wilderness experience because of higher number of workers and longer duration.*

Describe societal/political effects/benefits: *Could have impacts to wilderness "philosophy" related to manipulation of wilderness by human activities. May have some political effects.*

Describe health and safety concerns/benefits: *There would be an increased risk to health and safety of workers due to longer duration of treatment and higher number of workers, as well as the increase in human waste and disposal from campsites.*

Describe economic and timing considerations/benefits: *Hand tools only would require additional workers and a longer treatment time. This would increase project implementation costs and require up to 20 years to treat the landscape. It may take up to 10 times longer to treat with hand tools only than with motorized tools.*

Describe heritage resource considerations/benefits: *There would be adverse impacts to heritage and cultural resources due to the longer duration of treatment. The longer the treatment time, the more cultural resource degradation that may take place. There may be greater cultural resource loss under this alternative.*

STEP 2: DETERMINING THE MINIMUM TOOL**SHEET 3: Determining the Minimum Tool: Fill out a Sheet 3 for each alternative.**

Identify and describe a range of alternatives including those that utilize traditional tools and non-motorized and mechanized means as well as other methods.

Alternative # 2

Describe briefly or attach description:

Combination of hand tools (traditional tools) and motorized tools to complete treatment.

Circle yes or no:

Does this alternative involve:

use of temporary road?	Yes	No
use of motor vehicles?	Yes	No
use of motorized equipment?	Yes	No
use of motorboats?	Yes	No
landing of airplanes?	Yes	No
landing of helicopters?	Yes	No
use of mechanical transport?	Yes	No
creating a structure or installation?	Yes	No
Other impacts to wilderness character?		
<u> </u> visual, vegetation, noise, soils <u> </u>	Yes	No

The next set of descriptions may be put on Optional SHEET 3a, if desired:

Describe the biophysical effects/benefits of this alternative: *A shorter treatment time frame will reduce adverse impacts and shorten recovery time for herbaceous growth, which would reduce soil erosion rates faster than hand tools only.*

Describe the social/recreation effects/benefits: *There would be flush cut stumps, but overall less visual impacts because of decreased human presence in wilderness, reduced noise disturbance, and reduced impacts to wilderness experience by visitors because of fewer workers that would complete work in shorter time.*

Describe societal/political effects/benefits: *Potential effects related to manipulation of wilderness resources as well as motorized tool usage in wilderness. Would not negatively affect society or political environment in the long term.*

Describe health and safety concerns/benefits: *There would be some safety issues related to chainsaw usage and fuel handling, but overall fewer workers would generally mean less health concerns related to waste disposal.*

Describe economic and timing considerations/benefits: *The treatment would be completed in shorter time frame than Alt. 1 and could potentially cost less because of fewer workers over shorter treatment duration.*

Describe heritage resource considerations/benefits: *A shorter implementation time frame would lead to faster protection of at-risk cultural resources. Erosion rates would be reduced faster which would reduce the adverse impacts to cultural resources from erosion.*

STEP 2: DETERMINING THE MINIMUM TOOL**Sheet 4: Selection of the Minimum Tool Alternative**

What is the method or tool that will allow the issue/problem to be resolved or an action to be implemented with a minimum of impacts to the wilderness?

The Selected alternative is # 2.

Describe the rationale for selecting this alternative

- Lower intensity adverse biophysical impacts.
- Fewer and less intense adverse impacts to wilderness
- Offers faster treatment of erosion problem and subsequent protection of resources.
- Alt. 1 is cost prohibitive and cannot meet resource protection objectives.

Describe the specific operating requirements for the action. Include information on timing, locations, type of actions, etc. (Use this space or attach a separate sheet)

Location: pinon-juniper woodland zone in Bandelier Wilderness.

Timing: September to May

Type of Action: Lopping and scattering of pinon-juniper to create microsites to promote herbaceous growth that will slow soil erosion and increase

What are the maintenance requirements?

After 10+ years, fire will be reintroduced to the ecosystem through either WFURB or prescribed fire. There would be no additional cutting with motorized tools after original treatment as part of this alternative.

What standards and designs will apply?

Best Management Practices will be employed, NPS Health and Safety rules and regulations will be followed, Use of Minimum Requirements Decision Guide (this form) will be used for project level actions (annual basis for treatments planned for that year).

APPENDIX B- MONITORING AND MANAGEMENT PLAN FOR THE PIÑON- JUNIPER WOODLAND RESTORATION PROJECT

GENERAL MONITORING APPROACH AND DETECTION THRESHOLD LEVELS

Archeological Resources

The effects of the two action alternatives on archeological resources would be monitored through qualitative data collection on the key variables of site condition, depositional integrity, and information potential, each of which relate to the eligibility of a site for listing on the National Register of Historic Places (NRHP). In addition, quantitative proxy measures of site stability will be monitored following an established protocol using Bandelier Archeological Site Condition Assessment and Monitoring forms. These forms record site condition, depositional integrity, data potential, detectable threats and disturbances from natural or human forces, presence of invasive species, site- wide and 2x2m vegetation- plot estimates of surface cover and sheetwash, repeat photography, and surface topography along a single transect across the site.

Monitoring would occur on a 10% representative sample of treated archeological sites one year after treatment, then every three years afterward. Data collection would occur from mid- August to mid- September, which is the end of the growing season. The purpose of the monitoring is to determine what, if any, changes are observed pre- and post- treatment, and in successive years following treatment. Collection of the full range of qualitative and quantitative data will provide the opportunity to identify unforeseen consequences (beneficial or detrimental) to treated archeological sites. Vegetation plots and site- wide estimates of ground cover provide a proxy measure of soil and site stabilization. Monitoring will be scheduled for the end of the summer growing season, which falls during the month of August.

Ongoing research outside of this monitoring will include additional revisitation of sites lacking a current condition assessment, recording of insufficiently documented sites, inventory of unsurveyed areas, and limited data recovery through detailed surface recording or excavation are planned, but dependent upon funding.

Soil and Water

Effects of proposed actions on soil and water resources would be monitored primarily using a single integrated metric which would be based on monthly (July- September) volumetric measurements of sediment production for discrete contributing areas (e.g. 0.1 to 1.0 hectares) located wholly within representative

treatment and control areas. Comparable contributing areas within representative treatment and control areas would be instrumented with fabric sediment dams and sediment removed and measured on a monthly basis. Sediment production estimates would be adjusted using precipitation data obtained from rain gauges co-located with each sediment dam. Detailed procedures for measuring sediment production in relation to restoration treatments are detailed in supporting research by Hastings, et al. (2003). Supplemental information from repeat photography, erosion bridges, and vegetation cover may also be utilized to clarify system response.



**Fabric sediment dam with
rain gauge**

**Sampling vegetation
along a transect**



Vegetation

Effects of proposed actions on vegetation resources would be monitored on the basis of data collected annually from vegetation transects located wholly within representative treatment and control areas. Two, permanently marked 100- meter vegetation line transects, running downslope (perpendicular to contours) from the watershed divide, and spaced at least 25 meters apart, would be established within representative treatment and control areas. Vegetation and ground cover data (per species and ground cover type) is collected at centimeter resolution during the early fall of each year, with basal and aerial cover intercepts recorded separately. Detailed procedures for measuring vegetation in relation to restoration treatments are detailed in supporting research in Jacobs, et. al. (2000, 2002). Supplemental information from repeat photography may also be utilized to clarify system response.

Anticipated Management Response per Threshold Level

The following indicates the specific management response Bandelier would take if soil, water or vegetation responses as indicated in the *Threshold Response* column.

Threshold Response of Monitored Soil, Water or Vegetation	Management Response
<i>Soil, Water, and Vegetation</i>	
<p>Negligible</p> <p>The effect on vegetation, soil, and water resources is at or below the lowest levels of detection with neither adverse nor beneficial consequences. Measured differences in herbaceous cover and diversity, native understory cover and diversity, tree cover, bed sediment production, percent exposed bare soil, runoff, or suspended sediment between treatment and control areas, or for post-treatment relative to pre-treatment (adjusted for climatic effects), are not apparent even to a skilled observer.</p>	<p>Detection of response (beneficial or adverse) at this level would suggest restoration treatment was insufficient and supplemental thinning or mulching actions would be evaluated for the affected area.</p>
<p>Minor</p> <p>The effects of the proposed action on vegetation, soil, and water resources are slight, and not readily apparent to a skilled observer. Measured changes in herbaceous cover and diversity, native understory cover and diversity, tree cover, bed sediment production, percent exposed bare soil, runoff, or suspended sediment, on treatment versus control areas, or for post-treatment relative to pre-treatment (adjusted for climatic effects) are one- to two- fold.</p>	<p>Detection of response (beneficial or adverse) at this level would suggest restoration treatment was insufficient to meet management objectives and supplemental thinning or mulching actions would be evaluated for the affected area; alternatively, additional time to achieve an acceptable system response might be proposed if less than two growing seasons have elapsed, or sustained drought conditions have prevailed, since treatment was implemented. If several areas with similar site characteristics are producing marginal results, additional evaluation of what site features may be limiting response will be conducted, with possible global refinement of the range of woodland sites considered suitable for future treatment efforts.</p>

<p>Moderate</p> <p>The effects of the proposed action on vegetation, soil, and water resources are readily apparent to a skilled observer. Measured changes in herbaceous cover and diversity, in native understory cover and diversity, tree cover, bed sediment production, percent exposed bare soil, runoff, or suspended sediment, on treatment versus control areas, or for post- treatment relative to pre- treatment (adjusted for climatic effects) are two to three fold.</p>	<p>Detection of a beneficial response at this level would suggest restoration treatment was sufficient to meet management objectives and no additional action would be necessary.</p> <p>Detection of an adverse response at this level would suggest an unanticipated system response, contrary to management objectives, and inconsistent with results from prior research, indicating either new system dynamics or inappropriate treatment application. All restoration treatments would be suspended pending additional research to evaluate if current methods are still appropriate when applied correctly.</p>
<p>Major</p> <p>The effects of the proposed action on vegetation, soil, and water resources are severe or of exceptional benefit. Measured changes in herbaceous cover and diversity, in native understory cover and diversity, tree cover, bed sediment production, percent exposed bare soil, runoff, or suspended sediment, on treatment versus control areas, or for post- treatment relative to pre- treatment (adjusted for climatic effects) are four- fold or more.</p>	<p>Detection of a beneficial response at this level would suggest restoration treatment was sufficient to meet management objectives and no additional action would be necessary.</p> <p>Detection of an adverse response at this level would suggest an unanticipated system response, contrary to management objectives, and inconsistent with results from prior research, indicating either new system dynamics or inappropriate treatment application. All restoration treatments would be suspended pending additional research to evaluate if current methods are still appropriate when applied correctly; in addition, emergency measures (e.g. installation of erosion fabrics) might be implemented to protect vulnerable cultural sites within the affected treatment area.</p>

APPENDIX C - NHPA CONSULTATION

SECTION 106



October 19, 2006

Ms. Darlene M. Koontz
Superintendent
Bandelier National Monument
National Park Service
15 Entrance Road
Los Alamos, NM 87544-9508

Ref: Notification of Intent to Develop a Programmatic Agreement for the proposed Ecological Restoration Plan at Bandelier National Monument

Dear Ms. Koontz:

On October 16, 2006, the Advisory Council on Historic Preservation received the additional documentation we requested in support of your notification of intent to develop a Programmatic Agreement for the above referenced undertaking. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, Protection of Historic Properties (36 CFR Part 800), does not apply to this undertaking. As such, we do not believe that our participation in the consultation to develop this agreement is needed, and we request the document be modified accordingly to reflect this decision. However, should circumstances change and you determine that our participation is required, please notify us.

Pursuant to 36 CFR 800.6(b)(1)(iv), you will need to file the final executed Programmatic Agreement, developed in consultation with the New Mexico State Historic Preservation Officer and other consulting parties, and related documentation with us at the conclusion of the consultation process.

Thank you for providing us with this notification. If you have any questions or require the further assistance of the ACHP, please contact me at 202-606-8583, or by EMAIL at kfanizzo@achp.gov.

Sincerely,

Kelly Yasantis Fanizzo
Historic Preservation Specialist
Federal Property Management Section
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 809 • Washington, DC 20004
Phone: 202-406-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

**PROGRAMMATIC AGREEMENT BETWEEN NATIONAL PARK SERVICE
AND
THE NEW MEXICO STATE HISTORIC PRESERVATION OFFICER
REGARDING THE ECOLOGICAL RESTORATION PLAN AT
BANDELIER NATIONAL MONUMENT**

WHEREAS, the National Park Service (NPS) has determined that the proposed Ecological Restoration Plan and Environmental Impact Statement (EIS) at Bandelier National Monument (Monument) would not have an adverse effect on contributing elements to the Bandelier Civilian Conservation Corps (CCC) Historic District, as well as the overall integrity of archeological resources, cultural landscapes, and other properties or sites that are listed or eligible for inclusion on the National Register of Historic Places (NRHP); and

WHEREAS, the NPS has established *Management Policies 2001* that stipulate that every "...proposed action will be evaluated to ensure consistency or compatibility with treatment of park resources. The relative importance and relationship of all values will be weighed to identify potential conflicts between and among resource preservation goals, park management and operation goals, and park user goals. Conflicts will be considered and resolved through the planning process, which will include any consultation required by 16 U.S.C. 470f" (Chapter 5.3.5, *Treatment of Cultural Resources*); and

WHEREAS, this Programmatic Agreement (PA) seeks to provide the mechanism to complete any and all requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) (16 U.S.C. 470f) and the Advisory Council on Historic Preservation (Council) implementing regulations from 36 CFR Part 800, with regard to work related to implementation of the Ecological Restoration Plan and EIS at Bandelier National Monument; and,

WHEREAS, the Monument consulted with the New Mexico State Historic Preservation Officer (SHPO) pursuant to 36 CFR 800, regarding implementation of Section 106 of the National Historic Preservation Act {16 USC 470(f)}; and

WHEREAS, the Monument notified the Advisory Council on Historic Preservation (ACHP) in accordance with 36 CFR Part 800, regarding implementation of Section 106 of the National Historic Preservation Act {16 USC 470(f)}, and the ACHP elected not to participate in the consultation as stated in their letter of October 19, 2006; and

WHEREAS, the Monument consulted with the 19 federally recognized Pueblo Indian groups in New Mexico regarding the Ecological Restoration Plan and EIS and held consultation meetings with the six pueblos having the closest cultural affiliation with Bandelier—the pueblos of Santa Clara, Santo Domingo, San Ildefonso, San Felipe, Cochiti, and Zuni, regarding the development of this PA;

NOW, THEREFORE, the NPS and SHPO agree that the Bandelier Ecological Restoration Plan shall be implemented in accordance with the following stipulations.

STIPULATIONS:

Bandelier National Monument will ensure that the following measures are carried out:

I. INVENTORY, EVALUATION AND DETERMINATION OF EFFECT

A. Bandelier National Monument will develop annual specific treatment plans that will identify geographic areas to be treated during the subsequent treatment year (treatment year = September through May) using the methodology described in attached Ecological Restoration Plan and EIS. These annual treatment plans will be submitted to the SHPO no later than the month of July prior to each treatment year. The treatment plans will define the area of potential effect (APE) for that treatment year, the proposed actions, and the resulting level of potential impacts on archeological resources within the APE. Project areas that contain unsurveyed tracts of land on slopes less than 30 percent grade will be subjected to intensive surveys. Project areas that have been previously inventoried will be assessed for the presence of historic properties through examination of the BAND cultural resource base maps, the Monument's archeological site database, and the List of Classified Structures (LCS). Camp locations, helicopter landing zones and drop points, pack train, and foot traffic access routes will be sited to completely avoid archeological sites. Monument archeologists will inspect proposed camps, landing/drop points, and temporary trails to ensure that they are located away from archeological sites. Prior to treatment, Monument archeologists will visit each known site within a proposed treatment unit and assess the potential for adverse effects to each site from the proposed slash mulch treatment. In this site- specific assessment, the archeologist will determine whether any sites will require special protective measures to mitigate the effects of the project. These special protective measures include the following:

1. Camp areas, helicopter drop zones, and pack train/human access trails will be located away from archeological sites.
2. Prior to the start of work, the archeologist will instruct crews in identification of cultural materials and review federal laws protecting archeological sites and artifacts.
3. Work crews (treatment and monitoring) will minimize walking over architectural and other features.
4. All cultural sites within the treatment area will be identified and relocated by an archeologist or archeology technician.
5. One Archeological Technician per work crew will be present on site during treatments to identify site components, and supervise directional tree felling and placement of slash.

Sites within the treatment area will be treated following the prescription for the soil and vegetation type with the following modifications:

1. All dead trees, regardless of species, will be removed from structural elements of sites. Non- structural elements of sites should be treated using the same prescription as the surrounding landscape.
 2. All 3- inch diameter and smaller trees will be removed. Cactus and other non- tree vegetation will be retained.
 3. Larger (> 3- inch) diameter junipers growing in structures will be retained unless deemed by an archeologist to be detrimental to the stability or integrity of the structure.
 4. Larger (> 5- inch) diameter ponderosa pines growing in structures that are deemed unstable will be removed.
 5. Heavy fuels (any woody material greater than 3” diameter) will be hand- carried off structural elements. Lighter slash can remain if deemed necessary by the on- site archeological technician.
- B. The Monument, in consultation with the SHPO, will follow the procedures described in 36 CFR 800.4(c) to evaluate the historical significance for all historic properties within the Area of Potential Effect (APE). Furthermore, the Monument shall seek comments from all potentially interested Pueblo Indian groups, pursuant to National Register Bulletin 38, in order to identify potential Traditional Cultural Properties located within the APE, and will then apply National Register criteria and evaluate the historical significance of those properties identified. Copies of all recommendations of eligibility for the National Register will be submitted to the SHPO for concurrence.
- C. For every annual treatment plan, the Monument will document the results of the field inventory, document consultation efforts with Pueblos regarding properties of traditional religious and cultural value, and identify any proposed measures to avoid adverse effects to historic properties. As part of consultation with SHPO and other consulting parties, the Monument will report this information in the annual treatment plan and submit it to SHPO for review and comment no later than the month of July prior to each treatment year (treatment year = September to May). The treatment plan will present a determination of no historic properties affected pursuant to 36 CFR 800.4(d)(1), no adverse effect, pursuant to 36 CFR 800.5(b) for the project(s); or adverse effect pursuant to 36 CFR 800.5(a)(1) historic properties may be adversely affected.
- D. If avoidance of adverse effects is not possible, the Monument will work to resolve adverse effects with the SHPO and other appropriate parties in accordance with 36 CFR 800.6. If the Monument determines that adverse effects cannot be avoided or resolved, or if SHPO objects to a finding of no

adverse effect, the Monument may rescind some treatment activities in the analysis area and consult further in accordance with 36 CFR 800.6 to resolve the adverse effects.

II. INADVERTENT RESOURCE DISCOVERIES

If previously unknown archeological resources are discovered during implementation of a treatment project, all work in the immediate vicinity of the discovery would be halted and the procedures of 36 CFR Part 800.13[c] would be followed. In the event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during project implementation, the regulations implementing the Native American Graves Protection and Repatriation Act (43 CFR Part 10) would be followed.

III. AVOIDANCE

If direct or indirect effects on prehistoric or historic sites, structures, or properties within the APE are identified subsequent to the review of Ecological Restoration Plan and EIS, but prior to the implementation of the proposed work, Bandelier will seek to avoid affects to those sites, structures, or properties through implementation of protective measures. Bandelier will notify the SHPO of proposed avoidance measures. Documentation submitted to the SHPO shall include site forms. If SHPO concurs with the adequacy of avoidance measures, the project may proceed without further consultation. If Bandelier determines avoidance is not possible or if, within 15 days of receipt of documentation, the SHPO objects to the adequacy of avoidance measures, consultation shall proceed in accordance with 36 CFR part 800.4 – 6.

IV. MONITORING OF ECOLOGICAL RESTORATION PLAN ACTIVITIES

The Monument will monitor the effectiveness of this PA to ensure that the level of tribal consultation and inventory and monitoring of archeological resources are sufficient for protection of cultural resources as required under 36 CFR Part 800. The SHPO may also monitor activities pursuant to this agreement.

V. DISPUTE RESOLUTION

Should any party to this agreement object within (30) days, or within other time frames provided in this agreement after the receipt of any treatment plans, specifications, or other documents provided for review pursuant to this agreement, or to the manner in which this agreement is being implemented, Bandelier National Monument shall consult with the objecting party to resolve the objection. If the Monument determines that the objection cannot be resolved, Bandelier shall forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

- a. Provide Bandelier with recommendations, which the Monument will take into account in reaching a final decision regarding the dispute, or;
- b. Notify Bandelier that it will comment pursuant to 36 CFR Part 800.6(b) and proceed to comment. Any Council comment provided in response to such a request will be taken into account by Bandelier in accordance with 36 CFR Part 800.6(c) (2) with reference to the subject of the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; Bandelier's responsibility to carry out all actions under this agreement that are not the subject of the dispute will remain unchanged.

At any time during implementation of the measures stipulated in this agreement, should an objection be raised by a member of the public, Bandelier shall take into account and consult as needed with the objecting party, the SHPO and the Council to resolve the objection.

VI. ANNUAL REPORT AND REVIEW

- A. On or before December 30 of each year, Bandelier National Monument shall prepare and provide the SHPO an annual report addressing, but not limited to, the following topics in relation to the implementation of the Ecological Restoration Plan and EIS:
 1. Description of work completed under this agreement including the number of acres treated to date.
 2. Number of sites listed or determined eligible for listing on the National Register of Historic Places located within the acres treated to date.
 3. Copies of correspondence initiating consultation with Native American tribes or other interested parties.
 4. Actions taken to implement the terms of this agreement.
 5. Recommendations for implementation during the coming year, including any suggestions to amend the agreement.
- B. The SHPO will review the annual report and provide comments to Bandelier National Monument. At the request of any party to this agreement, a meeting or meetings will be held to facilitate review and comment, to resolve questions, or to resolve comments that are adverse.

VII. AMENDMENT OF AGREEMENT

Any party to this agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR Part 800.13 to consider such amendment.

VIII. TERMINATION OF AGREEMENT

Any party to this agreement may terminate it by providing thirty (30) calendar days notice to other parties, provided that the parties will consult during the period prior to termination and seek agreements on amendments or other actions that would avoid termination. In the event of termination, Bandelier National Monument will comply with 36 CFR Part 800.4 through 800.6 with regard to individual undertakings covered by this agreement.

IX. TERMS OF AGREEMENT

This agreement shall become effective after the date of the last signatory. The agreement shall be null and void if its terms are not carried out within ten (10) years from the date of its approval by the Monument and SHPO unless the signatories agree in writing to an extension. Otherwise, this agreement shall become null and void on the sunset date of the Ecological Restoration Plan and EIS. The agreement and any amendments shall be binding upon the parties, their successors, or assigns.

Execution and implementation of this agreement evidences that the National Park Service has satisfied its § 106 responsibilities for all work related to the Ecological Restoration Plan and EIS, Bandelier National Monument. This PA encompasses the entire agreement among the parties and should be signed by all parties.

AUTHORIZING SIGNATURES

Bandelier National Monument

By: _____ Date: _____

Darlene M. Koontz
Superintendent, Bandelier National Monument

New Mexico State Historic Preservation Office

By: _____ Date: _____

Katherine Slick
New Mexico State Historic Preservation Officer

APPENDIX D- ESA CONSULTATION

(SECTION 7)

Consultation with the USFWS regarding Section 7 of the Endangered Species Act is on- going. Results of consultation will be provided in the Final EIS.

APPENDIX E

COMPARISON OF PROJECT COSTS IN ALTERNATIVE B (5-YEAR PROJECT) AND ALTERNATIVE C (20-YEAR PROJECT)

This appendix describes the assumptions to derive project costs for Alternative B and Alternative C, and compares the present value project costs under two different discount rate assumptions.

Both alternatives would implement vegetation management activities over 4,051 acres. Alternative B would carry these activities over 5 years. Alternative C would stretch these activities out over a 20 year time period. Given the nature of the project tasks and the resources utilized, Alternative B exhibits economies of scale that reduce the unit and total nominal costs of the project cost relative to Alternative C.

Alternative B assumes a work force consisting of three seasonal bio- tech group leaders, three seasonal archeologists, and 15 seasonal forestry technicians. These teams would be supported in the backcountry by a backcountry horse packer and a cook. The crews would also rely on supplies provided by GSA truck and a helicopter. The Alternative B workforce would complete vegetation activities over about 800 acres per year.

Alternative C represents a scaled down workforce that would complete vegetation activities on approximately 200 acres per year. The primary work team of 6 workers would consist of a bio- tech group leader, an archeologist, and four forestry techs. For each season, the work team would need at least one bio- tech and one archeologist. For approximately one- half the operational period (12 years), the team would be supported in the backcountry by the backcountry horse packer, a cook, the GSA truck, and a helicopter. The helicopter use would be scaled back to 2/3 the hours used in Alternative B given the smaller work force. Other assumptions about equipment repair, tools and other supplies are scaled down to about 1/3 the amount specified in Alternative B but are not eliminated because many of the tools and supplies needed in this alternative serve a group (for example, a GSA vehicle) and do not scale down proportionately to the number of individuals in a group and are not eliminated in later years. Alternative C incurs diseconomies of scale since the number of inputs cannot be scaled proportionately to the output of the project, in this case, acres of vegetation thinning activities completed. The larger work teams in Alternative B gain economies of scale because work teams always require a bio- tech and archeologist, and they more efficiently use supplies, equipment, and support crew services.

Itemized costs were developed for Alternative B for each job category, supplies, and equipment for years 1 through 5 with costs rising 4 percent in year 2 and year 3 and

then 3.6 percent in year 4 and year 5. For Alternative C, the same unit costs were applied for years 1- 5 and then costs were assumed to rise 3.6 percent annually during years 6- 20.

Total project costs of Alternative B and Alternative C were derived in nominal terms and present value terms. Project costs were discounted assuming a discount rate of 3% and 7%.² Generally, a higher discount rate imposes a greater reduction on future expenditures relative to a lower discount rate. As applied to this analysis, the higher discount rate reduces the present value costs of Alternative C greater than Alternative B because Alternative C costs are set further in the future.

As shown in the table below, Alternative B project costs are less than Alternative C in all three assumptions of the discount rate. The Alternative B gains from economies of scale are large enough to yield lower project costs with a discount rate of 0%, 3% and 7%.

	Nominal Dollars, 0% Discount Rate	Real Dollars, 3% Discount Rate	Real Dollars, 7% Discount Rate
Alternative B (5 year project)	1,975,343	1,813,743	1,628,887
Alternative C (20 year project)	3,519,164	2,619,954	1,862,464

¹ The discount rates of 7% and 3% was recommended by Circular A- 4 of the Office of Management and Budget, September 17, 2003

