

Northern Rocky Mountains Invasive Plant Management Plan

National Park Service
U.S. Department of the Interior

Intermountain Region
Pacific West Region



FINDING OF NO SIGNIFICANT IMPACT Northern Rocky Mountains Invasive Plant Management Plan

Idaho

City of Rocks National Reserve
Craters of the Moon National Monument and Preserve
Hagerman Fossil Beds National Monument
Minidoka National Historic Site

Montana

Big Hole National Battlefield
Grant-Kohrs Ranch National Historic Site
Little Bighorn Battlefield National Monument
Nez Perce National Historical Park (Bear Paw Battlefield)

Utah

Golden Spike National Historic Site

Wyoming

Fossil Butte National Monument

October 2011

Introduction

This Finding of No Significant Impact (FONSI) documents the decision of the National Park Service (NPS) to adopt the Northern Rocky Mountains Invasive Plant Management Plan and the determination that no impairment of nor significant impacts on the human environment are associated with that decision. The plan is consistent with and implements GMP direction for nonnative invasive plants in the 10 parks.

Purpose and Need

Purpose: Recently, the NPS undertook a holistic, comprehensive approach to nonnative invasive plant management. As part of this approach, the NPS formed a series of exotic plant management teams (EPMTs) distributed throughout the U.S. to assist parks in dealing with the rapidly spreading threat to the integrity of park natural and cultural resources posed by nonnative invasive plants. Whereas parks had been dealing with species and methods on a case-by-case basis, the use of EPMTs has allowed the parks to routinely treat invasive plants with proven effective methods and crews. While most invasive plant management in these parks has been analyzed and documented for the purposes of NEPA under applicable agency categorical exclusions, there are some actions that the parks would like to undertake that blur the line between these allowable activities with negligible or minimal effects and activities that may have initial minor to moderate adverse effects, followed by long-term beneficial effects.

Without this plan, existing nonnative invasive plant management in most Northern Rocky Mountains parks would continue to be conducted using applicable categorical exclusions. NPS Director's Order 12: *Conservation Planning, Environmental Impact Analysis and Decision-making*, however, directs parks to undertake review of existing programs and management actions to determine if more holistic environmental analysis should be undertaken. As a result, the 10 parks applied for joint funding to not only create a formal plan for nonnative invasive plant management (acknowledging new treatments and invasive plant management goals) but also to analyze impacts individually and collectively through additional environmental analysis. Analysis of existing park programs showed that most had not yet undertaken a broad scale planning process to determine how to manage nonnative invasive plants.

This Invasive Plant Management Plan (IPMP) would provide guidance regarding nonnative invasive plant management for a period of approximately 10 years for the partner parks. This plan would enable ongoing nonnative invasive plant management at the 10 parks and could expand programs, including analyzing other treatment methods not currently being used by some of the parks.

A coordinated IPMP for these parks would provide a mechanism for early detection of new invasive species and management of current infestations in the parks by park staff and the Northern Rocky Mountains (NRM)-EPMT. Coordination through a combined IPMP would increase the ability of the park and team to provide a rapid response to immediately halt the invasion and spread of new species. Recent quick and coordinated action by the NRM-EPMT prevented the drop of millions of seeds of a highly invasive plant in a very remote and rugged area in one of the parks. The additional coordination provided by an integrated plan common to the 10 parks would focus and expand this effort.

Need

- These northern Rocky Mountains parks lack flexible and documented invasive plant management processes, and do not fully take advantage of IPM techniques and adaptive management to direct invasive plant management activities and to prioritize management actions, target plants and resources.
- The use of adaptive management would allow parks to manage new occurrences of nonnative invasive species as they arise and become pests.
- There are a variety of nonnative invasive plant management techniques currently used or that could be used in the future in the 10 parks. These treatment methods include cultural, manual/mechanical, biological, chemical (herbicides) and prescribed fire techniques. These treatments are used alone or in combination to manage nonnative invasive species. Improvement of the selection of treatment methods is needed to ensure that the parks are identifying and using effective methods that minimize adverse impacts on park natural and cultural resources.
- A plan would facilitate compliance with federal and state noxious weed laws and documentation of results through the Government Performance and Results Act (GPRA).
- Without an IPMP, it is difficult for parks to communicate and document their needs and objectives to park partners and to foster collaboration on plans and projects. Similarly the parks lack guidance to increase education and awareness about invasive plants for park staff and the public.
- The lack of an IPMP makes it difficult to integrate internal processes, plans, activities and resources among parks and across divisions, regions and programs.
- There is currently limited coordination of monitoring to help the parks understand the status and effectiveness of nonnative plant management efforts or to assist in making better management decisions.
- Current invasive plant management practices and policies are not well documented and are unclear to park partners or the public.
- Nonnative invasive plants are adversely affecting the qualities of designated wilderness and wilderness study areas in Craters of the Moon National Monument and Preserve.

Alternatives Analyzed

Two alternatives were analyzed in the Northern Rocky Mountains Invasive Plant Management Plan (NRM-IPMP). The alternatives are based on the purpose and need for the project and are consistent with existing laws, policy and planning documents, including general management plans (GMPs) which provide direction for actions taken in the parks. The alternatives minimize impacts on natural, cultural and recreational resources.

Alternative 1 (No Action: Continue Current Management): Depending on the park, resource managers would continue to implement some or all of the components of an invasive plant management program. Ongoing activities, using existing methods, would continue.

Alternative 2: Alternative 2 is a comprehensive proposal that includes the following elements for the management of invasive plants that would be systematically implemented by all 10 partner parks:

- 1) Prevention and Early Detection;
- 2) Implement Seven Step Decision-Making Tool;
- 3) Recordkeeping;
- 4) Interpretation / Education;
- 5) Partnerships;
- 6) Adaptive Management;
- 7) Measures to Avoid, Minimize or Mitigate Impacts; and
- 8) Consistency Analysis for Site Specific Plans.

Under this alternative, resource managers would identify high priority invasive species for treatment; determine what treatments are feasible to reduce the number of or population of plants; identify the most reasonable management strategy or strategies; and then select the most appropriate treatment option or combination of treatments to minimize potential impacts and maximize overall management success. To do this resource managers would use a systematic, documented and comprehensive methods and analysis through a new 7-Step Decision-making Tool.

The NRM IPMP is intended to provide parks with a suite of tools to effectively treat invasive plants. Resource managers can then select the most appropriate treatment option or combination of treatments to reduce the impacts from and threats to the park from invasive plants.

The following kinds of treatments are considered in this plan:

- Cultural: practices that reduce opportunities for invasive plants to occur and allow for the continued growth and spread of native plants. Examples include using clean fill in construction and seeding native species.
- Manual / Mechanical: practices that remove all or part of the invasive plant. Examples include hand-pulling, cutting, grubbing, haying and mowing.
- Biological: the practice of using the natural enemies of plants (such as insects and fungi) to control them. Examples include the use of plant feeding insects to control invasive plants. Biological control methods are used only when the agent is host-specific and has a negligible risk of becoming a pest itself. Insect biological control methods are approved by the Agricultural Plant Health Inspection Service (APHIS), an agency within the U.S. Department of Agriculture (USDA).
- Chemical: the practice of applying herbicides according to their approved label uses. Examples of application methods include backpack spraying, spot treatment (such as stump painting) and aerial application using fixed wing aircraft or helicopters. Pesticide use is approved by NPS regional and/or national coordinators.
- Prescribed Fire, including Flaming: the practice of using fire in certain areas under specific conditions to reduce the growth of invasive plants. The use of prescribed fire must also be identified in approved park Fire Management Plans.

Selected Alternative

There are no modifications to the proposed Northern Rocky Mountains Invasive Plant Management Plan (as presented in the EA) based on public comments or agency reviews. There are some corrections to the EA Affected Environment and Environmental Consequences sections that are described in an Errata. The 10 parks would implement the selected alternative (Alternative 2 as described in the NRM IPMP EA). A description of the selected alternative follows (*Note:* To increase brevity, some tables referred to in the description below can be found in the EA and the flowchart descriptions of the seven steps are found at the end of the FONSI instead of within the description below.)

1. Prevention and Early Detection

a. Application of Law and Policy

The parks would continue to comply with weed management laws and policies to identify and prevent the spread of nonnative invasive plants. Among the sources that would be used include:

- Federal and state weed laws;
- Executive Orders pertaining to weed management;
- *Management Policies*, Chapter 4 (NPS 2006);
- NPS Director's Orders;
- Regional programs and policies, such as Pesticide Use Proposals (PUPs), Biological Control Use Proposals (BUPs), Pesticide Use Logs, Material Safety Data Sheets (MSDS) Logs, and Label Logs;
- State laws, including Certified Applicator Licensing (ID, MT, UT and WY) and Noxious Weed Free Forage (MT);
- State / federal noxious weed lists;
- County weed laws;
- APHIS / Biocontrol Transport Permits;
- Application of prevention strategies; and
- County weed lists.

All parks are familiar with applicable federal, state and county weed management laws and policies and would continue to use these to determine which weeds to treat.

b. Prevention

Prevention is one of the most important components of an invasive plant management program and is also considered a cultural technique for managing invasive plants. The most environmentally and ecologically sound approach to manage invasive species is to prevent their introduction. While prevention is not easy, it is a high priority. It involves identifying and avoiding the most common methods of nonnative invasive plant introduction (including seeds, rhizomes, and stem fragments).

Prevention techniques are among the most cost-effective and efficient strategies in an invasive plant management program. When invasive plants are detected early, treatment is often quicker and more effective. Without prevention, resource managers must often direct limited resources to fighting more established infestations. Once a species has established a viable population, control is expensive and eradication may be difficult to impossible. In addition to the best management practices and prevention strategies identified in Alternative 1, managers would employ a more directed decision-making process to prevent the spread of (contain) existing nonnative invasive plant infestations from affecting new areas.

In the selected alternative, the Northern Rocky Mountains partner parks would rely on the list of potential new invaders found in Appendix J: *List of Potential New Invaders* (in the EA) developed as part of this plan to look for new invasive species. The parks would systematically monitor heavily developed or high use areas ("hot spots" or vectors for new invasions), including campgrounds, parking lots, housing and administrative areas, road shoulders, river corridors, and trails and trailheads to detect new invasive species establishment.

In the selected alternative, the parks would apply a more rigorous series of prevention techniques and best management practices (BMPs). These practical and proactive techniques would be designed to prevent invasion and permanent establishment of invasive plants during the course of daily or routine activities and operations.

General objectives of the mitigation measures and BMPs include:

- Incorporating nonnative invasive plant prevention and control into project planning;
- Avoiding introduction of nonnative invasive plant seed, or removing sources that would introduce weed seed and propagules, to prevent new nonnative invasive plant infestations and additional spread of existing weeds;
- Avoiding the creation of environmental conditions that promote nonnative invasive plant germination and establishment;
- Re-establishing vegetation to prevent conditions conducive to establishment of nonnative invasive plants when project disturbances create bare ground;
- Setting work standards that prevent nonnative invasive plant spread (i.e. seed removal from personal equipment, vehicles, etc.); and
- Improving the effectiveness of prevention practices through nonnative invasive plant awareness and education.

A more detailed list of techniques associated with the implementation of this plan may be found in section 7. *Measures to Avoid, Minimize or Mitigate Impacts* (below) and in Appendix K: *Impact Avoidance, Minimization and Mitigation Measures* (in the EA). Compared to the 14 general and four EPMT strategies identified in Alternative 1 and applied inconsistently by the parks, in the selected alternative the parks would employ the greatly expanded number of strategies identified in section 7 and Chapter V (in the EA) and summarized in Appendix K (in the EA).

c. Early Detection and Rapid Response (EDRR)

While prevention is a high priority, of equal importance is actively watching for new invaders and acting quickly to remove them before they can establish and spread. Ongoing monitoring of park landscapes is critical and this is the foundation of an early detection rapid response (EDRR) network. A well-developed EDRR program has the potential to save the parks a great deal of time and money. Too often management of an invasive species does not begin until the plant is readily visible in the landscape, after it has had a number of years to establish, develop a seed bank, and expand into adjacent areas. As time passes and the population of the invasive species increases, the potential for eradication often decreases. Eventually, control is unlikely without major resource inputs that also may have extensive environmental impacts. Parks employ a range of programs from the formal to informal to accomplish the task of early detection and rapid response. EDRR allows limited resources to be spent more efficiently on proactive weed management by focusing on prevention or early detection of new invasions.

In the selected alternative the parks would have:

- A more systematic decision-making tool available,
- A more comprehensive list of species to watch for in the parks,
- This plan, and
- Improved cooperation with the NRM-EPMT.

This plan therefore, makes it more likely that the parks would learn from each other about new invasive species. In addition, because the decision-making tool incorporates additional monitoring strategies, the parks would likely be more successful at finding and eradicating new invaders.

As a result of this plan, parks would implement the following steps:

- Use the list of nonnative invasive plants occurring in the area compiled for this plan (Appendix J: *List of Potential New Invaders* (in the EA) and Appendix L: *Top 10 Early Detection Rapid Response (EDRR) Plants in the 10 Northern Rocky Mountains Parks*) (in the EA) to identify species that might occur in the future.
- Make this list available to field personnel and volunteers to identify potential nonnative invasive plants and to allow reporting of any occurrences to the person responsible for managing weeds in the park.
- Inventory roadsides, high-use areas, and other disturbed areas to detect new nonnative invasive plants.

Although preventing the introduction of nonnative invasive plants is the most successful and preferred strategy for resource managers, the realities of globalization, tight fiscal constraints, and limited staff time essentially guarantee that nonnative invasive plants would likely continue to emerge in parks. Fortunately, nonnative invasive plants often undergo a lag period between introduction and subsequent colonization of new areas. Managers, then, can take advantage of early detection monitoring to ensure nonnative invasive species are found and successfully eradicated before populations become well established.

This strategy requires that resource managers be able to: 1) detect invasive exotic species early (i.e., find a new species or a population of an existing species while the infestation is small), and 2) respond rapidly (i.e., implement appropriate management techniques to eliminate the invasive plant and all of its associated regenerative material). Therefore, most early detection work would be focused on weed vector areas, those areas susceptible to or already containing disturbance.

The UCBN is currently developing an EDRR protocol for UCBN parks and the ROMN is developing an EDRR protocol for ROMN parks. Until these monitoring protocols are available, parks would inventory and map state-listed noxious weeds and continue to take preventative measures to treat these nonnative invasive plant populations.

d. Observing Quarantines

The parks would continue to observe quarantines established by APHIS or the states. Quarantines are used to reduce the spread of invasive plants.

e. Education

Education is a key part of prevention and early detection but because it is also a major part of national park invasive plant programs, it is discussed together with interpretation below (see 10. *Interpretation and Education* below).

f. Restoration

(see section 7. *Implementing Treatments*, Cultural Techniques below)

2. Implement Seven-Step Decision-making Tool

In the selected alternative, the parks would implement the following systematic and comprehensive Decision-making Tool (designed by the parks) to:

- ❖ Step 1: Identify Nonnative Plants (Figure 14 – see figures below)
- ❖ Step 2: Determine Whether Nonnative Plant Meets Action Thresholds (Figure 15)
- ❖ Step 2a: Monitor to Determine Whether Nonnative Species is Invasive (Figure 16)
- ❖ Step 3: Identify Species Management Priorities (Figure 17)
- ❖ Step 4: Identify Area Management Strategy and Evaluate and Select Treatment Method(s) (Figure 21)
- ❖ Step 5a: Confirm Compliance for Chemical and/or Biological Treatment Method(s) (Figure 22)
- ❖ Step 5b: Confirm Compliance with NEPA (including NHPA, ESA, CWA, etc.) (Figure 23)

- ❖ Step 6: Implement Selected Treatment(s) (Figure 24), and
- ❖ Step 7: Monitor Treatment(s) to Assess Control Efficacy (Figure 25)

1. Step 1: Identify Nonnative Plants

1) Defining Nonnative Plants Managed under this Plan (Figure 14)

Only plants defined as nonnative would be managed under this Invasive Plant Management Plan (IPMP). This IPMP does not include or apply to management of native plants, even those that are considered pests or problems in natural or cultural landscapes or in recreation areas. Examples of these types of plants that would not be managed as part of this plan include native, troublesome plants like poison oak or poison ivy.

Native plants and nonnative (exotic) species are defined as follows in *Management Policies*:

Native species are defined as all species that have occurred, now occur, or may occur as a result of natural processes on lands designated as units of the national park system. Native species in a place are evolving in concert with each other (NPS 2006: Section 4.4.1.3).

Exotic species are those species that occupy or could occupy park lands directly or indirectly as the result of deliberate or accidental human activities. Exotic species are also commonly referred to as nonnative, alien, or invasive species. Because an exotic species did not evolve in concert with the species native to the place, the exotic species is not a natural component of the natural ecosystem at that place. Genetically modified organisms exist solely due to human activities and therefore are managed as exotic species in parks (NPS 2006: Section 4.4.1.3).

2) Identifying a Nonnative Plant

Among those resources available to determine whether the plant meets the definition of a nonnative plant are the following:

- Federal, State or County Noxious Weed Lists

Species on these lists are a management priority because their treatment is mandated by executive order, regulation or law.

- NRCS, USDA Plant Database

This database can be found at <http://plants.usda.gov> and contains a searchable component for *native status*. Plants may be searched via scientific or common name. The database also contains maps of states, which may be enlarged to identify counties, including presence absence data.

Two other commonly used floras are also available (see Chapter VII: *References* for bibliographical information).

- *Flora of the Pacific Northwest: An Illustrated Manual* (C. Leo Hitchcock and Arthur Cronquist)
- *Intermountain Flora: Vascular Plants of the Intermountain West, U.S.A.* (Arthur Cronquist et al.)

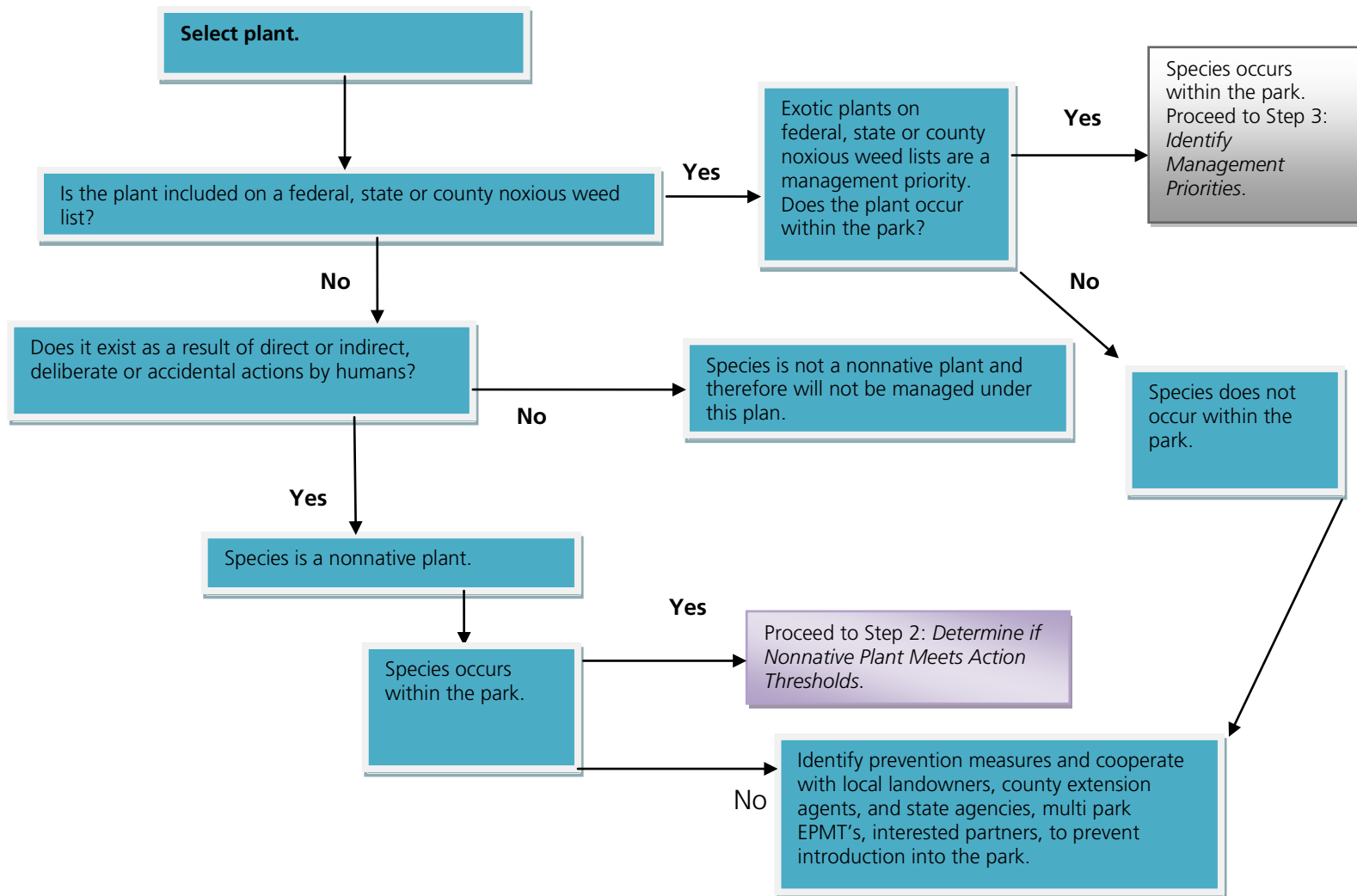
3) Plant Identification Assistance

Plant identification assistance is available in all four states as described in the EA.

Figure 1: Decision-making Tool Step 1

❖ Step 1: Identify Nonnative Plants

Note: Identified plants may come from early detection protocol, from federal, state or county noxious weed lists, new invaders database, cooperators, or from other floral surveys, etc.



2.

3. Step 2: Determine Whether Nonnative Plant Meets Action Thresholds

1) Determine whether the nonnative plant is part of an identified park purpose, such as managed as part of a cultural landscape (Figure 15)

Nonnative, non-invasive plants that meet an identified park purpose, such as location within a cultural landscape (where it is important to retain even nonnative plants that recreate the historic scene) would not be managed as part of this plan.

2) Determine whether the plant poses a significant risk or nuisance to native plant populations or other ecological aspects of the park or surrounding area

Nonnative plants that are on noxious weed lists or that have demonstrated the ability to move into a native landscape and to occupy habitat within it pose a risk to native plant populations.

3) Determine whether the plant meets one of the management thresholds established in *Management Policies*

Each plant species that meets the definition of a nonnative species is subject to management under this plan. Not all plants defined as nonnative plants, however, would necessarily be managed. Under NPS *Management Policies*, to be managed, a nonnative plant must also meet several criteria:

All exotic plant and animal species that are not maintained to meet an identified park purpose will be managed—up to and including eradication—if (1) control is prudent and feasible, and (2) the exotic species

- interferes with natural processes and the perpetuation of natural features, native species or natural habitats, or*
- disrupts the genetic integrity of native species, or*
- disrupts the accurate presentation of a cultural landscape, or*
- damages cultural resources, or*
- significantly hampers the management of park or adjacent lands, or*
- poses a public health hazard as advised by the U. S. Public Health Service (which includes the Centers for Disease Control and the NPS public health program), or*
- creates a hazard to public safety (NPS 2006: Section 4.4.4.2).*

Only nonnative plants that meet both the definition in Step 1 (above) and at least one of these criteria would be managed under this IPMP.

Figure 2: Decision-making Tool Step 2

❖ **Step 2: Determine whether Nonnative Plant Meets Action Thresholds**

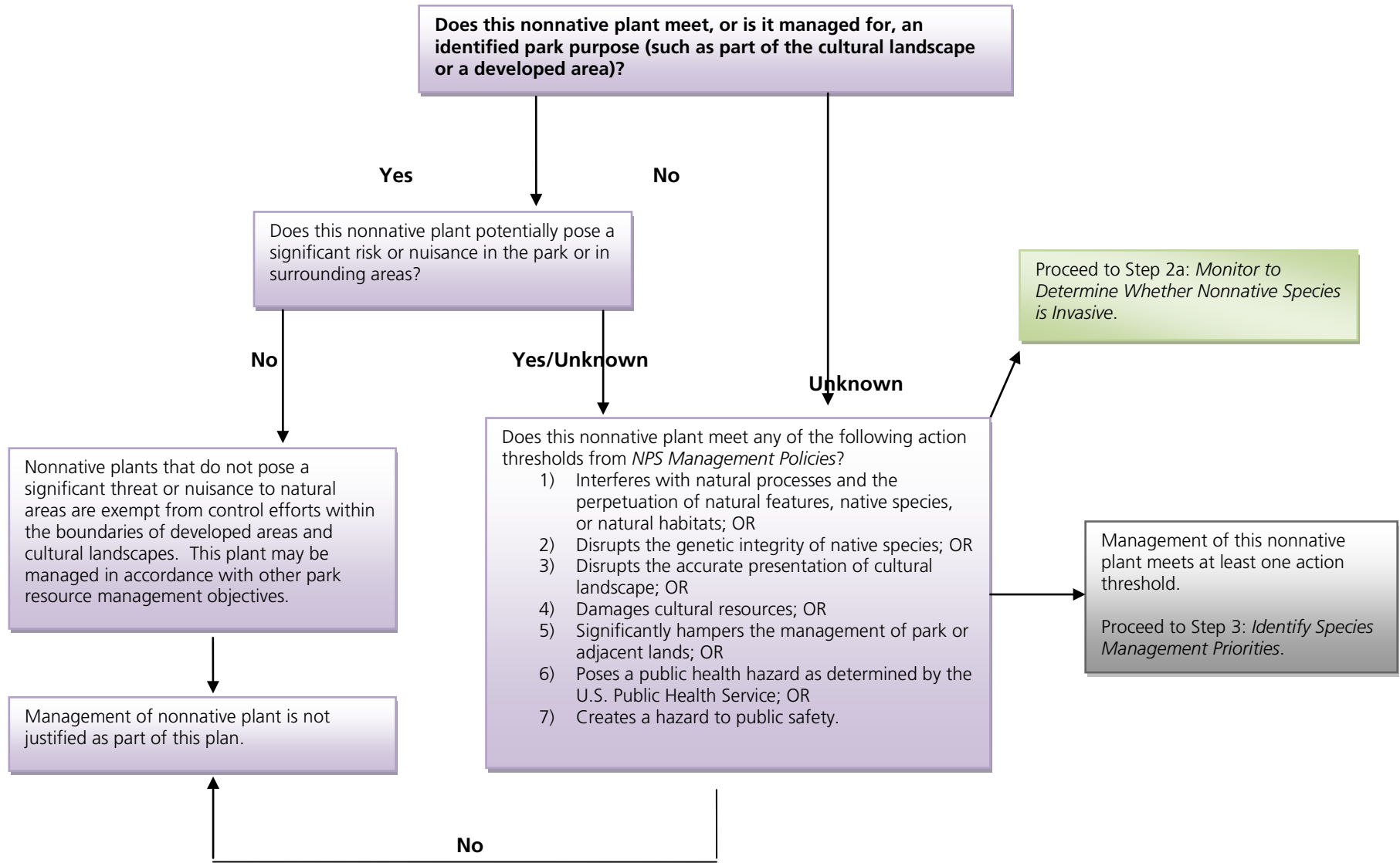
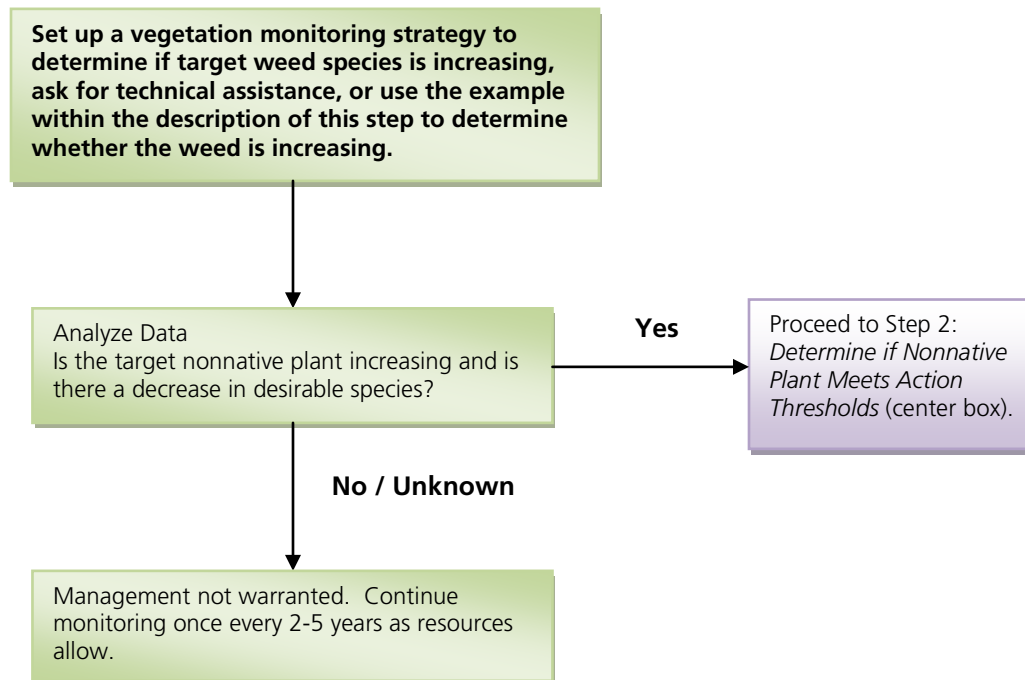


Figure 3: Decision-making Tool Step 2a

❖ Step 2a: Monitor to Determine Whether Nonnative Species is Invasive

Note: This monitoring is to assess the effect of nonnative species on the surrounding vegetation and ecosystem relevant to land management goals. A nonnative invasive plant that has high impact in one area may not have high impact in another, based on differences in the plant communities, climate, soil type etc. If a species is not having a high impact, resources would be better spent focusing on other nonnative invasive plants. The key to monitoring for impact is that it has to be done over time – one assessment is not sufficient. Data from only one year can be confounded by annual variation in weather, an unusual disturbance event (a spike in an insect population), etc.



4. Step 2a: Monitor to Determine Whether Nonnative Species is Invasive

If a new nonnative plant is observed and has not been identified as invasive (or toxic, or otherwise known to pose a threat to NPS lands, agricultural lands or other resources) by cooperative weed management partners, the county, the state or other NPS areas, this step would be used to assess the effects of the nonnative species on the surrounding vegetation and ecosystem to determine whether it should be a priority for treatment (Figure 16). In Step 4 (as discussed later), not all nonnative plants become a priority for treatment. Non-high priority plants may be ubiquitous (such as common dandelion in some areas) or they may not spread into native ecosystems, and/or they may not displace native plants. In addition, as noted in the explanation of Figure 16, based on differences in local conditions a nonnative species that is clearly having a high impact in one plant community may not have the same high impact in another plant community. If the impacts of displacement or spread are not occurring, park resource managers would likely continue to focus nonnative plant management efforts elsewhere to more effectively use limited staffing and funding.

Although Step 2a does not prescribe a monitoring protocol, a sample monitoring program is provided below as an example that explains how this step could be achieved.

Sample Monitoring Program

a) Identify plots

Set up a vegetation monitoring protocol to determine if target weed species is increasing, ask for technical assistance, or use the following example to determine whether the weed is increasing.

Randomly locate six patches: in each patch, set up three 0.25, 0.5 or one square meter frames just inside and just outside of the patch border. Determine frame size based on the size of the plant and density. The frame must be large enough to capture numerous plants, but not so large that observers would be counting more than 200 plants on average per frame.

b) Record Data

- 1) Record all species present in the plot (refer to the Resources Section in Appendix B: *Natural History and Control of Nonnative Invasive Plants in 10 Northern Rocky Mountains Parks* for assistance with plant identification.
- 2) Record density and percent cover of the target weed species
- 3) Record density and percent cover of the three most abundant native species in the plot.
- 4) Record density and percent cover of two other of most abundant nonnative species in the plot (if present).
- 5) Permanently mark diagonals of each plot (e.g. with rebar). GPS plot and include on a map to the site. Ensure directions to find plot, data sheets, directions for collecting data are written clearly so they can be used by someone unfamiliar with the project in the future.
- 6) Photograph plots and mark photographs with plot information.

c) Collect data for at least three years.

Make backup copies of the data, and make sure clear directions describe plot locations, how to collect the data, the date, and who collected the data.

d) Analyze Data

Determine whether the plant is increasing or decreasing. For plots just inside the patch border and plots just outside the patch border record plot density and percent cover of the target weed compared to other species in the plot. Is there a decrease in native species? Is this associated with an increase in the target weed species?

If the data is highly variable:

1) Assess whether there are differences among the patches (such as some in very healthy plant communities, others in very disturbed areas).

2) If there is a unifying characteristic in the plots where the weed is having an impact, e.g. when native plant cover is low, or only when on a south facing slope, proceed to Step 4, and focus on weed patches with that unifying characteristic.

If there is no clear factor to explain the variation, or why the weed is having a high impact in some plots, and not in others, the weed is affecting native plant populations, and warrants management actions. Proceed to Step 4, start with eradication.

5. Step 3: Identify Species Management Priorities

In the selected alternative, the parks would use the Alien Plant Ranking System (APRS), a system published by the USGS to assess invasive plant characteristics, to obtain relative priorities and then one of two methods to rank invasive plants for treatment as high, medium or low (Figure 17). Because APRS does not address qualitative characteristics associated with invasive plants (see Figure 17 and below), the partner parks have also identified the need to increase the rank of a medium or low priority species if certain characteristics are present. All the high ranked species would be considered for treatment. Medium and low ranked species would be considered for treatment only if they were found to be important through the qualitative process.

Based on *Management Policies*:

High priority will be given to managing exotic species that have, or potentially could have, a substantial impact on park resources, and that can reasonably be expected to be successfully controlled. Lower priority will be given to exotic species that have almost no impact on park resources or that probably cannot be successfully controlled. Where an exotic species cannot be successfully eliminated, managers will seek to contain the exotic species to prevent further spread or resource damage (NPS 2006: Section 4.4.4.2).

1) Alien Plant Ranking System (APRS)

APRS provides a systematic means of evaluating the following characteristics of nonnative species based on:

- a) Significance of Threat or Impact (Site Characteristics),
- b) Innate Ability to Be a Pest (Species Characteristics), and
- c) Difficulty of Control.

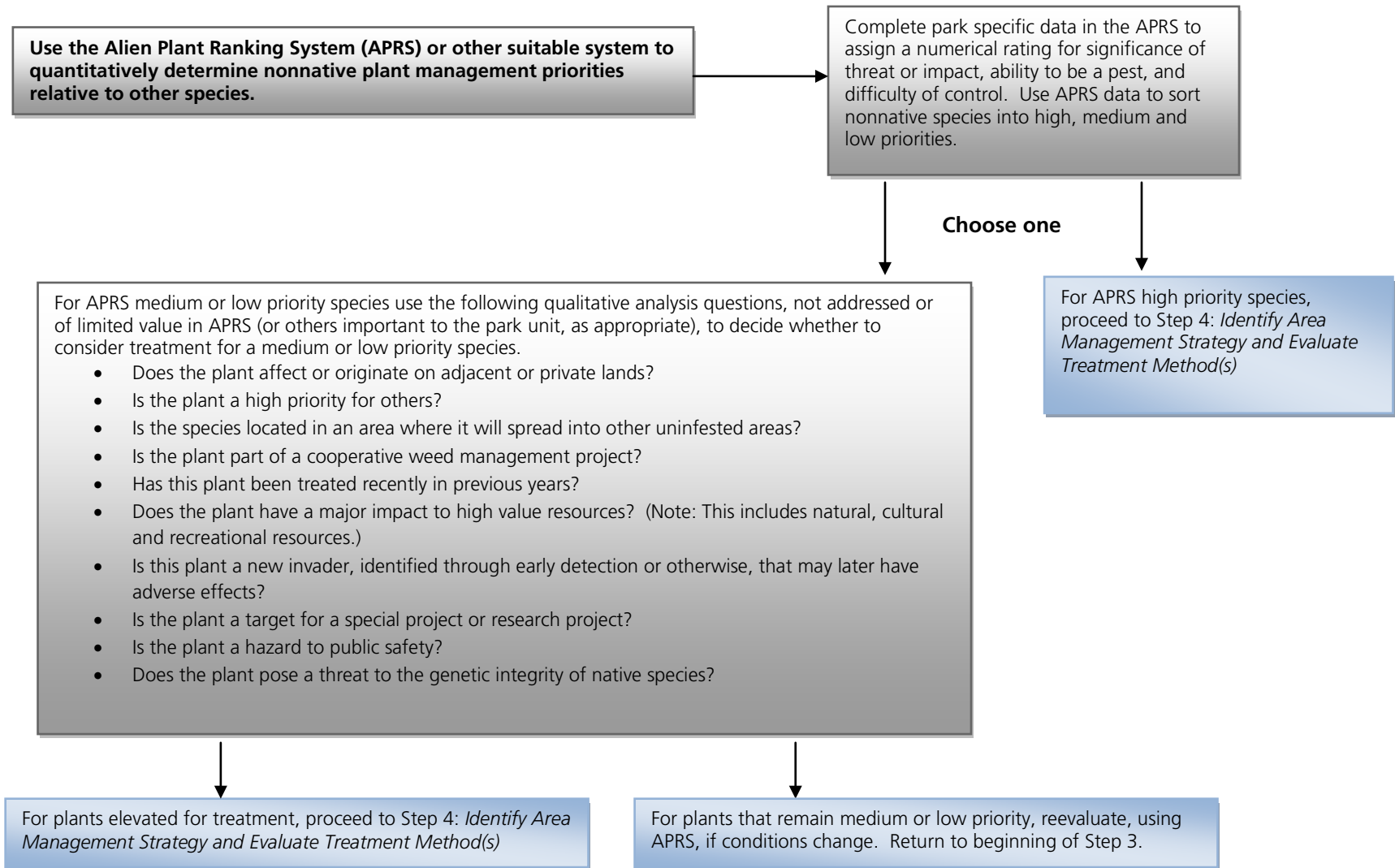
The relative likelihood of each of these criteria is determined in APRS by answering a series of questions. Of these questions, 12 are plant specific (based on biological / autecological history, including seed production, etc.); eight questions are park specific (areal extent in the park, number of populations, etc.); and four questions are primarily plant specific but could differ based on features unique to parks, such as the presence or absence of a water body and whether or not grazing occurs. By providing answers to these questions, the APRS allows park resource managers to more objectively determine what plants can potentially be managed. A list of the APRS questions with recommended guidance in applying them can be found in Appendix M.

Upon responses to the questions, APRS provides a series of graphs to demonstrate how plants rank relative to each other for these criteria. These criteria can be analyzed to obtain a relative priority list. Because the APRS program does not identify high, medium and low priorities, two methods have been developed by the parks to obtain relative *high*, *medium*, and *low* priorities based on the answers to the APRS questions. The parks would use one of the following methods, or another appropriate synthesis of the APRS data, to determine priorities for treatment of nonnative invasive plants.

Figure 4: Decision-making Tool Step 3

❖ Step 3: Identify Species Management Priorities

Note: The highest priority is to manage disruptive exotic plants that have, or potentially may have, a substantial impact on park resources, and can reasonably be expected to be controlled. Lower priority would be given to innocuous exotic plants that have almost no impact on park resources or likely cannot be successfully controlled.



The first method scores the *Significance of Threat or Impact* and *Innate Ability to Be a Pest* to obtain a numerical value for each park-occurring species. The resultant list is then analyzed to determine where there are natural breaks in the APRS scores and to rank the highest scoring third as “high,” the next third as “medium” and the lower third as “low.” Depending on the park, approximately the top 20 species were ranked this way.

In the second method, add scores for *Significance of Threat or Impact* and *Innate Ability to Be a Pest* then rank the totals as high, medium and low by using this Excel equation:

[=IF(D2>+133, "high", IF(D2>67, "medium", "low"))].

In this way, all species that were ranked between 133 and 199 (the top third) in APRS are labeled "high". All species ranked between 67 and 133 are labeled "medium." All species ranked below 67 are labeled "low." Each rank is then assigned a numerical score of 3 for high, 2 for medium and 1 for low. This assigned value is arbitrary and only important for the third step of the ranking process. Then the third criteria (Ease of Control) is ranked high, medium and low in the same manner (high = easy to control). Again, the high, medium, and low ranked species are assigned an arbitrary value of 1, 2, or 3. The "value for control" column Excel equation is:

[=IF(H2="medium", "2", IF(H2="high", "3", "1"))].

When the values are added together, they should equal a number between 2 and 6. Those that add up to 5 or 6 are given a ranking of “high,” those that add up to 4 are designated “medium,” and those that add up to 3 or 2 are designated “low” priority for treatment.

2) Qualitative Analysis

Answers to the following questions would also be used by the parks to raise the relative ranking for a medium or low priority species (as determined by using the APRS) to a high priority species. These qualitative analysis questions are either not addressed by APRS or are of limited value in APRS. For example, although APRS asks whether the plant hybridizes with native plants (see last bullet below), answering yes does not increase the score that much.

- Does the plant affect or originate on adjacent or private lands?
- Is the plant a high priority for others?
- Is the species located in an area where it could spread into other uninfested areas?
- Is the plant part of a cooperative weed management project?
- Has this plant species been treated in previous years? (Once treatment is begun, it is usually important to continue until control is obtained because stopping could allow the plant to reestablish more rapidly than before.)
- Could the plant have a major impact on high value natural, cultural or recreational resources?
- Is this plant a new invader, identified through early detection or otherwise, that may later have adverse effects?
- Is the plant a target for a special project or research project?
- Is the plant a hazard to public safety?
- Does the plant pose a threat to the genetic integrity of native species?

These questions were developed by the partner parks to address issues important to NPS resource managers in the areas of partnerships, native landscape integrity, impacts on key natural, cultural or recreational resources, scientific research, inventory and monitoring programs, and public safety. There may also be other questions developed later by the parks to address other concerns important to individual park units.

When compared to Tables 4-13 in Alternative 1 (in the EA), Tables 19-28 (in the EA) show how using a quantitative analysis system (APRS) would change the priorities for park nonnative invasive species treatment as of the development of this plan. The number of species ranked would also vary among parks and based on staffing and funding at each park.

Although the plants are listed in priority order below, the actual list of species treated in any given year, would vary depending on previous year's treatment success, the phenology of the plant at the time of proposed treatment, the season of treatment, seasonal variations in weather conditions (wet vs. dry years), and other factors. Actual treatment would also depend on the park's ability to treat the species and how many nonnative invasive plants are present in the park.

6. Step 4: Identify Area Management Strategy and Evaluate and Select Treatment Methods

In the selected alternative, the parks would continue to use the full suite of treatment methods (cultural, manual / mechanical, biocontrol, chemical (herbicide), and fire) to effectively treat nonnative invasive plants (Figure 21). This includes the use of some treatment methods that have not previously been used by the partner parks, such as the proposed use of biocontrol and aerial herbicide applications by Craters of the Moon and the proposed use of fire at Little Bighorn (pending revision of the Fire Management Plan). Depending on the plant, patch size, and other variables including available research regarding effectiveness, parks would select the best treatment method or combination of methods. Treatment methods would also be based on the current management strategy (eradication, containment, or suppression) identified for the plant. A general description of treatment methods is provided in the EA.

1. Management Strategy

Although the overall goal would always be eradication, because of the patch size and distribution of the plant, effectiveness of treatment methods, and cost-effectiveness, initial goals may be containment or suppression instead. In all cases, means of eradicating the plant would be looked at first. Then, if eradication is not cost effective or feasible, the management strategy would move to containment of the invasive population. If containment is not cost effective or feasible, the management strategy would move to suppression of the invasive population. As a result, if containment or suppression was the selected management strategy, later treatments would switch back to eradication or containment as soon as it was determined to be cost effective and feasible.

In the selected alternative treatment methods would be systematically analyzed over time to determine the most cost effective, eradication effective and environmentally friendly means of controlling the target species. The treatment method would also be based on the intended management strategy (eradication, containment or suppression). Treatment priorities would be based on the characteristics of the plant, its presence in the park, and its response to available treatments (see also Step 3). The goal is to identify what treatment options work for this species, area and management strategy.

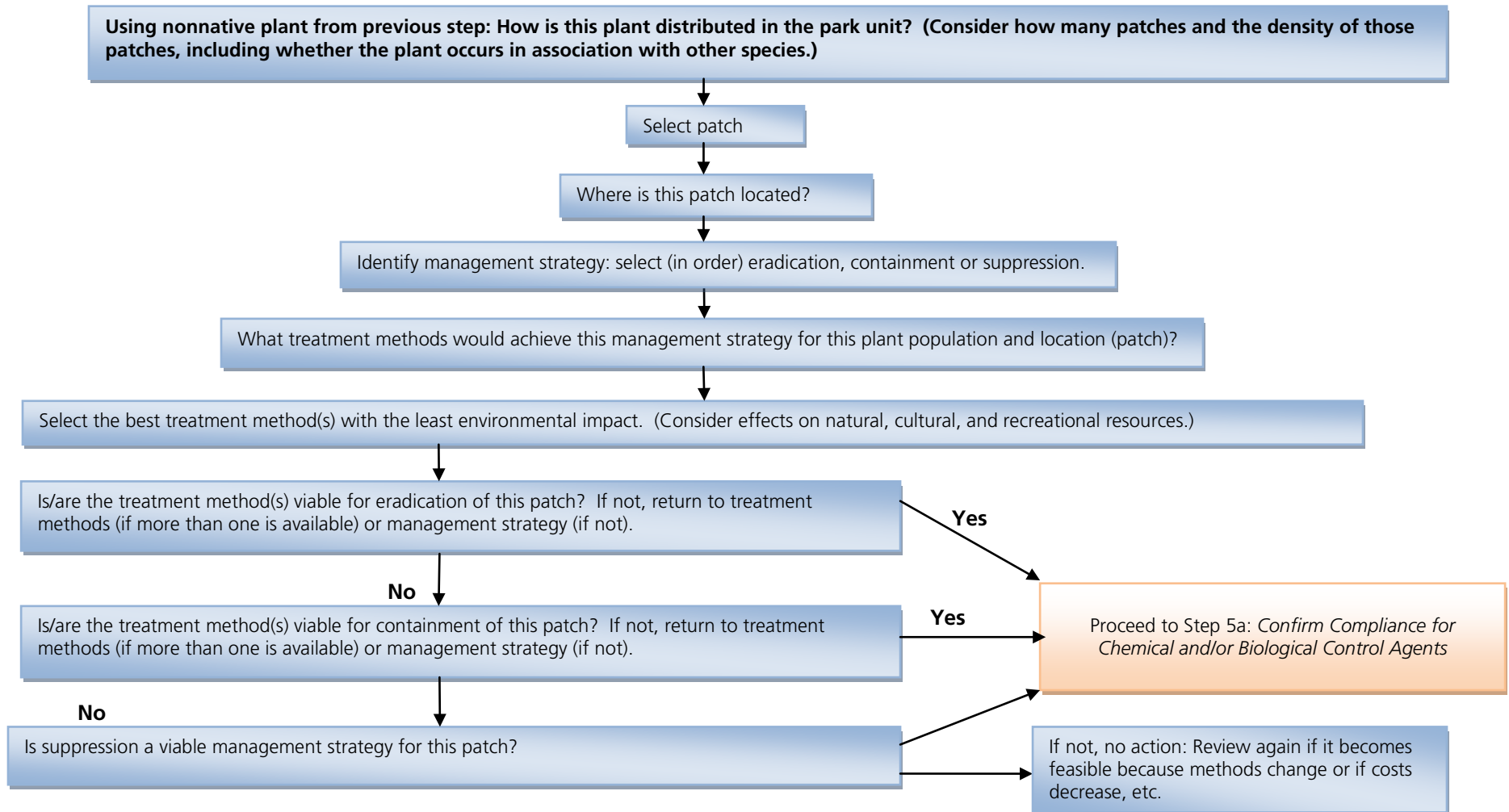
Among the questions resource managers would consider in determining what treatment options to apply to a nonnative invasive species include:

- What is the species? (Also considered would be co-occurring native and nonnative species.)
[Note: In using Step 4, resource managers would ideally focus on one species at a time and look for overlap in the results from the process. Selecting the best treatment method is necessarily an iterative process and therefore may often require answering the same questions from a different angle to arrive at the best answer. For instance, the co-occurrence of two (or more) species requiring treatment could indicate use of a method that works for both species.]
- How much of this species occurs in the park unit?

Figure 5: Decision-making Tool Step 4

Note: For Step 4, treatment options must meet management objectives and be feasible, given potential costs, available resources, potential impacts, effectiveness, and applicable regulations and policies. Because the goal is always eradication, treatments that start as suppression or containment would eventually also revert to eradication once it becomes feasible / affordable. Managers may have to repeat Step 4 many times to determine treatment techniques, management goals and methods for treating the same species in different areas. Step 4 should also be repeated if variables change (e.g. patch size changes, if additional resources become available or if success has been achieved for management strategy).

❖ Step 4: Identify Area Management Strategy and Evaluate and Select Treatment Method(s)



(To answer this question, park resource managers would consider the distribution and density of the species, including the number of patches. These characteristics could affect the feasibility, including cost-effectiveness, of the initially selected treatment method.)

- Where is it?
[To answer this question, park resource managers would consider access to the site; area GMP management zone; type of site (upland, wetland, boundary, etc.); threatened, endangered, sensitive species/habitat; and other site characteristics. The presence of sensitive resources could require delineation of buffer areas to avoid impacts to sensitive species or areas or it could require that another treatment method be selected. Presence in wilderness in Craters of the Moon could also indicate the need for a different treatment method.]
- What treatment methods are effective given this plant population and its location?
(To answer this question, park resource managers would consider whether the initially selected treatment method is feasible based on the size of the population. Park resource managers would use Appendix B: Natural History and Control of Nonnative Invasive Plants found in 10 Northern Rocky Mountains Parks or another means to determine the answer.)
- Select the best treatment method with the least environmental impact.
[To address this, park resource managers would consider the following when trying to determine what method(s) would have the least impact on the environment: non-target treatment effects (other plants, other wildlife); life history of plant (annual, biennial, perennial, etc.); timing (season, time of day); number of site visits needed for treatment; carbon footprint of treatment method; need for restoration of the site following treatment; plant community; plant community composition; presence of rare, threatened or endangered species; presence of water, wilderness, archeological sites, sacred sites, and/or cultural landscapes; genetic integrity; proximity to visitors; proximity to park boundary (e.g. organic farm); health and safety of applicators/employees (toxicity of proposed herbicide); access to the site; soundscape (i.e. particularly for aerial spraying or other mechanical methods); air quality; research natural area or other sensitive or pristine habitat; buffer areas; phenology of non-target plants; and cumulative impacts, etc.]

Step 4 would be repeated to change the management strategy and to change the treatment methods when other variables change (including patch size, availability of staffing and funding resources, etc.). Table 29: *Selecting a Treatment Method* demonstrates an idealized scenario where selecting a management tool moves from manual / mechanical to chemical methods based on the infested area and the management strategy. Though this scenario is often true, sometimes a chemical treatment may have fewer environmental impacts than a manual or mechanical treatment (such as when additional ground disturbance would cause a marked increase in the plant being treated). This scenario also presumes that treatment methods are essentially equally effective, whereas practice shows that effectiveness of treatment methods varies depending on the plant and population size, among other variables. This graphic, however, is useful to illustrate how a treatment method could be selected.

2. Treatment Methods

Once a treatment is selected, existing methods of using that treatment (manual / mechanical, cultural, chemical, biological and prescribed fire) on invasive plants would continue. The EA contains a description of common manual / mechanical and chemical treatment methods. It is also likely that the same herbicides that have been approved over the last six years would continue to be used, however as new treatments arose, they could also be used (see *Adaptive Management* section below). Biological insect and pathogen control agents would also be the same as or similar to those that have been approved for other national parks, though these too would likely change as new information develops, with some species being withdrawn and some species being added based on research by APHIS and others.

The selected alternative would formalize generalized restrictions associated with special management zones for chemical and/or fire treatment methods employed in the parks. As appropriate, these more specific restrictions would be employed by the park units when selecting treatment methods that affect the areas noted in Table 30: *Park Herbicide Use Special Protection Areas* and Table 31: *Park Fire Use Special Protection Areas*.

Table 1: Selecting a Treatment Method

Management Strategy	Eradicate	Contain	Suppress	Treatment Method
Treatment Methods	Hand-pulling	Mechanical	Prevention (from expansion beyond current borders)	
	Grubbing	Livestock (where permitted)	Cultural	
	Chemical	Reseeding	Reseeding	
		Chemical	Manual	
		Biological	Chemical	
		Fire	Biological	
			Fire	
Area of Infestation	< 1 percent	1-25 percent	> 25 percent	

← Management Strategy

a) Cultural Treatments

Cultural treatments would continue to be used, however these could target different nonnative invasive species as these arose in the parks.

b) Manual / Mechanical Treatments

Manual / Mechanical treatments would continue to be used, however these could also target different nonnative invasive species as these arose in the parks.

c) Biological Control Treatments

Biological Control treatments would continue to be used. As appropriate, parks would either initiate or continue to use biocontrol methods to suppress some nonnative invasive species. Insect and microorganism biological control agents proposed for use in the parks would be those approved by APHIS, by the states and/or counties as applicable, and by the NPS IPM program. Grant-Kohrs Ranch would also continue to use livestock to reduce weed populations. Other parks could also use livestock in carefully controlled situations, pending consistency with other approved plans, and/or analysis of impacts.

Refer to Table 24 for current APHIS approved biological control agents for invasive plant species currently affecting the parks included in this plan. Note that the release of biological control agents in a park requires a Biological Use Proposal to be submitted to the Regional IPM Coordinator, and approved prior to releases for each calendar year.

As future biocontrol methods are approved by the states, these would potentially be tried in parks. Even if the biocontrol agents were not specifically introduced to parks, their availability would likely cause them to be tried in surrounding areas (such as within cooperative weed management areas, on adjacent private lands, and on adjacent federal lands, for example on USFS and BLM lands, etc.), thereby affecting the parks. For instance, Craters of the Moon has noted biocontrol effects on both rush skeletonweed and diffuse knapweed but does not know where the biocontrol agents were originally released and although

Grant-Kohrs released *Larinus* sp., *Cyphocleonus achates*, *Urophora* sp., and *Agapeta zoegana* to treat spotted knapweed in the 1990s, the list of biocontrol species found at the Ranch in 2009 (Table 24: *APHIS Approved Biological Control Agents in the Pacific West and Intermountain Region Parks 2004-2009*) far exceeds this release.

d) Chemical Treatment

Herbicide treatment methods would continue to be used, however as new chemical agents were approved by the EPA and their use evaluated in an EPA or USFS Risk Assessment, approval of these new herbicides could occur on a case-by-case basis through the PUPs system by NPS regional and/or national IPM Coordinators. Herbicide use would primarily target weeds that pose a serious ecological threat to native plant communities (including federally and state-listed noxious weeds). Herbicides would primarily be selected when manual, mechanical, or biological controls are not effective or unavailable. Herbicides could also be used in conjunction with other treatments as necessary to meet the management goal to eradicate, contain or suppress the plants.

The ability to use herbicides as they become registered with the EPA would allow more options and an array of herbicides that could better match treatment goals and application conditions. This would also permit the use of newly approved herbicides that may pose less risk to treatment areas or other park resources than currently used herbicides, which would both increase the effectiveness of treatments and decrease their adverse effects.

Under the selected alternative, some parks would use aerial spraying or other chemical application methods not previously used in current programs for future treatments. Grant-Kohrs Ranch has used aerial spraying (via helicopter) in the past and would continue to use it as appropriate. Craters of the Moon, Little Bighorn and Golden Spike would also consider using aerial spraying if application were to meet the criteria identified below (associated with special protection zones and avoiding impacts to other resources).

Aerial spraying consists of using fixed wing aircraft or helicopters to broadcast spray an herbicide over a specific target area that primarily consists of the target species and where it would not affect other native plants, wildlife or cultural resources. Any aerial spraying done within NPS lands requires annual review and approval prior to application by the Regional and WASO IPM Coordinators, and must meet DOI (517 DM 1) and NPS (2006 NPS Management Policies 4.4.5.3, NPS-77, DO 77-7) policies and guidelines for pesticide use.

Aerial application of pesticides would only be conducted for sites that meet at least one of the following criteria:

- The infestation covers a large area and would be most effectively treated from the air. (There is no acre limit for using aerial application, however aerial application sites are typically over 20 acres and have fairly dense exotic plant coverage.)
- The infestation covers a small area but can be successfully treated using a microfoil boom or similar apparatus that allows for a limited band of spray. (A microfoil boom can be used to spray widths as small as 12 feet, effectively treating small infestations. Microfoil booms are designed specifically to minimize pesticide drift.)
- The infestation is very remote and treatment using other application methods would require an inordinate amount of time for crews to arrive and apply ground treatment.
- The infestation is located on rough, steep terrain that prevents ground application and is too dangerous for employees on foot (NPS NGP 2005).

Aerial application of herbicides would not be used in designated wilderness or wilderness study areas. If such use was proposed in the future at Craters of the Moon, separate environmental analysis would occur.

1) *Herbicide Special Use Protection Areas*

To avoid unintentional spill-over impacts to special use areas, herbicides would either not be used or would have limitations on use in the following **Herbicide Use Special Protection Areas in applicable parks (Table 30)**. As appropriate, additional areas would be added to these protection areas or the areas would be modified as new information develops. Additional explanations, where needed, are below.

Table 2: Park Herbicide Use Special Protection Areas

Park Unit	Herbicide Use Special Protection Zones	Reason	Notes
City of Rocks	Granitic soils	Granitic soils are very coarse and may require special treatment measures.	Track weather forecast prior to and conditions after application.
Craters of the Moon	Boundary Area for Lava Lake Land and Livestock, LLC	Lava Lake Land and Livestock, LLC produces organic lamb.	This is described in a General Agreement.
Craters of the Moon	Kipukas	Kipukas are sensitive areas with plant communities left intact by lava flows.	Herbicide use could occur but would only be proposed following specific evaluation of proposed affected areas.
Craters of the Moon	Wilderness	Requires preparation of minimum requirement / minimum tool analysis.	In addition, proposals for treatment with herbicides would require a consistency analysis with this plan for the specific area.
Craters of the Moon	Wilderness Study Areas	Requires preparation of minimum requirement / minimum tool analysis. This minimum requirement / minimum tool analysis proposes the use of hand-pulling, herbicides, pack-stock and landing of aircraft.	WSAs at Craters were previously managed by the BLM and supported some grazing, therefore some of these areas are affected by large populations of invasive species. In addition, to the treatment of dyers woad and leafy spurge in park WSAs, new proposals for herbicide use to treat other nonnative invasive plants in WSAs require a consistency analysis with this plan for the specific area (See Appendix N: <i>Craters of the Moon Wilderness Minimum Requirement / Minimum Tool Analysis</i>).
Fossil Butte	Legislatively permitted stock trail corridors	Treat at appropriate times to avoid stock animals	
Golden Spike	Areas with Passey onion (<i>Allium passeyi</i>)	Passey onion is a special status species.	
Grant-Kohrs	None	None	
Hagerman Fossil Beds	Sensitive areas containing fossils	Protect fossils uncovered and lying on top of ground	
Little Bighorn	Water intake area	The underground collection system provides public drinking water.	In cooperation with the Public Health Officer, guidelines have been developed regarding herbicide use in the water intake area.
Minidoka	None	None	
Nez Perce (Bear Paw)	None	None	
Big Hole	Lemhi penstemon (<i>Penstemon lemhiensis</i>) habitat	Lemhi penstemon is a state watch species and federal species of concern.	No herbicides would be used near known habitat.
	Nez Perce Encampment	The Nez Perce Encampment area is a location of extreme cultural sensitivity to the Nez Perce people.	Any proposal for herbicide use would be reviewed through the NHPA Section 106 process in close consultation with the Nez Perce people.

a) City of Rocks

City of Rocks would not apply herbicide treatments in areas with granitic soils if wet weather was forecast.

b) Craters of the Moon

Two areas of Craters of the Moon (Figure 18) are proximate to Lava Lake Land and Livestock properties (either privately owned or leased from BLM). Craters of the Moon staff actively cooperates with this private landowner to maintain their organic certification; however, there is nothing that restricts the park from using the means necessary in NPS areas as long as the action is confined to these areas (because the areas used are adjacent federal leased or private lands). Craters of the Moon also works annually with Lava Lake to control weeds manually on their leased BLM Monument lands (see *Partnerships*).

Kipukas are remnant vegetation communities surrounded by lava flows. They were specifically highlighted for their scientific value in the proclamation expanding the Monument in 2000. Some of these contain intact native plant communities largely unaffected by nonnative invasive plants. Decisions as to whether herbicide use would be appropriate would be made on a case-by-case basis.

c) Fossil Butte

The park would avoid treatment during stock trailing, which occurs twice a year.

d) Golden Spike

The Passey onion occurs at Golden Spike. Herbicides would not be used where these patches occur or an herbicide special use protection area would be established.

e) Grant-Kohrs

Grant-Kohrs currently has no Herbicide Use Special Protection Areas. If deer Indian paintbrush or Idaho sedge were detected, an herbicide special use protection area would be established.

f) Hagerman Fossil Beds

Pesticide effects on exposed fossil resources are unknown.

g) Little Bighorn

In cooperation with the Public Health Officer, guidelines have been developed regarding herbicide use in the water intake area (Figures 19 and 20).

h) Nez Perce: Big Hole

Herbicides would not be used in close proximity to known populations of Lemhi penstemon (*Penstemon lemhiensis*) within Big Hole. Lemhi penstemon is a short-lived perennial forb that is endemic to Lemhi County in eastern Idaho and four counties in southwest Montana, including Beaverhead County where Big Hole is located. The species is known from only 191 occurrences, 102 of which are in Idaho, and 89 are in Montana. Over 50 percent of these populations are made up of 30 plants or less. There are only three known large populations with over 300 plants. One of these occurs in Big Hole and it may be the largest known population of the species. Lemhi penstemon is listed as a sensitive species by the USFS and the BLM, and is ranked G3 and S3 (rare but not imperiled with 21-100 occurrences in the state) by the Montana Natural Heritage Program. The species has reportedly been in decline throughout its range, and is facing threats from altered fire regimes and invasion by spotted knapweed. The species requires bare soil microsites to become established and prescribed burning has been demonstrated to be effective in stimulating germination and population growth.

The location of the Nez Perce encampment in 1877 would generally not be considered for herbicide application. If a compelling need for application arises, however, the proposal would be reviewed for compliance with Section 106 of the NHPA in close consultation with the Nez Perce people.

2) Prescribed Fire Treatment

Prescribed fire treatment would continue in parks with approved Fire Management Plans (FMP) that allow the use of prescribed fire to treat nonnative invasive plants. In addition, the use of flaming could also occur where allowed by approved FMPs. Table 31: *Park Fire Use Special Protection Areas* shows which parks that use fire would have special protection areas for prescribed fire and/or flaming. Table 32 shows parks that currently do not propose to use fire as part of their invasive plant management treatment program (reasons noted).

Table 3: Park Fire Use Special Protection Areas for Invasive Plant Treatment

Park Unit	Use of Prescribed Fire?	Use of Flaming?
Craters of the Moon	Park Facilities	Park Facilities
Golden Spike	Developed Zone	None
Grant-Kohrs	Historic and Administrative Structures	Historic and Administrative Structures
Little Bighorn	Developed Zone	None

a) Craters of the Moon

Although Craters of the Moon has a currently approved FMP (NPS CRMO 2000), the plan applies only to the original monument area. Therefore, until fire use is approved in other areas through revision of the plan, use of fire under the IPMP would only occur in the original monument area. Use of fire in other areas (the preserve) is generally undesirable since invasive exotic plants like cheatgrass commonly dominate after wildfires (even without previous disturbance), following revision and approval of a new FMP that applied to these areas. If appropriate, however, prescribed fire could be proposed in the expanded monument and preserve.

b) Fossil Butte

Although Fossil Butte has an approved FMP (NPS FOBU 2004) that includes the use of fire to treat nonnative invasive species, Fossil Butte has not used fire to treat invasive species. A recent prescribed fire was used to remove decadent sagebrush and to increase the diversity and abundance of forbs and grasses. Fossil Butte is leaning toward no use of fire because the most recent fires have increased the predominance of cheatgrass and one new nonnative invasive plant before was also later found in the burned area.

c) Golden Spike

Although Golden Spike has an approved FMP (NPS FOBU 2004) that includes the use of fire to treat nonnative invasive species, Golden Spike is also leaning toward no use of fire to treat invasive plants because the prescribed fire increased the predominance of cheatgrass.

d) Grant-Kohrs

Opportunities for prescribed fire use exist in grass rangeland and riparian/woodland areas. Objectives would include rangeland improvement, integrated pest management, and habitat maintenance. The FMP may need to be amended and updated with monitoring expanded in proportion with wider uses of prescribed burning.

e) Little Bighorn

To avoid potential conflicts associated with facilities and high visitor use areas, no prescribed fire would be used in the developed zone. Although Little Bighorn currently does not meet the requirements for the use of prescribed fire to treat invasive plants, the intended future revision of the plan would allow both prescribed fire and flaming.

Table 4: Parks That Would Not Use Fire to Treat Invasive Plants in the Selected Alternative

Park Unit	Future Intent?	Reason
City of Rocks	None	Increase in spread of cheatgrass and potential for fire escape.
Craters of the Moon	Some potential benefits as part of a restoration plan (i.e. remove cheatgrass stubble prior to herbicide application and reseed with native plants).	Increase spread of cheatgrass and other invasive plants
Fossil Butte	None	Allowed by existing FMP but no intent to use.
Golden Spike	None (due to past results)	Allowed by existing FMP
Hagerman Fossil Beds	None	Not addressed in FMP
Minidoka	None	No approved FMP
Nez Perce (Bear Paw)	None	Not addressed in FMP
Nez Perce (Big Hole)	None	Not addressed in FMP

Figure 6: Decision-making Tool Step 5a

Step 5a: Confirm Compliance for Chemical and/or Biological Control Agents

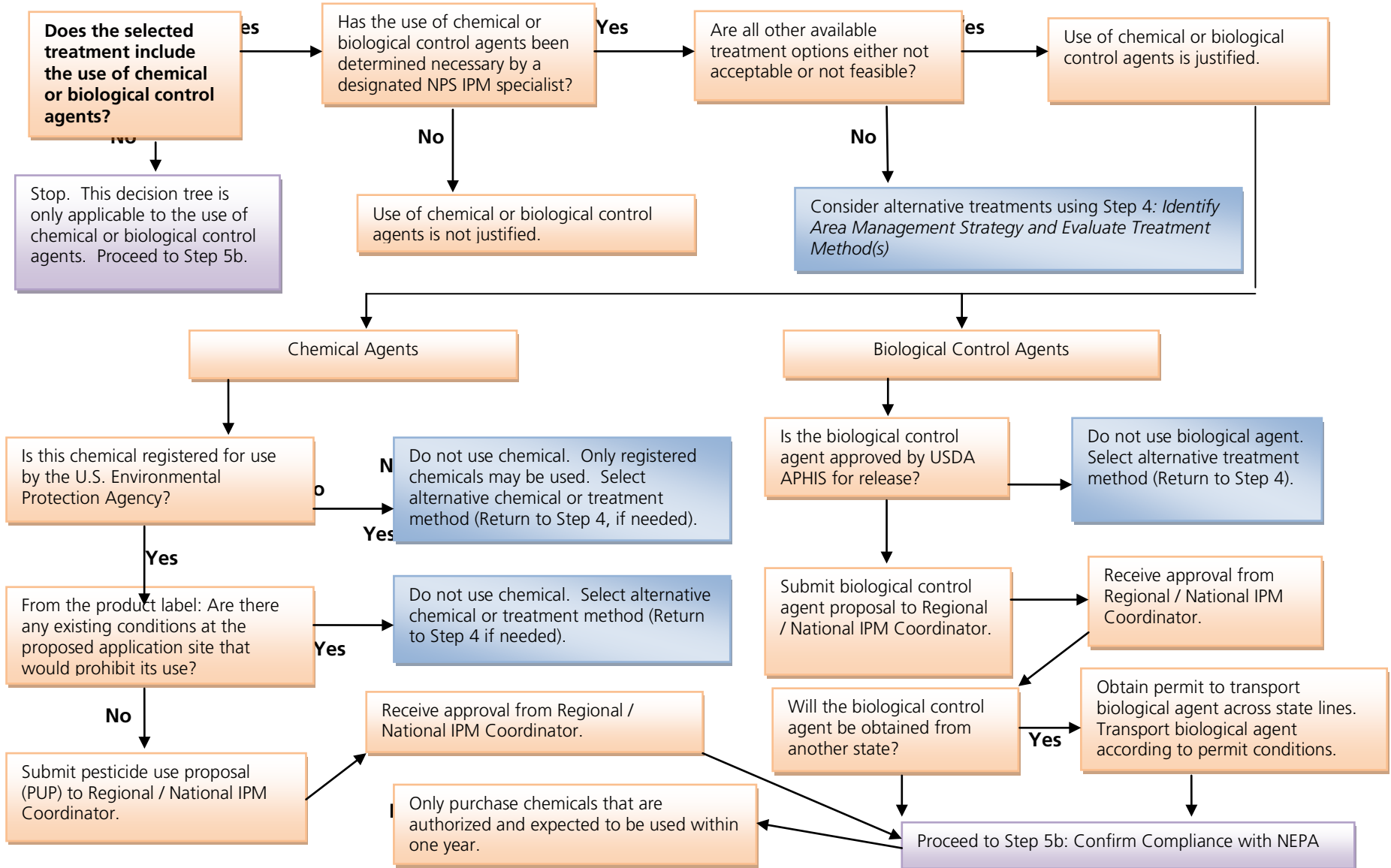
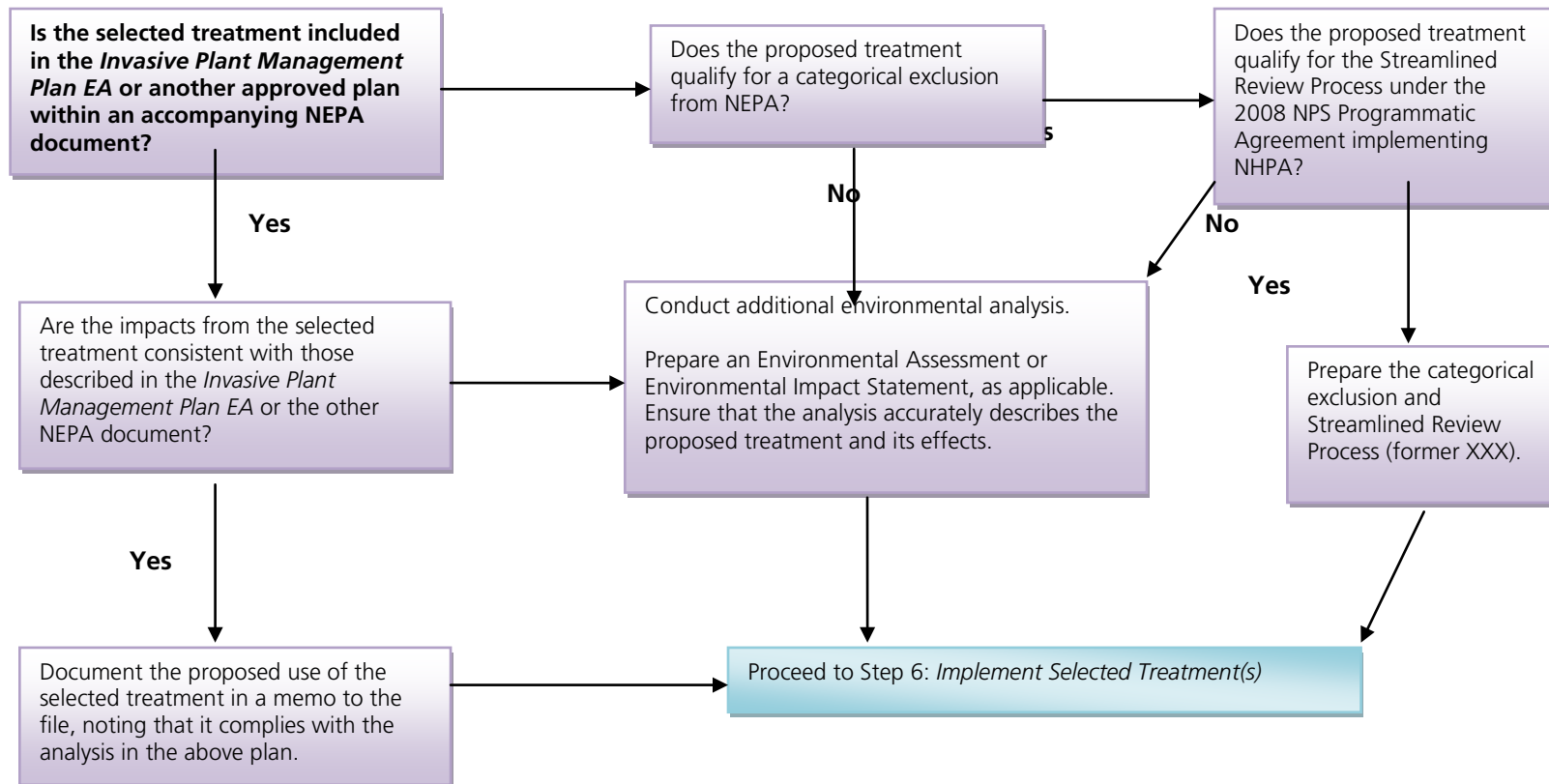


Figure 7: Decision-making Tool Step 5b

❖ Step 5b: Confirm Compliance with NEPA

Note: Prior to implementing the selected treatment, confirm that the selected treatment method has the necessary compliance with NEPA.



7. Step 5a: Confirm Compliance for Chemical and Biological Treatment Methods

In this step, park resources managers would ensure that the proposed treatment complies with laws, regulations and NPS policy. Step 5a also confirms that the use of pesticides or biological control agents is appropriate only following consideration of other alternatives. NPS policy and guidance for the use of restricted use pesticides requires annual review and approval by the Regional and WASO IPM Coordinators prior to application in the parks. Federal and state laws and NPS policy for the use of any pesticides also require that pesticide use meet the label requirements and be in compliance with other key criteria, such as application or supervision by a certified pesticide applicator.

Regional and Washington Office IPM Specialists routinely refer to the directory of herbicide risk assessments to determine whether or not to approve a pesticide for use in a national park unit. These herbicide risk assessments have been prepared by the EPA and the USFS. Although NPS intends to become a partner in the risk assessment process, until this occurs, the NPS would continue to rely on risk assessment information as provided by partner agencies. Pesticide risk assessments are found at the following website: <http://www.fs.fed.us/foresthealth/pesticide/risks.html>.

These risk assessments take into account normal uses by land management agencies and the effects on pesticide applicators, visitors, threatened and endangered species, etc. This information is disclosed in the risk assessment and was consulted for Chapter V: *Environmental Consequences*.

8. Step 5b: Confirm Compliance with NEPA (including NHPA, ESA, CWA, etc.)

In this step, park resource managers would ensure that proposed invasive plant management actions taken under this plan comply with it and the provisions of applicable environmental (including cultural) laws (Figure 23). To do this, review of this plan would occur prior to undertaking proposed invasive plant management actions. If actions do not comply with this plan, then additional environmental analysis, such as a categorical exclusion (CE) or EA, is required. Additional consultation under Section 106 is required for all applicable actions.

If the action does not comply with this Invasive Plant Management Plan:

Several NPS categorical exclusions are currently applicable to invasive plant management. Currently, there are no Departmental categorical exclusions (43 CFR S 46.210) that would allow for treatment of nonnative plants. The following NPS CEs were approved again in May 2009 and may be used for those categories of actions specifically described. The guidance sections were taken from a memo to parks from the Acting Director, NPS to the NPS National Leadership Council dated May 22, 2009.

516 DM 12, E (2): Restoration of noncontroversial native species into suitable habitats within their historic range and elimination of exotic species.

Guidance: This CE is most appropriate for exotic plant species. When considering elimination of animals that are exotic species, it is likely that large scale elimination of these species would result in more than minor impacts and require additional analysis. Restoration may be controversial when restoring species that are likely to leave the park or may require special management actions, such as listed or candidate threatened and endangered species.

516 DM 12, E (3): Removal of park resident individuals of non-threatened / [non-]endangered species which pose a danger to visitors, threaten park resources or become a nuisance in areas surrounding the park, when such removal is included in an approved resource management plan.

Guidance: This CE should be used only when an imminent danger to visitors or immediate threat to park resources exists. The CE should not be used to treat more than individual plants or more than one specimen of a species (or, at most, a small isolated grouping of individuals). If treatment extends over a large geographic area or to a large numbers of individuals, additional analysis is needed. This CE applies to both native and nonnative species.

If neither of these CEs nor this plan relate to the action being proposed, additional environmental analysis is needed. Park managers should review the list of Departmental and NPS CEs to determine if any others might apply or should prepare an implementation EA if this plan or those CEs do not apply.

Note: For the monitoring and research conducted in Steps 7 and 8, this plan and the following CEs apply (one is specifically for the NPS and one is a Departmental CE):

516 DM 12, E (6): Nondestructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research, and monitoring activities.

Guidance: This CE applies to many I&M activities, including vegetation plots and monitoring, soil surveys, species monitoring, and other nondestructive research activities which require a research permit. This CE should be used for activities which are not covered under the CE for day-to-day resource management.

43 CFR S 46.210 (Y): Day-to-day resource management and research activities.

Guidance: This CE applies to cultural and natural resource management and research activities that have no impact on the human environment and that are not otherwise listed in section 3.4.

Section 106 Compliance:

To determine whether the proposed action complies with Section 106 of the NHPA, the park or regional Section 106 coordinator needs to review the *Programmatic Agreement Among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers for Compliance with Section 106 of the National Historic Preservation Act*. If the action is not identified, separate Section 106 analysis must be completed. (Note: Separate Section 106 consultation would occur at Little Bighorn with the Crow Tribe, because the tribe is not a signatory to this Programmatic Agreement.)

9. Step 6: Implement Selected Treatment(s)

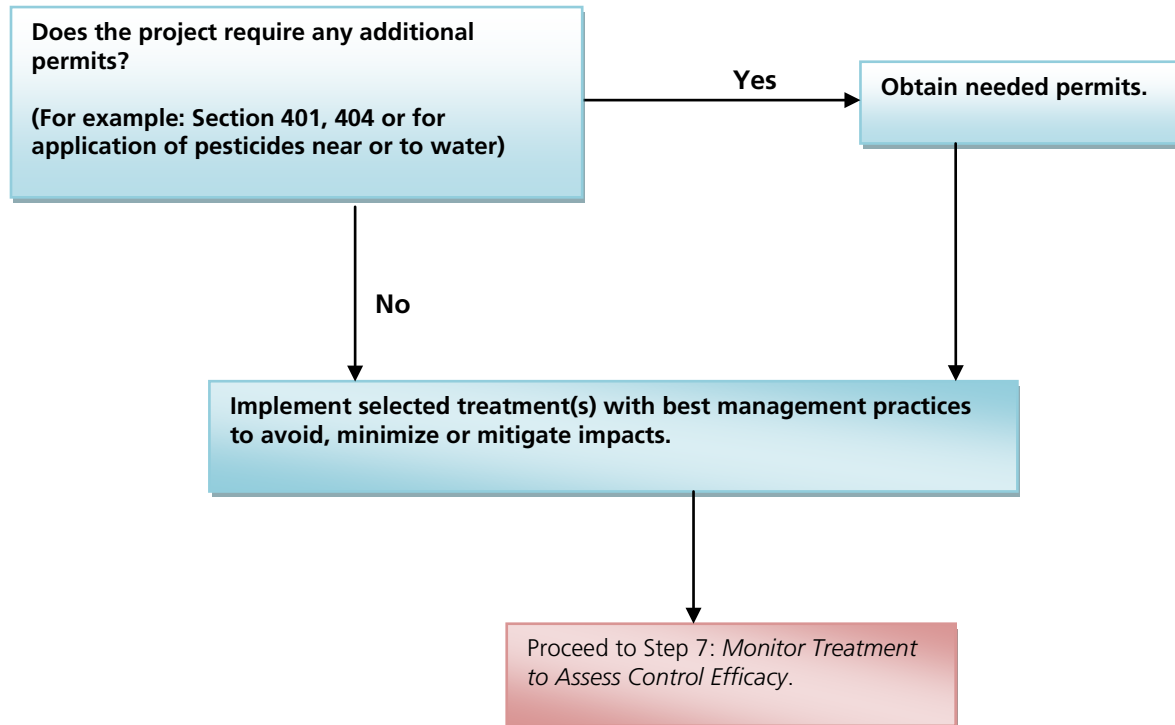
During the appropriate season and as time and staffing permit, parks would continue to implement selected treatment methods to reduce nonnative invasive species (Figure 24). These treatments would be implemented by park staff, volunteers, park partners or cooperators (agencies, organizations and neighbors) and the NRM-EPMT.

If any additional permits are needed to implement the project, these would be obtained.

Because implementation would be followed by monitoring and would include recordkeeping appropriate to the treatment method, implementation actions would change over time to respond to reductions or increases in the nonnative invasive plant population.

Figure 8: Decision-making Tool Step 6

❖ **Step 6: Implement Selected Treatment(s)**



10. Step 7: Monitor Treatments to Assess Control Efficacy

As noted in the Dinosaur National Monument Integrated Weed Management Plan, monitoring is the repeated collection and analysis of information to evaluate progress and effectiveness in meeting resource management objectives (Elzinga *et al.* 1998 in NPS DINO 2005) and is an essential part of an integrated weed program. Based on inventory and ranking criteria, a good monitoring program saves time and money by telling managers which control techniques are working and which ones are not. Monitoring programs can range from simple, such as taking photo points, to more complex plot and transect data collection, but all are ongoing processes that would detect useful trends with each year of repetition. Without monitoring, there is no way of knowing whether control efforts are contributing to fulfillment of desired management objectives (CNAP 2000 in NPS DINO 2005), nor is it possible to use adaptive management.

In addition to the limited monitoring conducted by the NRM-EPMT, the parks would conduct additional monitoring (Figure 25) as needed to determine the effectiveness of applied invasive plant treatments. These monitoring programs would likely differ based on the species and park in question; however, each would be used to answer the following questions:

- Were management objectives (eradication, containment, suppression or other) met?
- What was the plant's response to the treatment method?
- Is the treatment cost-effective?
- Are there variables in the treatment (season, timing of treatment, etc.) that are not being measured or that would impact the treatment?

While monitoring may not show immediate results or the result may be attributed inaccurately, monitoring is important to justify funding proposals or treatment programs to stakeholders; to influence decision-making; and to determine the effectiveness of and to select the best treatment methods. Unfortunately, if monitoring is not measuring the right attributes or if results are mixed, it may not be immediately useful. As a result, parks would consult with technical experts to design or to take advantage of monitoring programs that are quick and easy to do; repeatable (with low observer bias); require little expertise to accomplish; are effective (responding quickly to an increase or decrease in plants); and are adaptable to different environments (individual plants, small and large patches, sparse and narrowly distributed plants, and/or dense and widely distributed plants).

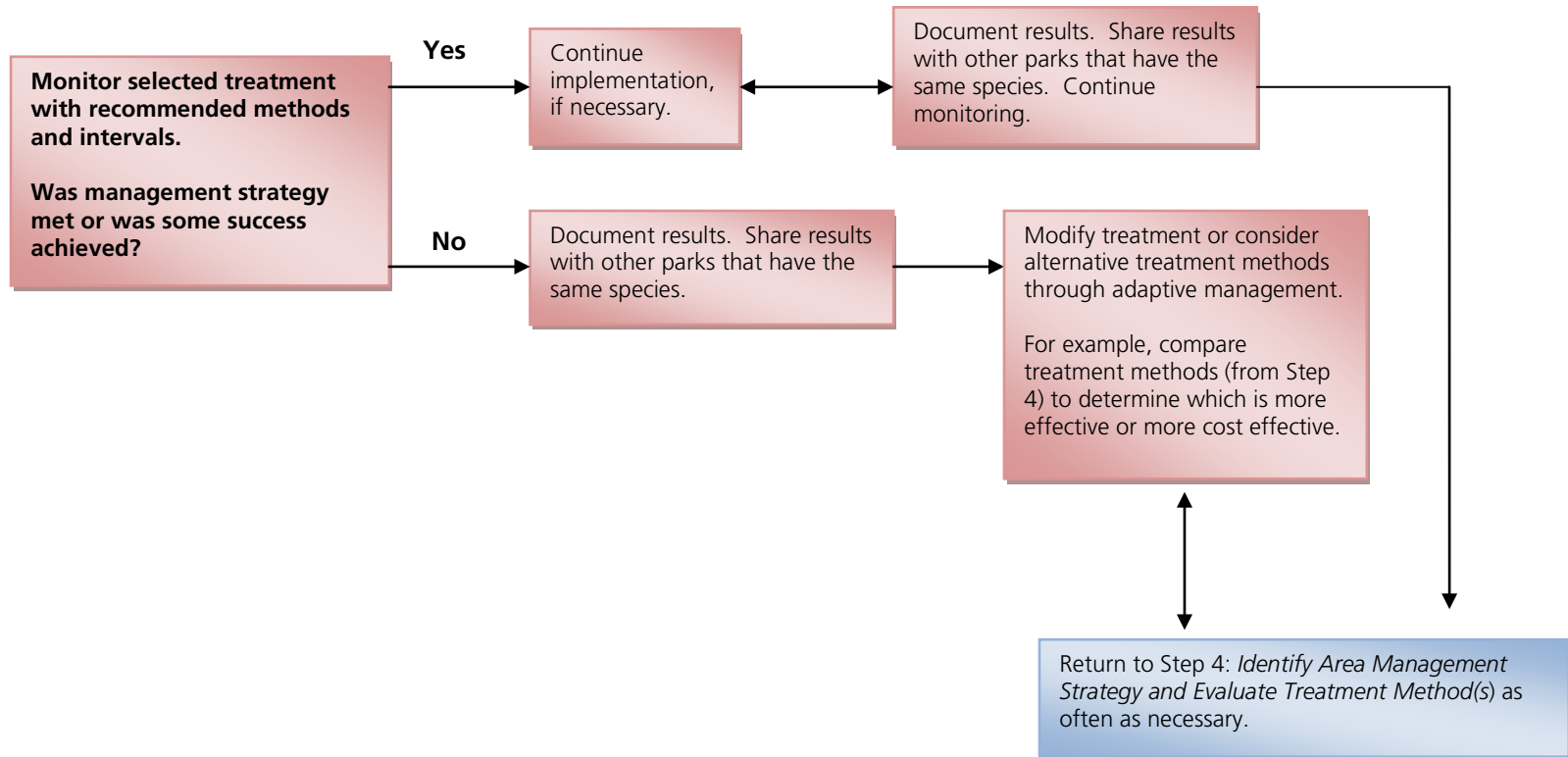
At a minimum, monitoring programs would record the site location, what was there, what plant was treated with what method, what effect it had and the results would be documented so they could be shared with other parks. At a minimum, the effect would be measured by recording density and/or percent cover. For large patches, density and/or percent cover would be sampled and then averaged using three or more sampling frames. When patches are small enough, all plants within the patch would be counted.

More detailed inventory and monitoring programs are being conducted regionally by the three inventorying and monitoring networks (UCBN, UCPN, and ROMN) that assist with park resource programs. These networks either collect or assist parks in collecting data on the location or condition of a specific resource and then monitor how this resource is changing over time.

Aside from monitoring applied treatments, these broader inventory and monitoring programs can assist park managers in assessing current invasive species conditions in a park and in developing management strategies to complement current conditions. NPS inventory and monitoring networks are collecting information on invasive plants. These inventories would benefit parks and managers in developing monitoring programs and assess ongoing needs for invasive species management.

Figure 9: Decision-making Tool Step 7

❖ **Step 7: Monitor Treatment(s) to Assess Control Efficacy**



11. Recordkeeping

Parks would continue to keep required records associated with invasive plant treatment, particularly regarding chemical and biological treatments. Among the records that are kept by the parks include:

- monitoring records,
- inventory records,
- biological control agent release records,
- treatment areas, and
- GIS data.

12. Interpretation (I) / Education (E)

In addition to the programs noted in Table 33 below, the following strategies are among those that could be used by the parks in the selected alternative to increase awareness among park staff, visitors, neighbors and partners to enhance knowledge about nonnative and invasive plants in the field. Interpretive and educational strategies are important for preventing and detecting new occurrences of and the spread of invasive plants. Actual strategies used would depend on park staffing, funding and partnerships.

- Permanent / Seasonal Training (I/E): Several of the parks already conduct seasonal and/or permanent staff training to teach colleagues about nonnative invasive plants.
- Demonstration Areas (I/E),
- Visitor Center Displays (I/E),
- Show Me Tours (I/E),
- Herbarium (I/E),
- Volunteer Programs (I/E),
- Teacher's Workshops / Lesson Plans (E),
- Park Website (Natural Resources Portion) (I/E),
- Posters / Brochures (I/E),
- Weed Samples / Models / Digital Picture Archives (E),
- Citizen Science programs (I/E),
- Cooperative Weed Management Areas (E): Develop a relationship with areas if these exist or initiate if there is interest (Little Bighorn, Fossil Butte, Golden Spike, Bear Paw, Big Hole), and
- Weed Awareness Week (I/E).

These strategies would help parks to:

- Maintain and enhance relationships with nearby tribal and local communities to encourage participation and partnership in management of park sites.
- Expand collaborative efforts among park neighbors, park partners, nearby communities, and the public to share methods of preventing and controlling the spread of invasive plants.
- Ensure that interested parties are well informed about the timing and locations of upcoming invasive plant control treatments.
- Educate and inform park visitors on invasive plant issues.
- Provide stewardship opportunities for the public and park partners.
- Collaborate with park staff, neighbors, and public entities to increase efficacy of the content and delivery of communications messages.
- Engage community members in service projects that benefit the park and the ecosystem.
- Foster an appreciation for conservation and habitat enhancement practices.
- Instill a sense of place by recognizing the unique characteristics of the parks and their larger ecosystems.

Table 5: Northern Rocky Mountains Current / Future Park Interpretive / Education Programs

Park Unit	Current Programs	Future Programs
City of Rocks	Permanent / Seasonal Training	Staff will visit local high school classrooms twice a year and host a weed day at the park once each summer.
Craters of the Moon	Permanent / Seasonal Training Interpretive Signs Herbarium Volunteer Programs Posters / Brochures CWMA's <i>Weed Awareness Week</i> Programming	Park Website Information Teacher's Workshops
Fossil Butte	Seasonal Training Use of seasonals and volunteers to pull weeds	CWMA's
Golden Spike	Permanent / Seasonal Training Volunteer Programs	CWMA's
Grant-Kohrs	Permanent / Seasonal Training Demonstration Areas Herbarium Volunteer Programs Teacher's Workshops Posters / Brochures CWMA's	Show Me Tours Park Website Natural Resources Portion <i>Weed Awareness Week</i> Programming
Hagerman Fossil Beds	None	Permanent/Seasonal Training
Little Bighorn	Seasonal Training Interpretive Signs Herbarium Posters / Brochures <i>Weed Awareness Week</i> Programming	CWMA's Park Website Information
Minidoka	None	Permanent/Seasonal Training
Nez Perce (Bear Paw)	Boy Scout programs	CWMA's
Big Hole	None	CWMA's

Future visitor education programs could also include strategies suggested by the EPMT website as part of an interpretation and education program in the selected alternative. Among those strategies are the following that visitors to the parks could be encouraged to do, depending on their activity or the park:

- Wash vehicles, especially if they have been on unpaved roads or off road. Plant materials can get stuck in tires and undercarriages. This includes cars, bikes, and OHV's.
- Thoroughly rinse gear and pressure wash their boats, skis, and other recreation vehicles on site using hot water if available. Plants and aquatic organisms can get into any place water can get into.
- Clean shoes or boots by knocking dirt and plant materials out of the treads.
- Consider carrying a boot brush in their car or pack. Rinse the soles of shoes if possible.
- Wear short gaiters to cover socks and pants bottoms. This prevents sticky seeds, such as cheat grass, from getting stuck in socks.
- Shake out tents, camp chairs, sleeping bags, and other camp accessories before leaving the campsite to remove any plant or seed materials.
- Brush off or wash pets if they have been out romping in the parks. Sticky seeds can hitchhike on their fur.
- Use local firewood. Do not bring in firewood from outside the immediate area. (Check park websites for specific instructions.)
- Use weed seed free feed when using pack animals, such as horses, mules, and cattle, 3-5 days prior to and during, your visit. Contact the parks to obtain a list of local vendors of weed seed free feed (www.nps.nature.gov/biology/invasiveplants/prevention.cfm accessed 2/16/10).

Which parks used these strategies would depend on available staffing and funding and park priorities for invasive plant management programs.

13. Partnerships

Some of the parks have developed partnerships with members of the following groups to prevent invasive plant spread; share information and knowledge about weeds on NPS and adjacent lands; acquire help to treat invasive plants; educate each other and visitors about weeds; participate in cooperative conservation efforts; and to obtain money and labor for treating weed infestations. In Alternative 2, existing partnerships would continue and others would be developed (Table 34). In addition to meeting annually in conjunction with the NRM-EPMT to discuss proposed plans of work for the coming season and annual summaries of work accomplished, the parks would also set aside time to discuss lessons learned from implementation of the year's programs.

Among the additional kinds of partnerships that could be developed in the selected alternative would include partnerships with:

- Other park employees: Other park employees have been effective at finding new infestations of invasive plants at Fossil Butte. Those who work in interpretation or visitor protection are also especially useful in identifying these for visitors and volunteers.
- Other Exotic Plant Management Teams;
- Each other (IPMP Partner Parks);
- Cooperative Weed Management Areas;
- State and County Highway Departments;
- County Agricultural Departments;
- Other County Departments;
- Railroads (Craters of the Moon, Fossil Butte, and Grant-Kohrs);
- Adjacent landowners (private, other federal, and state);
- Stocktrailing Organizations (Fossil Butte and Little Bighorn);
- Native American Tribes (Nez Perce and Little Bighorn)
- Local watershed groups;
- Universities / other experts (get experts to study park problems, develop a research prospectus);
- Native Plant Societies;
- Idaho Weed Coordinating Committee (City of Rocks, Craters of the Moon, Hagerman Fossil Beds, and Minidoka);
- Soil Extension Services;
- Inventory and Monitoring Networks;
- Work Crews and Volunteers (Prison Crews, Youth Conservation Corps (YCC), Utah Conservation Corps, Americorps, Student Conservation Association (SCA), park volunteers, and volunteer groups); and
- Contractors (all parks).

Table 6: Northern Rocky Mountains Parks Future Partnerships

Park Unit	Future Potential or Desirable Partnerships
City of Rocks	Cassia County Upper Columbia Basin Network (UCBN) (NPS) USFS BLM Park Neighbors
Craters of the Moon	Railroad along southern boundary
Fossil Butte	Lincoln County Weed and Pest Union Pacific Railroad
Golden Spike	Box Elder County Union Pacific Railroad
Grant-Kohrs	Superfund (EPA and Montana Department of Environmental Quality) Powell County Northern Santa Fe Railroad Local Watershed Groups

Park Unit	Future Potential or Desirable Partnerships
Hagerman Fossil Beds	None
Little Bighorn	CWMA (BIA, Crow Tribe, and Custer Battlefield Preservation Committee) Montana Department of Transportation Intern Program (tribal colleges) Volunteer Program
Minidoka	Northside Tri-Counties CWMA BLM Bureau of Reclamation North Side Canal Company Hillsdale Highway District
Nez Perce (Bear Paw)	UCBN (NPS) BLM Universities Youth Conservation Corps (YCC) Highway Departments County Weed Department Park Neighbors
Big Hole	UCBN (NPS) USFS Universities YCC Highway Departments County Weed Department Park Neighbors

These partnerships would not only enhance the park's relationships with partners and increase the effectiveness of the nonnative invasive plant management program, but would also benefit resource preservation by increasing the park's ability to communicate its needs to partners.

14. Adaptive Management

Because new invasive plants and new treatments for these and existing invasive plants would continue to affect the partner parks, a program of *adaptive management* would be employed by the partner parks to allow for treatment of these new invasive species or for use of new methods to treat existing nonnative invasive plants.

Adaptive management is a means of describing circumstances and conditions under which actions not individually described would be applied. For this EA, adaptive management primarily applies to the use of new or different herbicides, new or different means of biological control, and other treatment methods on invasive plants and to the treatment of new invasive species not currently occurring in the parks.

Adaptive management in the selected alternative would include using existing management strategies, treatments, and tools and/or others that have been determined to be similar in impact and effectiveness. The parks could use adaptive management to develop a set of criteria to analyze existing treatments along with a proposed level or type of treatment and which could be used as long as that proposed treatment has the same or fewer impacts than other currently approved treatments and methods. These criteria include the circumstances under which a new treatment would be selected. For example, whether application of a certain level of herbicide in a particular area would be applied, would depend on the difference between whether effects from treatment would be minor or major (for instance application of an herbicide appropriate for uplands in a wetland) and therefore whether it would comply with the analysis in this plan.

In adaptive management, the circumstances under which treatment would occur are described. For this EA, these circumstances are set up by description of the alternative and the mitigation measures that would be employed. (See *Measures to Avoid, Minimize or Mitigate Impacts* in Chapter V: *Environmental Consequences* in individual impact sections and summarized in Appendix K: *Impact Avoidance, Minimization and Mitigation Measures*). Application of new treatment methods, including new herbicides

or biocontrols would not have greater impacts than those described in Chapter V. In addition, the same mitigation measures would be applied.

Impacts to wilderness would also continue to need to be assessed individually, per control effort. Appendix N is a *Minimum Requirement Analysis* for dyers woad treatment at Craters of the Moon. As new species or new approaches (helicopter support vs. pack stock, etc.) are considered in wilderness or wilderness study areas, a minimum requirement analysis would be completed for each.

Under adaptive management, parks that currently do not have approved fire management plans (allowing the treatment of invasive plants) could also use prescribed fire treatment if these parks later revised their fire management plans to allow for the treatment of nonnative invasive plants. A revised Fire Management Plan allowing for the use of prescribed fire to treat nonnative invasive plants would describe impacts related to that use.

15. Measures to Avoid, Minimize or Mitigate Impacts

The NPS would avoid, minimize, and mitigate adverse impacts on park resources to the greatest extent possible. As more parks implemented the following measures and as needed, additional strategies would also be developed to address new incidences of species and new or changed circumstances of disturbance.

The NPS would apply the impact avoidance, minimization and mitigation measures specified below and in the environmental consequences section for each applicable resource as applicable to protect cultural and natural resources and the quality of the visitor experience. (These are summarized in Appendix K.)

a) All Treatment Methods

- Only nonnative plants that meet an NPS action threshold would be managed (treated) under this plan.
- Use of equipment and materials would comply with applicable safety plans and guidelines.
- Parks would work with neighbors, partners and others to implement nonnative plant management.
- Monitoring would be used to assess the effectiveness of, including modifications to, treatment methods.
- Treatment priorities would be determined regularly or as needed, pending changes in species composition, affected areas, changes in treatment methods, and other factors.
- Treatment methods that minimize ground disturbance would be used where possible.
- Treatment at sensitive natural or cultural resources sites (especially where rare, threatened or endangered species or archeological resources were present) or in visitor use areas would employ specific strategies to avoid or minimize impacts to the greatest extent practicable.
- Appropriate personal protective equipment (PPE) would be worn during treatments, when mixing or handling chemicals and when cleaning equipment to avoid or minimize injury to staff and volunteers.
- Construction and treatment vehicles would be washed prior to moving from infested areas to uninfested areas.
- Tribes would be informed of proposed treatment plans and could engage in consultation. Potential adverse impacts to tribal interests would be avoided based on consultation and mitigation measures.
- Parks would identify traditional use plants and traditional offering sites, if any, in consultation with tribes. If these were present, staff involved in nonnative plant treatment would be trained in identification and etiquette and they would be avoided in plant collection and/or treatment areas.
- During the planning phase for invasive plant control activities, managers would coordinate with affiliated tribes to ensure there would be no adverse impact to traditional cultural properties.

b) Manual / Mechanical Treatments

- Plant specific means of removal would be used where possible.
- Treatment methods would be employed during the appropriate stage of the plant's lifecycle (phenology) to increase effectiveness.
- Hand-pulling would be used at times of year when the root of the plant is most likely to be pulled intact (not broken at the crown, allowing it to resprout) from the soil.
- Visual impacts to cultural landscapes and natural areas (such as mowed rows and vehicle tracks) would be avoided or minimized.

c) Cultural Treatments

- Bare and disturbed areas would be revegetated as soon as possible.
- Reseeding would be with hand-collected or propagated seed from the park and/or or certified weed free seed.
- The extent of vegetation and ground disturbance associated with construction would be minimized and routine monitoring of these sites would occur following completion of construction (every 1-2 weeks in the first year, and at appropriate intervals in subsequent years depending on the weed and its seed longevity).
- Topsoil would be salvaged and reused where appropriate in construction projects.
- Where fill or topsoil, road gravel, rip-rap, mulch, and any other material used in construction that could contain weed seeds would be imported, these would be from uncontaminated sources or certified weed free.
- Construction limits and clearing areas would be minimized where possible.
- Nonnative plant infestations would be identified and avoided or controlled prior to construction.
- Routine monitoring of and for weed infestations in vulnerable areas (roadsides, trailheads, high use areas or other locations identified as having a high probability of occurrence) would occur.
- Water systems in developed landscapes (irrigated turf) would be maintained to prevent establishment of broadleaf species.

d) Chemical (Pesticide) Treatments

Conformance with Law and Policy

- All federal, state and local regulations regarding pesticide use would be followed at all times.
- Herbicide use would be approved annually in consultation with NPS Regional and/or Washington Office IPM specialists.
- Herbicides would be applied by a certified pesticide applicator (where required by state law) or under the supervision of a certified pesticide applicator (other areas).
- Application of restricted use herbicides would be minimized.
- As required by law, herbicides would be applied in conformance with their label instructions (including dilution – if any, and per directions for the target plants as specified). The active ingredients and formulations approved for use would only be applied for uses, and at application rates, specified on the label directions.
- As required by NPS policy, a copy of the label and MSDS would be kept onsite, whenever an herbicide is used.
- Appropriate neighbor and right-to-know information about pesticide use would be posted and/or disseminated.
- Treatments would follow the *Herbicide Use and Storage Protocol* plans.
- Purchase of herbicides would continue to be limited to the amount that could be used in one year.
- Safety protocols for storing, mixing, transporting, handling spills and disposing of unused pesticides and containers would be followed at all times. Spill response measures would also be followed.

- The “Environmental Hazards” section on the herbicide label would be reviewed, understood and followed. This section warns of known pesticide risks to the environment and provides practical ways to avoid harm to organisms or to the environment.
- Adjacent landowner(s) would be notified prior to treatment.

Limited Effects

- Equipment would be maintained and calibrated prior to each application and droplet size would be minimized.
- As appropriate to protect sensitive resources or areas not currently identified, additional areas could be designated for no or specific pesticide treatments.
- Herbicide treatments would be as target specific as possible, with direct application to the target species, rather than broadcast spraying where possible.
- For questionable effects on park resources that may be posed by pesticide use, EPA Risk Assessments and/or experts would be consulted for questions that cannot be answered by reading the label or MSDS.
- Pesticides would be used under the same conditions identified on the label and/or in the Risk Assessments.
- Pesticide use would take into consideration meteorological factors, including wind speed, wind direction, inversions, humidity, and precipitation, and would only be applied when conditions at the site allow for complete, even coverage with no drift onto non-target areas.
- Pesticide use would take into consideration the presence of nearby sensitive resources.
- Pesticides would be applied at the appropriate time based on the pesticide’s mode of action and plant phenology.
- Pesticides with low volatility would be used in areas where there is concern for undesirable movement into areas with sensitive resources.
- Pesticides with longer persistence would be applied at the lower end of the range (if any) specified on the label and/or with less frequency to limit the potential for accumulation in soils.
- As needed to protect the efficacy of the pesticide, water would be buffered, depending on hardness, pH and other factors.
- Measures would be taken to avoid accidental direct spray and spill conditions to reduce the largest potential impacts.
- The recommended application rate, rather than the maximum application rate would be used (if applicable), to reduce potential risk to most species for most herbicides.
- Application areas would be minimized wherever possible.
- No spraying of any herbicide would occur when wind velocity exceeds 10 mph. No aerial application of herbicides would be applied when wind velocities exceed five mph.
- Dyes may be used to obtain uniform coverage. Dyes would help prevent under or over treatment/application and help with detection of drift. It would also reduce the risk of treating non-target species.
- A combination of herbicides may be used when it is determined that this is the most effective way to control multiple weed species, or when a mix of herbicides is more effective. All herbicide combinations would conform to label guidelines for mixing.

Use near water

- Pesticide use would be minimized near water resources (ponds, streams, wetlands, etc.) and would only be used near potable water sources in consultation with Public Health guidelines.
- Application distances near water would adhere to the restrictions printed on the pesticide label.
- Where pesticides were used near water sources, these would be specifically approved for use near water and would have little potential for leaching. For example, the water-formulation of glyphosate, strongly adheres to soil particles and is readily and completely degraded in soil even at low temperatures and does not accumulate in aquatic life (USFS 2004 in NPS 2005:2-53).

- Pesticides applied to areas where surface or groundwater resources are present would be those with the lowest leaching potential.
- Application of pesticides during periods of seasonal precipitation or when irrigation is likely to wash residual pesticides into waterways would be limited.
- Application of pesticides within 50 feet of surface water would be done by hand or with vehicle-mounted ground equipment.
- Where aerial application is used, flights would be designed and scheduled for wind conditions that would minimize drift and would not impact surface waters.
- The Relative Aquifer Variability Evaluation (RAVE) system (Appendix O) would be used as appropriate to evaluate potential risks to groundwater from pesticide use.
- Where appropriate, buffer zones surrounding surface water resources would be established.

Use near visitors

- Pesticides would be applied during times of no visitor use, with visitors kept off of treated areas until the pesticide has dried.
- Pesticide use would take into consideration the presence of nearby visitor use areas.

e) Biological Control Treatments

- Only APHIS and NPS approved biological control agents would be used.
- To increase effectiveness of control, agent releases (particularly for insects) would be used when both the plant and the insect are at the right life cycle stage.
- Insects would only be released when weather and other environmental factors were optimum.
- Where grazing animals are used to target nonnative species, non-target plants would be at an undesirable lifecycle stage for the animals.
- When grazing plants with viable seeds, grazing animals would be given sufficient time in an approved holding pen to pass seeds through digestive system before being moved to uncontaminated areas.
- When considering the use of grazing animals as an effective biological control measure, several factors be taken into consideration including: the target weed species, size of the infestation, other plant species present, palatability of all plant species present, selectivity of plant species by the grazing animal being considered for use as a biological control agent, and the grazing animal's potential to spread weed seed.

f) Prescribed Fire or Flaming Treatments

- Use of prescribed fire or flaming treatments would be in accordance with an approved park Fire Management Plan.
- Nonnative plant treatment objectives would be defined in each prescribed fire plan and fire effects would be monitored to determine if objectives were met.
- Prescribed fire would not be used where species or plant communities would likely respond with an increase in weed species or where sensitive resources were present.
- Prescribed burns would occur when the burn would most likely reduce the population of the target weed.
- Fire would not be used unless the park had resources available to reseed, or use herbicides followed by reseeding if the fire had unintended results (e.g. native plant growth was minimal following fire, or predominantly nonnative species increased following fire).
- Disturbance in areas of known infestations would be limited (NPS FOBU 2005:66).
- When possible, prescribed burns for invasive species management would be limited to monotypic stands of target species that respond negatively to fire or mixed communities where desirable vegetation benefits occurred and target species are negatively impacted.
- Streams, rivers, and ponds would be avoided when applying fire suppressants other than water.

- Prescribed fire would only be used at sites where listed plants or animals are known to benefit from burning. Otherwise, fire would be excluded, either from certain areas or during certain times to prevent damage to listed plant or wildlife species habitat values.

16. Consistency Analysis for Site-Specific Treatment Plans

Each park would have the option to develop a more detailed, park-specific implementation plan for nonnative invasive plant management to expand on or implement treatments considered within this plan. These park-specific plans would require a consistency determination (Step 7) to ensure that their actions and impacts were among those considered in this plan. Additional environmental analysis would be required for actions and impacts not considered consistent with this plan.

Among the parks that have existing nonnative plant management plans are Craters of the Moon, City of Rocks and Hagerman Fossil Beds. These plans are in various stages and address narrow to broad issues but are generally consistent with this plan.

Summary of Other Alternatives Considered

One other alternative was considered in the Northern Rocky Mountains Invasive Plant Management Plan Environmental Assessment: Alternative 1: No Action (Continue Current Management). In this alternative, depending on the park, resource managers would have continued to implement some or all of the components of an invasive plant management program. Ongoing activities, using existing methods, would also have continued.

Preliminary Alternatives Considered But Dismissed

Under the National Environmental Policy Act (NEPA) and NPS policy, alternatives may be eliminated from detailed study based on the following reasons [40 CFR 1502.14 (a)]:

- Technical or economic infeasibility;
- Inability to meet project objectives or resolve need for the project;
- Duplication of other less environmentally damaging alternatives;
- Conflicts with an up-to-date valid plan, statement of purpose and significance, or other policy; and therefore, would require a major change in that plan or policy to implement; and
- Environmental impacts too great.

The following additional alternatives were considered during the planning phase but were dismissed because they met one of the CEQ criteria for dismissal (see Chapter III in the EA).

- Cease Treatment of Nonnative Plants
- Treat Only High Priority Species
- Treat All Nonnative Plants
- Consider All Treatments except Chemical Control
- Consider All Treatments except Biological Controls

Environmentally Preferable Alternative

As documented in the EA, the environmentally preferable alternative was determined by applying the criteria suggested in the National Environmental Policy Act (NEPA) of 1969, which is guided by the Council on Environmental Quality (CEQ). The CEQ (46 FR 18026 – 46 FR 18038) provides direction that “the environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101 (b)”, which considers:

1. *Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;*
2. *Assuring for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings;*

3. *Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;*
4. *Preserving important historic, cultural, and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;*
5. *Achieving balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities, and*
6. *Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depleted resources.*

The environmentally preferable alternative is “the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 – 46 FR 18038). The selected alternative, *Alternative 2: Implement Comprehensive Invasive Plant Management Plan* was deemed to be the environmentally preferable alternative, based on the following:

- *Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations*
Alternative 2 would best meet this criterion by decreasing the prevalence of nonnative invasive species in the parks using a systematic process to identify and manage nonnative invasive species.

- *Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings*

Alternatives 1 and 2 would both meet this criterion, however, Alternative 2 would best meet it because it would have a higher potential to allow for the restoration of cultural landscapes and a greater likelihood that the method with the fewest effects would be selected to treat nonnative invasive plants.

- *Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences*

Alternatives 1 and 2 would both result in some health and safety risks but these would be managed by adhering to health and safety plans that would therefore minimize undesirable or unintended consequences or risks.

- *Preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice*

Alternatives 1 and 2 would both preserve historic, cultural and natural aspects of the parks and would allow for flexibility in treatment methods. Because Alternative 2 would allow the most flexibility, it would best meet this criterion.

- *Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities*

Alternatives 1 and 2 would both meet this criterion because both would continue to focus on methods that best improve the condition of resources. The use of a systematic decision-making process in Alternative 2, however, would allow it to best meet this criterion by selection of the best treatment method(s) with the fewest environmental effects.

- *Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources*

There is limited applicability of this criterion to nonnative invasive plant management because it does not involve construction. Nonetheless, reuse of mixing containers, where permitted by law, and use of application methods that do not involve new purchases of equipment would occur under both alternatives and would allow both to meet this criterion.

Why the Selected Alternative Will Not Have a Significant Effect

The NPS has determined that the selected alternative can be implemented with no significant adverse effects on air quality, geological / paleontological resources, soils, water quality, water quantity, wetlands, vegetation, wildlife, special status species, prehistoric and historic archeology, historic structures and cultural landscapes, visitor experience, soundscape, wilderness, grazing and livestock trailing, human health and safety and hazardous materials, and park operations.

As defined in 40 CFR §1508.27, significance is determined by examining the bulleted criteria below.

- *The selected alternative will not have a significant effect on the human environment.*

The selected alternative has a wide range of beneficial and adverse effects (see *Measures to Minimize Environmental Harm* table below). These effects are primarily negligible to minor, with some potential (mostly localized) moderate adverse effects on air quality, soils, water quality, wetlands, wildlife, visitor experience, wilderness (one park) and park operations which would be avoided, minimized or mitigated by measures included before or during implementation. Although implementation of the preferred (selected) alternative will result in some adverse impacts, the overall benefit of the project outweighs these negative impacts.

- *The degree to which the proposed action affects public health or safety*

The selected alternative will not adversely affect public health or safety. Impacts on safety would primarily be beneficial from new mitigation measures that would allow for more systematic and documented implementation of nonnative invasive plant management treatments. Based on use of required and identified safety measures, employee and visitor safety impacts would be negligible to minor.

- *Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas*

The selected alternative will not impact the unique characteristics of the area, including prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas. There would be no impacts on prime farmlands (found only at Grant-Kohrs). There are no wild and scenic rivers or ecologically critical areas. There would be localized short-term negligible to moderate adverse effects from disturbance of soil to remove plants and from accessing treatment areas in wetlands, as well as from manual/mechanical treatments, use of livestock for biological control, use of herbicides, and fire (where approved for use in some parks). Overall, there would be fewer moderate adverse effects because there would be more systematic analysis of potential effects to identify treatment options.

- *The degree to which the effects on the quality of the human environment are likely to be highly controversial*

There were no controversial impacts or aspects of the proposed project that surfaced during the environmental analysis process. Although some controversy was anticipated due to the subject of the EA and the likely ongoing use of herbicides, no controversy ensued during the public scoping or analysis process. It is possible that this can be attributed to the recent emphasis by counties throughout the U.S. on implementing laws related to treating noxious weeds and/or to the ongoing use of an Integrated Pest Management approach to selecting treatments with the least possible effects.

- *The degree to which the possible effects on the quality on the human environment are highly uncertain or involve unique or unknown risks*

The effects on the human environment are known. The environmental process has not identified any effects that may involve highly unique or unknown risks.

- *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration*

The selected alternative neither establishes an NPS precedent for future actions with significant effects, nor represents a decision in principle about a future consideration.

- *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

Cumulative effects were analyzed in the environmental assessment and no significant cumulative impacts were identified. No significant cumulative effects and no highly uncertain, unique or unknown risks were identified during preparation of the EA or during the public review period.

- *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*

Depending on the park unit, the selected alternative will have no effect or no adverse effect on historic properties or contributing features to historic properties. The Utah SHPO concurred with a determination of *no adverse effect* for Golden Spike on March 9, 2011. The Montana SHPO concurred with a determination of *no historic properties affected* for all treatment methods except fire for Big Hole and Nez Perce (Bear Paw) on March 14, 2011 but requested additional consultation for a pending *no adverse effect* determination as prescribed fire plans are developed. The Montana SHPO also concurred with a finding of *no adverse effect* for Grant Kohrs on March 22, 2011. There was initially no response from the Crow Tribal Historic Preservation Officer within 30 days; however an informal email later noted concurrence with a determination of *no adverse effect* for Little Bighorn Historic Districts 1 and 2 on March 16, 2011. The Idaho SHPO concurred with a determination of *no historic properties affected* for Craters of the Moon, City of Rocks, Hagerman Fossil Beds, and Minidoka on February 22, 2011. The Wyoming SHPO concurred with a determination of *no historic properties affected* for Fossil Butte on April 14, 2011.

- *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.*

Depending on the park unit, the proposed project would have no effect or may affect, but would be not likely to adversely affect species listed or proposed for listing. At the following parks the NPS determined that the selected alternative will have *no effect* on any federally listed threatened or endangered species or critical habitat and will not result in harm to other sensitive species (Big Hole, City of Rocks, Fossil Butte, Nez Perce – Bear Paw Battlefield, Minidoka, Little Bighorn Battlefield). No additional consultation with the USFWS is necessary.

In addition, the NPS determined that the selected alternative:

- o would have *no effect* on gray wolf, grizzly bear or bald eagle and *may affect, not likely to adversely affect* species of concern Passey onion at Golden Spike.
- o would have *no effect* on bald eagle, peregrine falcon and Kootenai River white sturgeon or other Snake River snails and *may affect, not likely to adversely affect* the following species: physa snail, Banbury Springs lanx and the Bliss Rapids snail at Hagerman Fossil Beds.
- o would have *no effect* on gray wolf, bald eagle or peregrine falcon and *may affect, not likely to adversely affect* proposed greater sage-grouse or sensitive pygmy rabbit or pika at Craters of the Moon.
- o would have *no effect* on gray wolf, grizzly bear, bald eagle, whooping crane and black-footed ferret and *may affect, not likely to adversely affect* sensitive pygmy rabbits or proposed greater sage-grouse at Fossil Butte.
- o would have *no effect* on gray wolf, grizzly bear or bald eagle and *may affect, not likely to adversely affect* bull trout at Grant-Kohrs Ranch.
- o would have *no effect* on gray wolf, grizzly bear, Canada lynx, or Ute ladies tresses and *may affect, not likely to adversely affect* candidate Montana arctic grayling or sensitive Lemhi penstemon at Big Hole.

In addition proposed actions in the plan would not harm other sensitive species. Concurrence with the may affect, not likely to adversely affect determinations on listed species were received on March 17, 2011 for Golden Spike; on April 6, 2011 (though not required) for Craters of the Moon, City of Rocks, Hagerman Fossil Beds, and Minidoka; and on May 25, 2011 for Grant-Kohrs Ranch.

- *Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment*

The selected alternative will not violate any federal, state or local environmental protection laws.

Non-Impairment of Park Resources

Pursuant to the 1916 Organic Act, the National Park Service has a management responsibility “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of future generations.” Therefore, the National Park Service cannot take an action that would “impair” park resources or values. Based on the analysis provided in the *Northern Rocky Mountains Invasive Plant Management Plan Environmental Assessment*, the National Park Service concludes that implementation of the selected alternative (Alternative 2) would have no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purpose and significance of the 10 parks, including City of Rocks National Reserve, Craters of the Moon National Monument and Preserve, Hagerman Fossil Beds National Monument, Minidoka National Historic Site, Big Hole National Battlefield, Grant-Kohrs Ranch National Historic Site, Little Bighorn Battlefield National Monument, Nez Perce National Historical Park (Bear Paw Battlefield), Golden Spike National Historic Site, and Fossil Butte National Monument; (2) key to the natural or cultural integrity of the 10 parks or to opportunities for enjoyment of the parks; or (3) identified as a goal in the General Management Plan or other relevant National Park Service planning documents. Consequently, implementation of the proposed action will not violate the National Park Service Organic Act. (The impairment analysis included in the EA is included as an attachment to this FONSI.)

Measures to Minimize Environmental Harm

The following summary identifies the impacts and mitigation required for satisfactory implementation of the selected alternative. This summary assigns responsibility for ensuring the measures which minimize, eliminate or avoid these impacts are implemented. All mitigation measures described in this section will be implemented. Further mitigation measures may be developed in response to ongoing formal and informal consultation on this project and may also augment the measures described below. These measures are designed to ensure that impacts to the 10 parks natural and cultural resources, visitor use/experience and park operations are avoided, minimized or mitigated.

Resource	Impact	Measures to Avoid, Minimize or Mitigate Impacts	Responsibility
Air Quality	Short-term negligible to moderate impacts from particulate, exhaust, and evaporative emissions related to use of mechanical equipment, and transport during treatments. Long-term minor to moderate adverse impacts from expanded use of some treatment methods such as aerial spraying or fire and long-term beneficial effects from better and more systematic implementation of mitigation measures.	- Because pesticide use requires approval from Regional and/or National IPM Coordinators, pesticides used would continue to be of low toxicity. - Chain saws would be properly maintained, and would use low-smoke non-petroleum oil. For parks where prescribed fire would be used, the following measures apply: - There would be limits on the number of acres and amount of fuel burned as noted in prescribed fire plans. - The timing and method of ignition would be selected to limit effects on air quality. - Burning during optimal fuel moisture conditions would limit effects on air quality. - Use of prescribed fire would include increased communication, cooperation and coordination with adjacent agencies and landowners to limit the number of fires occurring simultaneously. - Prescribed fire plans would be developed for each prescribed fire. Appropriate signing would be posted if smoke would affect roadways or designated visitor areas (such as visitor centers or campgrounds) and the appropriate authorities would be contacted regarding other measures to limit smoke or decreased visibility.	Natural or Integrated Resources Manager
Geology / Soils	Negligible to minor adverse impacts to geology from removal of plants. Localized, negligible to moderate adverse effects from compaction related to motor vehicle or foot access to treatment sites, surface disturbing activities such as manual / mechanical treatment (including hand-pulling or digging, tilling), cultural treatments (planting, or using a drill seeder, or other heavy equipment for reseeding large areas for restoration), use of herbicides, use of herbivores as biological control agents, and/or from use of prescribed fire. Long-term beneficial impacts to soils, including from removing nonnative invasive plants and	- Soils would be protected from accelerated or unnatural erosion from and after ground-disturbing activities, especially associated with prescribed fire and removal of nonnative invasive plant cover. For example, post-fire stabilization efforts would protect erosion-prone soils through natural and assisted revegetation. - Equipment and vehicles would use existing roads and trails to the maximum extent possible. - OHVs would be transported by trailer where possible and would avoid unnecessary cross-country travel. Where cross-country travel was permitted, existing pathways and routes that would cause little or no damage would be selected. - Staff and equipment would avoid areas having sensitive soils, soils prone to erosion or compaction, or saturated soils during treatment of invasive plants.	Geologist, Natural or Integrated Resources Manager

Resource	Impact	Measures to Avoid, Minimize or Mitigate Impacts	Responsibility
	restoring native plant cover, from using alternate methods to treat invasive plants, such as a wider variety of insect biological control, and from more effective and efficient, thereby meaning fewer return visits for retreatment.		
Paleontological Resources	Localized short- and long-term negligible to minor adverse effects (at the parks with these resources). Where unknown fossil resources were encountered there could be adverse effects from treatments causing surface disturbance. Negligible to minor adverse effects could also occur from removal of weed / soil cover protecting these resources, while long-term beneficial effects would occur from reducing impacts associated with root growth. No effect on parks without paleontological resources: City of Rocks, Golden Spike, Grant-Kohrs, and Minidoka.	• Areas with potential paleontological resources (Fossil Butte and Hagerman Fossil Beds) would be surveyed prior to nonnative plant treatments to avoid impacts to potentially sensitive resources. • Surface disturbing activities would be avoided in sensitive areas, such as known paleontological sites unless consultation with a paleontologist indicated that proposed treatment would have no adverse effects. • Application of herbicides would occur only after investigation determined that these would have no effects on paleontological resources. • Foot and vehicle traffic would be limited to established roads, trails and vegetated areas where possible to protect vulnerable paleontological resources. • Consultation with a paleontologist during planning phase of invasive plant management projects at Hagerman Fossil Beds and Fossil Butte would help to determine sensitive areas and acceptable levels of disturbance. Continued below	Paleontologist, Natural or Integrated Resources Manager
Paleontological Resources Mitigation Measures Continued • When practical and possible, areas rich in paleontological resources would be temporarily fenced or avoided during grazing. • Equipment used for revegetation and restoration projects would be evaluated and selected to be the most effective to accomplish restoration goals while causing the least disturbance to paleontological resources. For parks where prescribed fire would be used, the following measures apply: • Prior to authorizing surface disturbing activities, areas would be surveyed for unique, rare, or special geologic resources, including fossils. • Severity of fire-related effects would be controlled where possible by controlling the fireline intensity in resource-rich areas at the time of the burn and inventories of previously unsurveyed areas would be conducted before and after the burn. • Sites in or near the proposed prescribed burn footprint would be protected when practical and without causing damage by various methods, including 'blacklining', treating with fire retardant, and or/ establishing sprinkler systems prior to fire ignition. • Fire crews would be briefed about working in and protecting paleontological sites. • Ground disturbance would be avoided during preparation and fire mitigation in paleontological resource areas. • Prescribed fires, where parks have approved fire management plans for the treatment of invasive plants would be planned and performed in areas suspected or known to contain resources of paleontological value only after consultation with a paleontologist (Fossil Butte and Hagerman Fossil Beds).			
Water Resources: Hydrology and Water Quantity	Short-term negligible effects on hydrology from changing the way water runs over an area during rain or snowmelt, changing infiltration rates or increasing ponding or channelization as a result on nonnative plant removal. Localized negligible to minor adverse effects on water quantity from use of water to support some treatment actions.	• Equipment used would be inspected daily for fuel, oil, hydraulic fluid and other potential leaks. • Hazardous spill clean-up materials would be on site during operations. • No herbicide would be used in areas adjacent to or near water unless it has been approved by the EPA for aquatic application and reviewed and approved by the appropriate regional NPS IPM Coordinator.	Natural or Integrated Resources Manager

Resource	Impact	Measures to Avoid, Minimize or Mitigate Impacts	Responsibility
	Beneficial impacts from removing nonnative invasive species in wetlands / riparian areas.	- The RAVE (Appendix O in the EA) or a similar model would be used by the parks to evaluate the risk of groundwater contamination in areas and with herbicides where leaching is possible. - If a herbicide is determined through RAVE to have a high potential for groundwater contamination, an alternative treatment method, herbicide or application method would be used. - Where use of small motorized vehicles occurred to access non-wilderness treatment sites, this access would generally be over established trails and pathways. If crossing of intermittent stream drainages occurred, it would be at right angles to the stream to minimize disturbance and would be done during conditions that would minimize sedimentation. - Managers would monitor so they are able to recognize areas that repeatedly require reapplication of herbicides. For some weeds, herbicide applications would be ineffective if native plant propagules (seeds or rhizomes) are not present to fill in and suppress the weeds. In such cases, reseeding, or revegetation would be combined with herbicides to reduce or eliminate the need for repeated herbicide applications. Continued below	
Water Resources: Water Quality	Localized short-term negligible to moderate adverse effects from disturbance of soil to remove plants and from accessing treatment areas, manual/mechanical treatments, use of livestock for biological control, use of herbicides, and from fire. Fewer moderate adverse effects from more systematic analysis of potential effects.		
Water Resources: Wetlands	Localized short- and long-term negligible to moderate adverse effects from presence of nonnative species and from treatment of nonnative invasive plants in wetlands. Long-term beneficial effects from removal. Additional beneficial effects from ability to choose from methods with fewer impacts.		
Water Resources Mitigation Measures Continued Herbicides applied near potable water supplies would include the following additional mitigation measures in use at Little Bighorn: 1) Only herbicides that do not leach from the root system to the soil or groundwater would be used. Only herbicides that are specifically approved on their label for use over/on/near public water supply intakes would be considered for use. 2) No herbicides where the label specifically prohibits application over or near public water systems intakes would be used. 3) Application methods that allow herbicide to directly contact the soil would not be used. For example, applying herbicide by foliar spray would be excluded, but cut/stump method, where herbicide is painted on a freshly-cut stump would be allowed. 4) With all herbicide used in the area surrounding potable water intakes, special attention would be given to application procedures and label instructions (which include set-back distances) with regards to public water supply intakes. Required setbacks would be calculated from the edge of the indicated zone.			
Vegetation	Short- and long-term adverse and long-term beneficial effects from removal of all or part of invasive nonnative plants and/or treatment with other methods. Some effects on non-target species. Long-term beneficial effects from removal and replacement with native species. Improved effectiveness with use of adaptive management and new treatment techniques.	- In plant communities composed of target and desirable species, prescribed grazing would only be used where a difference in phenology or palatability is sufficient to protect desirable species from damage or when litter removal is the management goal. - Where possible, weed free supplemental forage would be encouraged or required. - Mulches or other rehabilitation treatments, including straw bales would come only from approved sources. Continued below	Plant Ecologist, Natural or Integrated Resources Manager
Vegetation Mitigation Measures Continued - To limit the potential for equipment to spread nonnative plant seeds, treatments would generally be completed before seed becomes viable. - Herbicide application would be designed to minimize potential impacts to non-target plants (and animals), while remaining consistent with management goals. - Selection of restoration species would be limited to native species that exist naturally in the region or culturally important species to prevent the accidental introduction of new invasive species. To minimize genetic contamination, propagules would be collected or propagated from the closest sites possible, as long as the collection site remains healthy and resilient to future disturbance. The benefits of local propagule collection would be weighed against the need for prompt revegetation. In many cases it may be more important to prevent establishment of non-desirable species and stabilize soils than to wait for sufficient seed to be collected locally. (For example, a sterile wheat cover crop was used prior to restoration of a treated area at Little Bighorn in 2006.) Planning would be utilized to ensure that appropriate seed is available at the necessary time, and local collections would be prioritized based on			

Resource	Impact	Measures to Avoid, Minimize or Mitigate Impacts	Responsibility
available information concerning each species' genetic site-specificity. Impacts to water quality from livestock would be minimized by preventing access by livestock to open water or saturated soils.			
Wildlife	Localized short-term minor to moderate adverse effects on individuals and negligible to minor adverse effects on populations from noise, disturbance, and nonnative habitat removal associated with treatment methods. Long-term beneficial effects from additional success in treating nonnative invasive species and restoration of native plant populations.	- Where applicable, a biologist would provide information about the potential presence of sensitive fish or wildlife in the vicinity of project work. - Work would be conducted during daylight hours. - No repositioning, removal or disturbance of existing large woody debris embedded in the stream bank or bed would occur. Non-embedded woody debris may be repositioned. - There would be no use of heavy equipment in water. Continued below	Wildlife Biologist, Natural or Integrated Resources Manager
Wildlife Mitigation Measures Continued - Herbicides used in or near water would only be those specifically formulated and approved for such use. - Physical disturbance would avoid areas associated with ground-nesting birds and burrows of ground-dwelling mammals, amphibians, reptiles or invertebrates. - Mitigation could include removal of nesting habitat from areas of project disturbance prior to the nesting seasons (i.e. mowing, clearing). If nests were found during surveys, protection such as moving or delaying project work would occur to allow fledging of birds from nests. - Herbicide application would be designed to minimize potential impacts to non-target plants and animals, while remaining consistent with management goals. - Domestic livestock used for prescriptive management of invasive species would be excluded from sites (including access routes) where listed plants are known to occur or during seasons when listed plants are vulnerable to damage, when there is a risk of transmitting diseases to wildlife, and/or during critical times of the year. - Use of mechanized equipment would be limited to the fewest number of hours needed and to the degree practicable would occur during low wildlife use times (such as mid-day).			
Special Status Species	<i>City of Rocks</i>: No effect on sensitive species. <i>Craters of the Moon</i>: No effect on gray wolf, bald eagle, and peregrine falcon. May affect, not likely to adversely affect greater sage-grouse, pygmy rabbit and pika. <i>Fossil Butte</i>: No effect on gray wolf, grizzly bear, bald eagle, whooping crane, and black-footed ferret. May affect, not likely to adversely affect pygmy rabbits and greater sage-grouse. <i>Golden Spike</i>: No effect on gray wolf, grizzly bear, and greater sage-grouse. May affect, not likely to adversely affect Passey onion. <i>Grant-Kohrs</i>: No effect gray wolf, grizzly bear, and bald eagle. May affect, not likely to adversely affect bull trout. <i>Hagerman Fossil Beds</i>: No effect bald eagle, peregrine falcon, white sturgeon, and freshwater snails.	- Herbicide applicators and others involved in nonnative plant treatment would receive training on the identification of rare plants, if present, in parks. If these plants were later found in the field, treatments would be halted until buffer areas could be established or additional consultation with the area authority (park plant ecologist or USFWS) occurred regarding approval for appropriate treatment in the area. - Buffer zones would be established to protect the habitat of native sensitive plants, if present. Generally, a no-spray zone would be established. - If special status species were present in a large area to be treated, smaller areas would be treated over time to minimize effects (in consultation with the USFWS or state fish and wildlife agencies). - Tilling would not occur where known sensitive plants occur or have the potential to occur. - The most effective treatment, with the least possible effects would be used to treat nonnative invasive plants in endangered species habitat and would require additional environmental analysis and consultation with the USFWS prior to use if candidate or proposed species became listed. - Generally, hand-pulling or cutting using non-mechanical tools would be used in the vicinity of sensitive plants, unless this method would adversely affect the sensitive species. - Fires in special status plant habitat would be avoided unless studies	Plant Ecologist, Wildlife Biologist, Natural or Integrated Resources Manager

Resource	Impact	Measures to Avoid, Minimize or Mitigate Impacts	Responsibility
	<i>Little Bighorn</i>: No effect black-footed ferret, bald eagle, and whooping crane. <i>Minidoka</i>: No federally-listed special status species (no effect). <i>Nez Perce (Bear Paw)</i>: No federally-listed special status species (no effect). <i>Nez Perce (Big Hole)</i>: No effect gray wolf, grizzly bear, Canada lynx, and Ute ladies tresses. May affect, not likely to adversely affect Montana arctic grayling, and Lemhi penstemon. There would be no effect on other species listed as sensitive in the parks.	show that the species would benefit from fire. - No biocontrol agents would be intentionally released for use on an invasive plant species of the same family as a threatened, endangered, or rare plant that occurs inside or adjacent to the parks. - Golden Spike would review Passey onion patches with a botanist, and consider whether treatments of cheatgrass and perennial pepperweed can improve the habitat, and not harm existing Passey onion plants. - During the planning phase of invasive plant control activities, the NPS would determine whether special-status plant species are present in the area. If special-status species occur in the proximity of invasive plant control activities, botanists would develop site-specific mitigations to ensure no adverse effects on special-status plant species. - If other federally-listed plants are later discovered in proposed work areas, additional consultation with the USFWS would take place and no control activities would take place until consultation is complete.	
Prehistoric and Historic Archeology	No adverse effect on archeological resources (all parks). Ground disturbance would be avoided in areas with known archeological resources, while chemical treatment methods would be analyzed to determine potential adverse effects on surface or subsurface material types.	During archeological survey, surface or subsurface surveys would be used as necessary to determine the presence or significance of archeological resources. Continued below	Archeologist, Cultural or Integrated Resources Manager
Prehistoric and Historic Archeology Mitigation Measures Continued - If archeological resources were encountered during treatment, if necessary or possible, relocation of the work to a non-sensitive area would occur to enable site testing and documentation. Long-term actions could include reinitiating the project in the same area (upon effective data collection) or changing the method of treatment (if possible). There would be an emphasis on taking actions that would avoid further disturbance to the site. - Should unknown archeological resources be uncovered during project implementation, work would be halted in the discovery area, the park Cultural Resources Program Manager contacted, the site secured, and the park would consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1990. In compliance with this act, the NPS would also notify and consult concerned tribal representatives for the proper treatment of human remains, funerary, and sacred objects should these be discovered during the course of the project. - Where possible, the archeological site would be documented, avoided, and the documentation prepared for a determination of eligibility to the National Register of Historic Places. - Newly infested sites would be surveyed for the presence of archeological resources and/or confirmation would occur that the site had previously been surveyed prior to treatment. Over time, access routes to treatment areas would also be surveyed. - The parks would continue to build on their inventory and monitoring program for archeological resources, including conducting surface and subsurface testing as necessary to document the potential for archeological resources or to understand the extent of archeological resources found. - Prior to the development of Prescribed Fire plans (and subsequent environmental analysis), areas proposed for fires would be surveyed for the presence of archeological resources. Post-burn surveys would also be conducted. - Ground disturbing activities would not be used in known sensitive archeological resources sites. - The location and extent of known sensitive archeological resources would be considered in the decision to use wildland or prescribed fire. - Inclusion of park archeologist, historians and other resource specialists (as applicable) would occur in the multidisciplinary planning and suppression process. The archeologist would also accompany crews to assist in identification of a fire line route that would avoid damage to known resources in sensitive areas. - Reconnaissance surveys would be conducted after prescribed fires to locate potential artifacts or archeological resources and landscape features like historic rifle pits (Bear Paw, Little Bighorn, and Big Hole). - There would be no fire line construction in the vicinity of known archeological resources. - There would be increased law enforcement patrols in known archeological sites following fires that removed surface vegetation formerly obscuring sites.			

Resource	Impact	Measures to Avoid, Minimize or Mitigate Impacts	Responsibility
Historic Structures and Cultural Landscapes	No adverse effect (all parks). While there could be minimal effects on structures and archeological sites from treatment near or within these (see above), effects from nonnative invasive plant treatments would primarily be limited to vegetation and natural systems and features. Long-term beneficial effects on views and vistas, vegetation and natural systems and features from restoration of native plant populations and communities.	Measures would be the same as for vegetation and archeological resources (above).	Historian, Cultural or Integrated Resources Manager
Visitor Experience: Transportation, Access and Visitor Use and Enjoyment	Short-term negligible to moderate adverse impacts on visitor access from delays or closures of visitor use areas during and following treatments and short-term negligible to minor adverse and beneficial impacts on visitor enjoyment from treatment activities and nonnative plant removal. Long-term beneficial effects on visitor enjoyment from restoration of native plants and plant communities.	• Use of mechanized equipment would be limited to the fewest number of hours needed and to the degree practicable would occur during low visitor use times (weekdays) or seasons (late summer through fall) or before or after primary visitor use times to reduce impacts to park visitors. • Parks would disseminate information about the reasons for control projects and the use of loud equipment such as OHVs, aircraft or chainsaws to the public and staff. • Dyes would not be used near historic or interpretive structures or grave markers to maximize visitor enjoyment and photo opportunities and out of respect (Bear Paw, Big Hole, and Little Bighorn).	Chief of Interpretation and/or Chief of Visitor Services
Visitor Experience: Soundscapes	Short-term negligible to moderate adverse impacts from noise associated with nonnative invasive plant removal, especially if it occurred during a visitor's entire visit (such as mowing).		
Visitor Experience: Scenic Resources	Short-term negligible to moderate adverse and beneficial impacts from observation of scenes with high infestation or where successful treatment has occurred and from restoration of similar areas.		
Grazing and Livestock Trailing	Short-term minor adverse impacts on grazing from treatment within allotments and on permittees from temporary access measures in allotments, combined with long-term beneficial effects from the removal of nonnative invasive plants and improving livestock forage. Additional long-term beneficial effects from preventing the introduction and spread of invasive plants with improvement in native plant distribution and cover.	• Temporary and existing permanent fencing or herding would be used to ensure that grazing does not occur in areas where it is not intended to occur. • Where livestock are used by visitors in the park, to prevent the unintentional introduction of weed species through feces, livestock would be quarantined and/or fed a weed-free diet before entering uncontaminated areas or would stay in designated corrals. Required quarantine periods could be longer depending on prior location of the animals, invasive species present in that area, biology of weed seeds and length of time required for animals to pass them, or (if applicable) at the request of the allotment permittees. They would be inspected for weed seed attached to fur and cleaned.	Plant Ecologist, Natural or Integrated Resources Manager
Grazing and Livestock Trailing Mitigation Measures Continued • Domestic livestock used for prescriptive management of invasive species would be excluded from sites (including access routes) where special status plants are known to occur or during seasons when listed plants are vulnerable to damage or where there is a risk of transmitting diseases to wildlife or during critical times of the year.			

Resource	Impact	Measures to Avoid, Minimize or Mitigate Impacts	Responsibility
- Impacts to water quality from livestock would be minimized by preventing unlimited access by livestock to open water or saturated soils. - Herbicide use would need to continue to be coordinated with grazing permittees (where applicable) and/or with trailing activities to ensure that these could be conducted at times that did not interfere with the grazing / trailing. - Herbicide use would be in accordance to label requirements for grazing restrictions. - Manual/mechanical treatments would occur in ways that would not 'spook' livestock, causing unsafe conditions.			
Human Health and Safety and Hazardous Materials	Negligible to minor adverse effects on employee safety (moderate if safety procedures were not followed). No or negligible impacts on visitor safety. Additional long-term beneficial impacts on employee safety from new mitigation measures.	- Areas treated with herbicides would be closed to visitor use during the formal "no entry" period specified on the label or until dry. - Weather predictions would be consulted prior to using herbicides to minimize the potential for herbicide drift and to ensure its effectiveness and application according to label temperature, precipitation and wind conditions. Continued below	Safety Officer
Human Health and Safety and Hazardous Materials Mitigation Measures - Herbicides would not be applied to areas with excessive dew to ensure effectiveness. - Irrigation of treated areas would occur according to the label. - Small equipment and containers like backpack sprayers and herbicide jugs containing herbicide would not be left unattended in visitor use or housing areas to prevent theft and tampering or accidental exposure. - Herbicides would continue to be labeled and stored according to manufacturer's recommendations and NPS policies. - Because herbicide use requires approval from Regional and/or National IPM Coordinators, herbicides used would continue to be of low toxicity with few human and wildlife health hazards.			
Wilderness	<i>Craters of the Moon only:</i> Short- and long-term negligible to moderate impacts on the natural quality of wilderness; minor short- and long-term adverse impacts on the untrammelled quality of wilderness; no effect on the undeveloped quality of wilderness. Negligible to minor adverse effects on solitude or a primitive and unconfined wilderness experience. The minimum requirement / minimum tool analysis provides for the use of hand-pulling, herbicides, pack-stock and aircraft as needed.	Craters of the Moon would use Minimum Requirement / Minimum Tool analysis to determine whether to and how to treat nonnative invasive plants in wilderness. Craters of the Moon would minimize the number of trips, noise and activity, and duration of nonnative invasive plant treatment in wilderness. Continued below	Integrated Resources Manager
Wilderness Mitigation Measures Continued - A minimum tool analysis would be conducted to determine the least intrusive tool, equipment, device, force, or practice that would achieve both wilderness and invasive weed management objectives. - Wilderness study areas would continue to be treated as wilderness for ongoing and proposed invasive plant management activities. - Efforts would be made to minimize the number and duration of trips and reduce the visibility of IPM activities. - Whenever possible, invasive plant management activities in wilderness would be timed to avoid peak visitor use periods. - Invasive plant populations must be a potential threat to wilderness character and resources, before program managers would consider herbicide use. - Herbicide use must meet the conditions of the wilderness Minimum Requirements analysis.			
Park Operations	Short-term negligible to moderate and long-term	Where possible, projects would be combined to maximize cost-	Superintendent or

Resource	Impact	Measures to Avoid, Minimize or Mitigate Impacts	Responsibility
	negligible to minor adverse impacts from implementation of a new program combined with both short- and long-term beneficial impacts from additional success using the new program.	effectiveness.	Chief of Administration

Public Involvement

The Northern Rocky Mountains parks conducted both internal scoping with appropriate NPS staff and external scoping with the public and interested and affected groups, agencies, and tribes to determine the range of issues to be discussed in this EA. This interdisciplinary process defined the purpose and need, identified potential actions to address the need, determined the likely issues and impact topics, and identified the relationship of the preferred alternative to other planning efforts in the park.

In addition, the parks sought public comments and relevant information to guide the preparation of the EA. Among the objectives of this public scoping were to:

- Invite participation from federal, tribal, state, local governments and other interested parties;
- Inform all interested parties about the scope of the problem and the need to find solutions;
- Identify a preliminary range of management alternatives (in addition to a no action alternative that will be used as a baseline of existing conditions from which to evaluate proposed changes in management);
- Identify substantive environmental (including natural, cultural, recreational and socioeconomic) issues which warrant detailed environmental impact analysis, and eliminate issues or topics which do not require analysis;
- Identify potential environmental consequences and suitable mitigation strategies.

Public Scoping: Public scoping was conducted through the following means: a press release or public scoping letter announcing the intent of the proposal and its evaluation by the NPS was released between February 1 and 25, 2008 by the 10 parks. The press release was also mailed to interested park constituents, including adjacent landowners, at each of the 10 parks. This resulted in publication in numerous local and national news media, including in the Wood River Journal, now the Idaho Mountain Express (Blaine County, Idaho), Silverstate Post (3-5-08) (Powell and Granite counties in southwest Montana), Kemmerer Gazette (south Lincoln County), and the Friends of the Little Bighorn Battlefield internet homepage. For Nez Perce National Historical Park (Bear Paw and Big Hole), copies of the press release and draft purpose and need were posted in the Wisdom, Montana Post Office, the Chinook, Montana Post Office and listed on the Big Hole National Battlefield and Nez Perce National Historic Park websites.

Public Scoping Comments: As noted in the EA, during the public scoping process for this Invasive Plant Management Plan EA which took place from February 1, 2008 to March 15, 2008, a total of eleven comment letters were received. Five of these were received from agencies: USFWS (MT), USFS (Wisdom Ranger District of the Beaverhead-Deerlodge National Forest), IDPR, State of Idaho, Department of Agriculture (IDAG), and Wyoming Game and Fish Department (WGFD). Other comment letters included four from individuals, none from non-profit organizations, and 1 from county commissioners (Board Lincoln County Commissioners, Wyoming). Two were received via the Planning, Environment and Public Comment (PEPC) website. Little Bighorn and several other parks did not receive any comments. A summary of the approximately 66 substantive comments generated from these letters was provided in the EA.

Summary of Public Comments on the Northern Rocky Mountains Invasive Plant Management Plan EA

The Northern Rocky Mountains Invasive Plant Management Plan EA was released for a 45-day public review period from February 22, 2011 through April 11, 2011. The EA was available on the host PEPC website (Golden Spike) at <http://parkplanning.nps.gov/gosp>, and copies were available at each park and at local libraries. No public meetings were held. The press release announcing the public comment period was sent to the following news media to begin the public comment period: Arco Advertiser (CRMO), Twin Falls Times News (CRMO, HAFO and MIIN); Idaho Mountain Express (CRMO); Idaho Statesman and Idaho Press (HAFO and MIIN); Big Horn County News, Billings Gazette, Big Sky Radio, Sheridan Press, Indian Country Today, Rapid City Journal, and others (LIBI) and numerous news media, including

the Box Elder News Journal, Cedar City Review, Daily Herald, etc. (Golden Spike). The following newspapers were among those which published the press release announcing the public review period for the Invasive Plant Management Plan: Idaho Mountain Express (Blaine County, Idaho); “Little Chicago” Review (Kemmerer, Wyoming); Deer Lodge Post (Deer Lodge Montana); Box Elder News Journal (Box Elder County, Utah); and Leader and Garland Times (Utah).

Four public comments were received on the EA through the PEPC website during the public review period. One comment was an unrelated solicitation; one requested a copy of the EA in word (which was subsequently sent, however no follow-up comments were received); one identified an area of nonnative invasive plants at Grant-Kohrs Ranch; and one was a letter from the Wyoming Department of Game and Fish concurring with the plan and its implementation. A phone message indicating concurrence with treatment of Dyer’s woad was received by Golden Spike. Grant-Kohrs also received comments from the EPA Superfund (Grant-Kohrs). The EPA concurred with the Invasive Plant Management Plan approach but was concerned with the potential use of fire at Grant-Kohrs due to its propensity to spread some nonnative invasive species such as cheatgrass, its effects on riparian areas and its effects on non-fire tolerant species such as willows. It turned out that this comment letter was actually in response to a proposed Fire Management Plan action at Grant-Kohrs, not the IPMP, which does not proposed burning in riparian areas to treat invasive plants. Another email was received after the public comment period based on discussions at City of Rocks by Grant-Kohrs questioning whether livestock treatment was still part of the plan.

Grant-Kohrs had follow-up discussions regarding the EPA Superfund comment and the PEPC comment. Because the EPA comment was not related to this plan, no formal response has been provided. Similarly, the PEPC comment regarding an area of nonnative invasive plants referred to an area outside the park and is therefore outside the scope of this EA and no formal response has therefore been provided. Golden Spike had a follow-up conversation regarding the Dyer’s woad support comment, another non-substantive comment. Both Grant-Kohrs and City of Rocks had follow-up conversations with the commenter (a researcher) who questioned whether livestock treatment of weeds was still being considered (yes at Grant-Kohrs) but no formal response was prepared since this comment (a question) was received after the public review period.

Agency Consultation

U.S. Fish and Wildlife Service (Endangered Species Act)

Federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) to ensure their actions will not jeopardize the continued existence of any federally listed or proposed threatened or endangered species, or designated or proposed critical habitat [ESA, Sec. 7 (a)(2), 16 USC 1531 et seq.]. If listed species are present, the Federal agency must determine if the action will have *no effect*, *may affect*, [but is] *not likely to adversely affect* or *may affect, likely to adversely affect* those species. The NPS made the determination of effect for the selected alternative following guidance outlined in the *Endangered Species Act Consultation Handbook: Procedures for Conducting Section 7 Consultations and Conferences* (1998 USFWS and National Marine Fisheries Service). NPS has determined that the *selected alternative* will have “no effect” on any federally listed, candidate or proposed species or their designated critical habitat.

In accordance with local implementing procedures for Section 7 of the Endangered Species Act, on February 6, 2008, former Little Bighorn Superintendent Darrell Cook sent a letter to the USFWS Montana Field Office initiating consultation on behalf of the Montana parks (LIBI, BIHO, GRKO, and BEPA). The letter initiating consultation for the Idaho Parks was sent on February 4, 2008; on February 1, 2008 for Fossil Butte (Wyoming); and on February 5, 2008 for Golden Spike (Utah).

At the following parks the NPS determined that the selected alternative will have *no effect* on any federally listed threatened or endangered species or critical habitat and will not result in harm to other sensitive species. No additional consultation with the USFWS is necessary.

- Big Hole

- City of Rocks
- Fossil Butte
- Nez Perce (Bear Paw Battlefield)
- Minidoka
- Little Bighorn Battlefield

In addition, the NPS determined that the selected alternative:

- would have *no effect* on gray wolf, grizzly bear or bald eagle and *may affect, not likely to adversely affect* species of concern Passey onion at Golden Spike.
- would have *no effect* on bald eagle, peregrine falcon and Kootenai River white sturgeon or other Snake River snails and *may affect, not likely to adversely affect* the following species: physa snail, Banbury Springs lanx and the Bliss Rapids snail at Hagerman Fossil Beds.
- would have *no effect* on gray wolf, bald eagle or peregrine falcon and *may affect, not likely to adversely affect* proposed greater sage-grouse or sensitive pygmy rabbit or pika at Craters of the Moon.
- would have *no effect* on gray wolf, grizzly bear, bald eagle, whooping crane and black-footed ferret and *may affect, not likely to adversely affect* sensitive pygmy rabbits or proposed greater sage-grouse at Fossil Butte.
- would have *no effect* on gray wolf, grizzly bear or bald eagle and *may affect, not likely to adversely affect* bull trout at Grant-Kohrs Ranch.
- would have *no effect* on gray wolf, grizzly bear, Canada lynx, or Ute ladies tresses and *may affect, not likely to adversely affect* candidate Montana arctic grayling or sensitive Lemhi penstemon at Big Hole.

In addition proposed actions in the plan would not harm other sensitive species.

Concurrence with the may affect, not likely to adversely affect determinations on listed species were received on March 17, 2011 for Golden Spike; on April 6, 2011 (though not required) for Craters of the Moon, City of Rocks, Hagerman Fossil Beds, and Minidoka; and on May 25, 2011 for Grant-Kohrs Ranch. Follow-up consultation with the USFWS regarding potential additional impact avoidance measures for the aquatic snails is pending.

State Historic Preservation Officer / Advisory Council for Historic Preservation (National Historic Preservation Act)

In accordance with Section 106 of the National Historic Preservation Act, a letter notifying the state and tribal SHPOs of the proposed undertaking was sent during public scoping. The press release notifying the Montana State Historic Preservation Office and the Crow Tribal Historic Preservation Office on January 31, 2008; to the Idaho State Historic Preservation Office on January 31, 2008; to the Wyoming State Historic Preservation Office on February 1, 2008; and to the Utah State Historic Preservation Office on February 5, 2008. A series of meetings were held to identify project objectives and to evaluate options for some project components.

The Utah SHPO concurred with a determination of *no adverse effect* for Golden Spike on March 9, 2011. The Montana SHPO concurred with a determination of *no historic properties affected* for all treatment methods except fire for Big Hole and Nez Perce (Bear Paw) on March 14, 2011 but requested additional consultation for a pending *no adverse effect* determination as prescribed fire plans are developed. The Montana SHPO also concurred with a finding of *no adverse effect* for Grant Kohrs on March 22, 2011. There was initially no response from the Crow Tribal Historic Preservation Officer within 30 days; however an informal email later noted concurrence with a determination of *no adverse effect* for Little Bighorn Historic Districts 1 and 2 on March 16, 2011. The Idaho SHPO concurred with a determination of *no historic properties affected* for Craters of the Moon, City of Rocks, Hagerman Fossil Beds, and Minidoka on February 22, 2011. The Wyoming SHPO concurred with a determination of *no historic properties affected* for Fossil Butte on April 14, 2011.

American Indian Consultation

NPS consultation with culturally associated American Indian groups occurred during the development of the *Northern Rocky Mountains Invasive Plant Management Plan Environmental Assessment*.

1. City of Rocks / Craters of the Moon / Hagerman Fossil Beds / Minidoka

Shoshone Bannock Tribe

Carolyn Boyer Smith, Cultural Resources Coordinator and Yvette Tuell, Environmental Program Manager-Shoshone-Bannock Tribes, P.O. Box 306, Fort Hall, Idaho 83023

A combined Idaho parks scoping letter under Hagerman Fossil Beds / Minidoka letterhead was sent February 13, 2008 to Alonzo A. Coby and Yvette Tuell. During follow-up consultation by Craters of the Moon, no comments were received.

2. Fossil Butte

Eastern Shoshone Tribe

M. Vernon Hill, Chairman of the Business Council, P.O. Box 538, Fort Washakie, Wyoming 82514

The cultural director was contacted by phone on March 18, 2008 after receipt of a scoping letter. No scoping comments were provided and no additional comments were provided later.

Northern Arapaho

P.O. Box 396, Fort Washakie, Wyoming 82514

The Northern Arapaho were contacted in June 2007, following receipt of a scoping letter. The tribal leader changed in the interim and additional contact was made with the new chairman and cultural preservation officer in March 2008. A desire for elders to visit the park to determine what plants might be treated was expressed. The tribe had no specific comments regarding particular issues or concerns for scoping or on the EA.

Ute Tribe

P.O. Box 190, Fort Duschene, Utah 84206

P.O. Box KK, Towaoc, Colorado 81334

The Ute Tribal Office was contacted on March 19, 2008 after receipt of a scoping letter. No scoping comments were provided.

3. Little Bighorn

A scoping letter was sent January 28, 2008 to 12 tribes and January 31, 2008 to the Crow Tribe of Indians (Tribal Historic Preservation Office). No comments were received in response to the scoping letters or on the EA. The 12 tribes included: Three Affiliated Tribes Business Council, Cheyenne-Arapaho Tribes of Oklahoma, Crow Tribal Council, Fort Peck Tribal Executive Board, Northern Cheyenne Tribal Council, Rosebud Sioux Tribal Council, Arapaho Business Committee, Cheyenne River Sioux Tribe, Crow Creek Sioux Tribal Council, Lower Brule Sioux Tribal Council, Oglala Sioux Tribe Council, and the Standing Rock Sioux Tribal Council.

In 2009 Little Bighorn added 5 tribes affiliated with the site. Little Bighorn held a tribal consultation meeting on September 9, 2009 where several park projects were discussed. The Natural Resources staff showed a PowerPoint presentation which described the program including the Invasive Plant Management Plan EA. Another tribal consultation meeting was held May 20, 2010 where several projects were discussed, including the Invasive Plant Management Plan EA.

On August 20, 2010 letters were sent to the following Little Bighorn 17 historically affiliated tribes (chairman, with a copy to the Tribe's THPO Office/Cultural Resource Program) asking the tribes to contact the park for a copy of the draft Invasive Plant Management Plan.

Northern Arapaho Tribe

The Northern Arapaho Tribal Office was contacted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the Tribal Historic Preservation Officer.

Three Affiliated Tribes Business Council

The Three Affiliated Tribal and Tribal Historic Preservation Offices were contacted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the Tribal Historic Preservation Officer.

Northern Cheyenne Tribal Council

The Northern Cheyenne Tribal Office was contacted on September 2, 2010 after receipt of a consultation letter. Electronic copies of the draft plan were mailed September 3, 2010 to the chairman and the Tribal Historic Preservation Officer.

Cheyenne and Arapaho Tribes of Oklahoma

Contact with the Cheyenne and Arapaho Tribal and Tribal Historic Preservation Offices was attempted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the chairman. Little Bighorn received a response letter dated 11/1/10 from the Acting Tribal Historic Preservation Officer with the comment "No objections. However, if human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, please stop immediately and notify the Cheyenne and Arapaho Tribes."

Apsaalooke Nation (Crow Tribe)

In a meeting with the Tribal Historic Preservation Officer on August 31, 2010 the main points of the plan and section 106 schedule were discussed. An electronic copy of the draft plan and hard copies of the scoping letter (January 31, 2008) and consultation letter (August 20, 2010) were provided to the Tribal Historic Preservation Officer during the meeting on August 31, 2010. Additionally a hard copy of the draft Alternative Comparison Chart, which had not yet been incorporated into the electronic copy of the draft plan, was provided during the meeting.

The Apsaalooke Nation (Crow Tribe) Office was contacted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the chairman.

Fort Peck Tribal Executive Board

The Fort Peck Tribal Office was contacted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the chairman.

Cheyenne River Sioux Tribe

The Cheyenne River Sioux Tribal, Tribal Historic Preservation, and Cultural Program Offices were contacted on September 2, 2010 after receipt of a consultation letter. Electronic copies of the draft plan were mailed September 3, 2010 to the chairman, the Tribal Historic Preservation Officer, and the Cultural Program Administrator. A particular interest in the Little Bighorn site and impacts were expressed.

Oglala Sioux Tribal Council

The Oglala Sioux Tribal Historic Preservation Office was contacted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the Tribal Historic Preservation Officer.

Crow Creek Sioux Tribal Council

The Crow Creek Sioux Tribal Office was contacted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the chairman.

Lower Brule Sioux Tribal Council

The Lower Brule Sioux Tribal Historic Preservation Office was contacted on September 2, 2010 after receipt of a consultation letter. An interest in which parks were involved was expressed. An electronic copy of the draft plan was mailed September 3, 2010 to the Tribal Historic Preservation Officer.

Standing Rock Sioux Tribal Council

The Standing Rock Sioux Tribal and Tribal Historic Preservation Offices were contacted on September 2, 2010 after receipt of a consultation letter. Electronic copies of the draft plan were mailed September 3, 2010 to the chairman and the Tribal Historic Preservation Officer.

Rosebud Sioux Tribal Council

The Rosebud Sioux Tribal and Tribal Historic Preservation Offices were contacted on September 2, 2010 after receipt of a consultation letter. Electronic copies of the draft plan were mailed September 3, 2010 to the chairman and the Tribal Historic Preservation Officer.

Santee Sioux Tribe of Nebraska

The Santee Sioux Tribal Office was contacted on September 2, 2010 after receipt of a consultation letter. A high interest in the Little Bighorn site was expressed. Electronic copies of the draft plan were mailed September 3, 2010 to the chairman and the Tribal Historic Preservation Officer.

Yankton Sioux Tribe

The Yankton Sioux Tribal Historic Preservation Officer requested a copy of the plan on August 26, 2010. An electronic copy of the draft plan was mailed August 26, 2010.

Spirit Lake Sioux Tribe

Contact with the Spirit Lake Sioux Tribal Office was attempted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the chairman.

Flandreau Santee Sioux Tribe of South Dakota

Contact with the Spirit Lake Sioux Tribal Office was attempted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the chairman.

Sisseton-Wahpeton Oyate of the Lake

The Sisseton-Wahpeton Oyate of the Lake Tribal Historic Preservation Office was contacted on September 2, 2010 after receipt of a consultation letter. An electronic copy of the draft plan was mailed September 3, 2010 to the Tribal Historic Preservation Officer.

Summary: Little Bighorn initiated consultation with the Crow THPO and other tribes historically affiliated with the monument in January 2008. Multi-tribal consultation meetings were held September 9, 2009 and May 20, 2010 wherein several park projects, including the NRM IPMP were discussed. A draft of the plan was presented to the THPO in August 2010 and mailed to the tribes in September 2010. Little Bighorn received a response to ongoing tribal consultation from the Cheyenne and Arapaho Tribes of Oklahoma on November 1, 2010 with the comment: "No objections. However, if human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, please stop immediately and notify the Cheyenne and Arapaho Tribes." No concerns from other tribes associated with the selected alternative were identified during the public review period. During additional follow-up consultation upon initiation of the public review period, no additional comments were received.

4. Nez Perce NHP- Bighole Battlefield, Bear Paw

Confederated Tribes of the Colville Reservation (including the Chief Joseph Band)

Colville Business Council, P.O. Box 150, Nespelem, Washington 99155

A consultation letter dated January 31, 2008 was sent to the Tribal Chair with copies to the Chair of the Natural Resource Committee and the Director of the History and Archeology program, and the THPO. An email was also sent to the same parties on February 26, 2008 informing them of the comment deadline of March 15, 2008. No comments were received during scoping or on the EA.

Assiniboine and Gros Ventres Tribes, Fort Belknap Reservation
Tribal Executive Committee, P.O. Box 305, Lapwai, Idaho 83540

A consultation letter dated January 31, 2008 was sent to the Tribal Chair with copies to the Director of the Cultural Resource Program and the Acting THPO. This was followed up with a telephone call to the THPO on February 26, 2008 to discuss the project and the comment deadline of March 15, 2008. No comments were received during scoping or on the EA.

Nez Perce Tribe, Lapwai Reservation
Tribal Executive Committee, P.O. Box 305, Lapwai, Idaho 83540

A consultation letter dated January 31, 2008 was sent to the Tribal Chair with copies to the Director of the Cultural Resource Program and the Acting THPO. This was followed up with a telephone call to the THPO on February 26, 2008 to discuss the project and the comment deadline of March 15, 2008. No comments were received during scoping or on the EA.

Confederated Tribes of the Umatilla Indian Reservation
Board of Trustees, P.O. Box 638, Pendleton, Oregon 97801

A consultation letter dated January 31, 2008 was sent to the Tribal Chair with copies to the Chair of the Cultural Resources Committee, Director of the Department of Natural Resources, Program Manager of the Cultural Resource Protection Program and the THPO. This was followed up with a discussion of the project and comment deadlines at the March 4, 2008 Cultural Resource Committee meeting. No comments were received during scoping or on the EA.

5. Golden Spike NHS

Shoshone - Bannock Tribes

Alonzo A. Coby, Chairman, Fort Hall Business Council *Shoshone - Bannock Tribes*, P.O. Box 306, Fort Hall, Idaho 83203

In 2008, a letter was sent regarding EA. No record of a response to this letter is on file, and it is unclear if the same letter was sent to any other tribes.

Recently, with assistance from the Intermountain Regional Office, Golden Spike has identified additional affiliated tribes. Consultation with these tribes has not yet been initiated, but will take place immediately in the form of a scoping letter similar to what was sent to the Shoshone-Bannock Tribes in 2008. The letter will be updated to reflect the most current version of the Invasive Plant Management Plan EA and will be sent not only to the newly identified tribes but to all tribes with known affiliation to Golden Spike.

6. Grant-Kohrs Ranch NHS

On September 21, 2010 letters were sent to the: *Blackfeet Nation, the Chippewa Cree Tribe of the Rocky Boy's Reservation, the Confederated Salish & Kootenai Tribes of the Flathead Nation, and the Northern Cheyenne Tribe* (Tribe's THPO Office/Cultural Resource Program) describing the plan outline and asking the tribes to contact the park for a copy of the draft Invasive Plant Management Plan. The *Shoshone-Bannock Tribe* located at Fort Hall, Idaho is an affiliated tribe and was contacted through City of Rocks and Golden Spike.

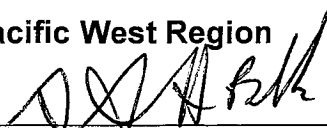
October 14, 2010 follow up emails were sent to the four tribes after receipt of the consultation letter. The *Confederated Salish & Kootenai Tribes of the Flathead Nation* requested and were sent an electronic copy of the draft plan. No comments were received during scoping or on the EA.

Finding

On the basis of the information contained in the EA as summarized above, the NPS has determined that implementing the selected plan is not a major federal action nor is it an action without precedent or similar to an action that normally requires an Environmental Impact Statement (EIS). The conclusions of non-significance are supported by the conservation planning and environmental impact analysis completed and the capability of listed mitigation measures to reduce or eliminate impacts. No adverse effects to cultural or historical resources will occur; there are no unacceptable impacts, nor will any impairment of cultural or natural resources or park values occur. This determination also included due consideration of the minor nature of public comments, agency, tribal and county recommendations. Therefore, in compliance with the National Environmental Policy Act, an EIS will not be prepared, and portions of the selected project may be implemented immediately, while other project elements will be implemented as soon as practicable, pending other requirements, funding and staffing.

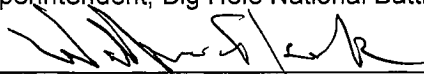
Recommended:

Pacific West Region


Steve Black
Superintendent, Big Hole National Battlefield & Bear Paw Battlefield (NEPE)

10/12/11

Date


Wallace Keck
Superintendent, City of Rocks National Reserve

10/12/11

Date


Lisa Garrett
Acting Superintendent, Craters of the Moon National Monument & Preserve

10/11/11

Date


Wendy Janssen
Superintendent, Hagerman Fossil Beds National Monument & Minidoka National Historic Site

10/12/11

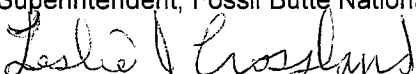
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Intermountain Region


Nancy Skinner
Superintendent, Fossil Butte National Monument

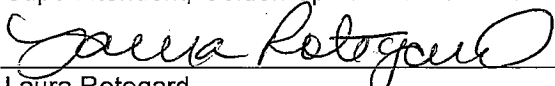
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Date


Leslie Crossland
Superintendent, Golden Spike National Historic Site

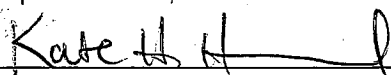
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Laura Rotegard
Superintendent, Grant-Kohrs Ranch National Historic Site

11/11/11

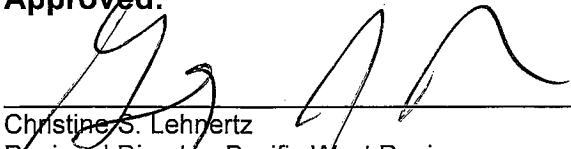
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Kate Hammond
Superintendent, Little Bighorn Battlefield National Monument

11/2/11

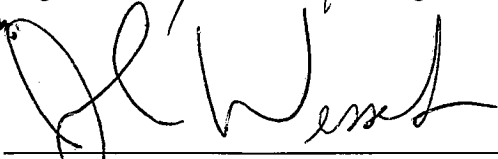
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Approved:


Christine S. Lehnertz
Regional Director, Pacific West Region

10/21/11

Date


John Wessels
Regional Director, Intermountain Region

11/22/11

Date

ATTACHMENT 1: Impairment Analysis for the Northern Rocky Mountains Invasive Plant Management Plan Selected Alternative

Alternative 2: Implement Comprehensive Invasive Plant Management Program (Preferred)

New NPS guidelines require this draft analysis for the preferred alternative.

The following impact topics are considered in the Northern Rocky Mountains Invasive Plant Management Plan Environmental Assessment (EA).

Step 1: Resource Impact Topics Considered in the Northern Rocky Mountains Invasive Plant Management Plan Environmental Assessment

Physical Resources

- Air Quality
- Geology
- Soils
- Paleontological Resources
- Water Resources (including water quantity, water quality, and wetlands)

Biological Resources

- Vegetation
- Wildlife
- Special Status Species

Cultural Resources

- Prehistoric and Historic Archeological Resources
- Historic Structures/Cultural Landscapes

Recreational / Social Resources

- Wilderness

Impairment analyses are not provided for the following topics also considered in the Carbon River Access Management EA because these are not required:

- Grazing and Livestock Trailing
- Visitor Experience
- Human Health and Safety
- Park Operations

Impairment findings relate to park resources and values and these impact topics are not generally considered to be park resources or values according to the Organic Act, and therefore cannot be impaired the same way that an action can impair park resources and values (NPS 2010:4).

Step 2: Brief Description of Condition of Resource

See descriptions combined under d) below.

Step 3: Analysis of Impairment

- a) Whether the resource is necessary to fulfill the purposes for which the park was established;
- b) Whether the resource is key to the natural or cultural integrity of the park or to the opportunity for enjoyment of the park;
- c) Whether the resource is identified as a significant resource in the park's planning documents; and
- d) A "because statement" as to why the action will or will not result in impairment of the resource. This "because statement" should include a discussion of the context, severity, duration and timing of any impacts and also discussion of any mitigation measures, if applicable.

a) Whether the resource is necessary to fulfill the purposes for which the park was established

b) Whether the resource is key to the natural or cultural integrity of the park or to the opportunity for enjoyment of the park

All of the following park resources analyzed in the EA are necessary to fulfill the purposes for which the 10 parks were established or are important to the natural or cultural integrity of the 10 parks or to the opportunity for enjoyment of the 10 parks:

- Air Quality
- Geology
- Soils
- Paleontological Resources (where applicable)
- Water Resources (including water quantity, water quality, and wetlands)
- Vegetation
- Wildlife
- Special Status Species
- Prehistoric and Historic Archeological Resources
- Historic Structures/Cultural Landscapes

In addition, Craters of the Moon park values were enhanced by the designation of wilderness.

These resources contribute to the purpose and significance identified in the enabling legislation for the park, including the purposes and significance of the park as identified in the General Management Plan (NPS CRMO 2002) and as noted in the EA.

c) Whether the resource is identified as a significant resource in the park's planning documents

As noted above, the following resources are recognized as significant (named) in the park planning documents, notably the applicable General Management Plan (GMP) or Comprehensive Management Plan (CMP) (City of Rocks) or Monument Management Plan (MMP) (Craters of the Moon):

City of Rocks National Reserve

The final Comprehensive Management Plan (CMP) (NPS 1994) for City of Rocks recognizes the three principal resource values of the reserve as the California Trail, the exceptional rock outcrops and the habitats associated with them, and the historic rural setting reminiscent of the American West. Among the key resources noted in the comprehensive plan include:

- City of Rocks is one of four national reserves in the U.S., including one of two in the national park system. A National Reserve differs from many traditional National Park System units in its unusual management arrangement and because traditional ranching uses are allowed to continue provided they are consistent with the obligation to protect the area.
- City of Rocks is a National Historic Landmark because of its importance in the history of American westward migration during the mid-1800s on the California Trail. It is considered one of the most intact settings and significant landmarks on the California Trail.
- City of Rocks is a national natural landmark because it is a geologically unique area that exhibits nationally significant features, including the dominance of bornhardt formations, the scarcity of

tors, a wide range of elevations over which the landforms are distributed, and evidence that the landforms have been carved from the upper parts of a pluton.

- It contains some of the oldest rocks in North America juxtaposed with others that are more recent.
- A portion of the reserve that has remained relatively undisturbed was designated a research natural area by the USFS and BLM prior to the establishment of the reserve.
- City of Rocks contains segments of the California National Historic Trail (PL 102-328, 1992). The National Trails System Act (PL 90-543, 1968) defined the purpose of the trails as “the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment.”
- City of Rocks has a long tradition of recreational use by local residents and is an outstanding rock climbing area.

The following are the Draft Significance Statements crafted for the in-process GMP (NPS CIRO (Teague) 2009)

- As part of the largest overland emigration in American history, City of Rocks National Reserve preserves the most intact and authentic setting of the California Trail. City of Rocks served as a landmark and critical refuge that inspired numerous written accounts of the landscape.
- The Reserve has a timeless natural quality and protects and preserves outstanding scenery set among sculpted granite monoliths framed by the Albion and surrounding mountains.
- The Reserve embraces the western rural setting by preserving remnants of traditional occupation, transportation, and land use of prehistoric and historic peoples.
- The Reserve is a dramatic geologic landscape with naturally sculptured spires and domes that evoked emotional responses as recorded in emigrant diaries and from visitors of today.
- The Reserve preserves an uplifted and eroded landscape that reveals geologic structures, igneous intrusions, and a rare exposure of some of the oldest and deepest crustal metamorphic rocks in the western United States.
- The Reserve provides one of the highest quality granite face-climbing areas in the United States.

Craters of the Moon National Monument and Preserve

According to the Monument Management Plan (NPS CRMO 2005: 7-11), Craters of the Moon National Monument and Preserve is significant because:

- It contains a remarkable and unusual diversity of exquisitely preserved volcanic features, including nearly all of the familiar features of purely basaltic volcanism – craters, cones, lava flows, caves, and fissures.
- It contains most of the Great Rift area, the deepest known land-based open volcanic rift, and the longest volcanic rift in the continental United States.
- Many of the more than 400 kipukas contain representative vegetative communities that have been largely undisturbed by human activity. These communities serve as key benchmarks for scientific study of long-term ecological changes to the plants and animals of sagebrush steppe communities throughout the Snake River Plain.
- It contains the largest remaining land area within the Snake River Plain still retaining its wilderness character. The Craters of the Moon Wilderness Area and Wilderness Study Areas within the Monument encompass over 500,000 acres of undeveloped federal lands.
- It is a valued western landscape of over 750,000 acres that are characterized by a variety of scenery, broad open vistas, and pristine air quality.
- It contains abundant sagebrush steppe communities that provide some of the best remaining sage-grouse habitat and healthiest rangelands on the Snake River Plain.
- It contains many diverse habitats for plants and animals as a result of a long history of volcanic deposition.

Fossil Butte National Monument

Some of the world's best preserved fossils are found in the flat-topped ridges of southwestern Wyoming's cold sagebrush desert. Fossilized fish, insects, plants, reptiles, birds, and mammals are exceptional for their abundance, variety, and detail of preservation. Most remarkable is the story they tell of ancient life in a sub-tropical landscape.

- The fossil record preserved within the Eocene Green River Formation of Fossil Basin is world-renowned. Over 100 years of intensive collecting has revealed a wide diversity of fossil fish, reptiles, birds, mammals, insects, and plants. Discoveries of new fossil species from the ancient lake sediments continue to expand understanding of the paleoecosystem.
- Most notably, the quality of fossil preservation is extraordinary, nearly unparalleled in the fossil record. The quiet-water, fine-grained lake sediments, and water conditions that excluded scavengers combined to preserve articulated skeletons (all bones are in place rather than scattered). Delicate fossils rarely preserved elsewhere, yield valuable scientific data.
- Fossils from Fossil Basin are located in museums around the world. Intensive commercial fossil collecting from areas surrounding the national monument yields tens-of-thousands to hundreds-of-thousands of fossil fish each year. These fossil fish represent perhaps the most common articulated fossil vertebrates for sale anywhere in the world.
- Today less than 1.5 percent of Fossil Lake is protected and managed by the NPS. Fossil Butte National Monument is a site that promotes the protection of this world-class paleontological heritage.

Golden Spike National Historic Site

The desire to link the east and west coasts grew out of a belief in American ingenuity and Manifest Destiny. Dreams of expanding America's world influence culminated at Promontory Summit on May 10, 1869, with the completion of the first transcontinental railroad. A nation anxious to heal from the Civil War celebrated the "Golden Spike" as the symbol of a unified continent. The transcontinental rails propelled the industrial revolution across the West, transforming the United States forever. People and products could safely cross the country in five days rather than five months. The railroad rushed passengers and goods westward, and fed eastern appetites for raw material. The Union Pacific and Central Pacific were the harbingers of both the "Gilded Age," where money not birthright drove social standing, and the class conflict of later decades.

Grant-Kohrs Ranch National Historic Site

- Grant-Kohrs Ranch joined the NPS as one of the few remaining places in the United States created and sustained by the open range ranching era.
- The stories of the ranch include the classic saga of immigrants pursuing the American dream, one that defines the cattle baron and cowboy heyday of 1865-1890.
- The lives of Johnny Grant and Conrad Kohrs embodied the dual aspects of self sufficiency and community loyalty necessary for survival on the frontier... and survive they did, and prosper.
- The open range era, influenced greatly by these men and their families shaped our western lands, opened eastern markets and created a culture whose principles of integrity and wisdom anchor deep in our knowledge of ourselves as Americans.
- The ranch has 93 historic structures, over 27,000 historical artifacts, 802 acres of maintained landscape, 30 miles of fences, 12 miles of historic irrigation ditches, a herd of Hereford, Shorthorn and Longhorn cattle, and draft and quarter horses. The park is unique, in part, because the buildings and ranch records were meticulously preserved by Conrad and Nell Warren, the previous owner of the ranch and the grandchildren of Conrad Kohrs. These records and artifacts provide a thorough and accurate picture of ranching operations through the years beginning in the 1860s through the 1960s (NPS GRKO 2008b).

Hagerman Fossil Beds National Monument

- The monument contains world-class paleontological resources. This includes the world's richest (in terms of quality, quantity and diversity) known deposits of fossils from the late Pliocene (Blancan) time period. Many of the monument's fossil specimens represent the last vestiges of species that existed before the Ice Age or Pleistocene, and the earliest appearances of species of modern flora and fauna.
- The monument's paleontological resources are contained in a continuous, undisturbed stratigraphic record spanning at least 500,000 years. In addition, the monument's fossil deposits represent what appears to be an entire paleontological ecosystem with a variety of habitats such as wetland, riparian, and grassland savanna. The quantity and quality of information in the monument's sediments and fossils permit scientific analyses that allow comparisons with modern ecosystems and permit studies of environmental changes and biodiversity. In light of the monument's mandate to provide a center for paleontological research, its resources also afford opportunities to contribute new approaches (including applying ecological principles) and to adapt technologies from other fields to the science of paleontology.
- The monument contains the Hagerman Horse Quarry, a National Natural Landmark (NNL) recognized as one of the six most important sites in the world regarding the fossil history of the horse (MacFadden 1992).
- The large number of high quality specimens at the Hagerman Horse Quarry facilitates studies of the ecology and population structure of the earliest known representative of the modern horse genus *Equus*.
- The history of paleontological research at Hagerman Fossil Beds in many ways parallels the history of the science of paleontology, providing opportunities for education and interpretation about the science as well as the resource.
- The monument is one of only three units in the National Park System that contain parts of the Oregon National Historic Trail.
- The monument contains cultural resources potentially eligible for inclusion on the National Register of Historic Places, and it has cultural significance to American Indians.
- The monument contains evidence of many aspects of the geologic history of southern Idaho, including cycles of sedimentation and erosion; the history of ancient Lake Idaho, which is linked to long-term climatic change; the cataclysmic and geologically instantaneous Bonneville Flood; and basalt flows that affected the course of the Snake River, which borders the monument (NPS 1996:7-8).

Little Bighorn Battlefield National Monument

The following are the Draft Significance Statements crafted for the in-process Long Range Interpretive Management Plan (NPS LIBI 2010).

- Battlefield as spiritual/sacred ground: The battlefield has spiritual significance, a special power of place that encourages reflection and triggers emotional connection to landscapes that still evoke the 19th century tension between tribal lands and westward expansion. As sacred ground, it honors sacrifices made during real life struggles for survival.
- Battlefield's iconic significance: The battlefield has iconic and representational significance that transform it into a symbol of cultural conflict. It possesses the elements of an American epic—larger than life personalities, conflicting views of nature and the world, racism, debates over policies and strategies, promises made and broken, revenge, greed, defense of homeland, tragedy, triumph, and more.
- Battlefield's historic/cultural significance: While the outcome of the battle seemed to validate Indian resistance, it shocked the rest of the nation, quieted debate on how to approach Indian policy, and unleashed a harsh, forceful military response that changed the West and Indian communities in ways that are still unfolding.
- Significance of the battlefield's memorial landscape: The monuments and particularly the markers across the battlefield, placed where soldiers and warriors fell in battle, are a distinctive, even

unique, approach to memorialization, simple, somber recognition of battlefield actions (24 soldiers received the Medal of Honor, for example) by all sides.

Minidoka National Historic Site

Civil and Constitutional Rights

- The national monument is a compelling venue for engaging in a dialogue concerning the violation of civil and constitutional rights, the injustice of forced removal and incarceration, the history of racism and discrimination in the United States, and the fragility of democracy in times of crisis.
- The national monument offers a unique setting to reflect on the internment and incarceration experience and the relationship of this experience to contemporary and future political and social events.
- The national monument provides a forum for understanding how internees expressed citizenship and patriotism through individual choices. Choices reflected a range of responses, including serving valiantly in the military and draft resistance. Both choices affected families and communities, as well as the individuals who made them.

People

- Minidoka Relocation Center dramatically changed the lives of those incarcerated and had a dramatic and lasting impact on the Nikkei community.
- The establishment of the Minidoka Relocation Center during WWII had a profound effect on the social and economic fabric of neighboring southern Idaho communities.

Place

- The setting and location of Minidoka, with its isolation, openness, and distance from the Pacific Coast, are characteristic of the [War Relocation Authority's] (WRA) site selection criteria. The camp was a hastily constructed, large-scale temporary facility that became densely populated with over 9,000 people at one time. It was typical of WRA camps constructed during World War II.
- The national monument contains unique historic and archeological resources, many of which are listed on the National Register of Historic Places.

World War II

- The Minidoka Relocation Center represents a significant part of World War II and American history.

Nez Perce National Historical Park:

The 1997 GMP for Nez Perce National Historical Park and Big Hole National Battlefield identified the following significance statements for the park:

- The park preserves a continuum of at least 11,000 years of Nez Perce culture. Its archeological record, museum collection, cultural landscapes and structures are of national significance. The park contains historical and cultural landmarks that are of legendary significance to the Nez Perce people. The Nez Perce (Nee-Me-Poo) National Historic Trail commemorates a significant event in the history of the Nez Perce people.
- Nez Perce National Historical Park offers a unique opportunity for visitors to gain an understanding of present-day Nez Perce culture within and outside the Nez Perce homeland and to learn about important events of the past.
- Past and present Nez Perce culture was shaped by the geography and the rich and varied resources of the Nez Perce homeland.

- The park includes parts of the Lewis and Clark National Historic Trail and the Lolo Trail, both of which were used by other cultures. The Nez Perce country, Nez Perce National Historical Park sites, and other Native American cultures overlap but also differ in many ways.
- The park contains burial sites and sacred sites; it is also a focal point for current Nez Perce culture and allows for the continued traditional use of resources. The park honors the rights retained in the 1855 and 1863 treaties and will fully apply all applicable laws, executive orders, policies, and treaties related to the protection of cultural properties and sacred sites.

Nez Perce National Historical Park: Bear Paw Battlefield:

The Bear Paw Battlefield, a National Historic Landmark, is the site of the attack upon, siege and eventual surrender of the non-treaty Nez Perce at the end of their 1877 flight. The Battlefield “is a place of mourning, not just for memorializing a past, but as a place for letting go of what might have been” (NPS BEPA n.d.). The White Bird Band succeeded in escaping to Canada, but after Chief Joseph’s surrender, the remainder of the non-treaty Nez Perce were exiled first to Kansas and later to Oklahoma, before eventually returning to the northwest.

Nez Perce National Historical Park: Big Hole National Battlefield

The Battle of the Big Hole was fought on August 9 and 10 of 1877 between U.S. soldiers and citizen forces under the command of Lieutenant Colonel John Gibbon and the “non-treaty” bands of the Nez Perce people. Prior to the battle, bands of Nez Perce used the valley as a summer hunting ground and as a route between their homeland west of the Bitterroot Mountains and the buffalo hunting grounds east of the Rocky Mountain Divide. After a pre-dawn surprise attack by the Army, the Nez Perce were able to force Colonel Gibbon into a retreat and into defensive position. The Nez Perce, having suffered heavy losses during the battle, withdrew from the site after burying their dead.

The Big Hole was established as a national monument in 1910 and originally administered by the War Department and later the U.S. Forest Service. Jurisdiction over the site was transferred to the NPS in July of 1933 by President Franklin D. Roosevelt. The historic and sacred site memorializes the bravery of the Nez Perce and U.S. soldiers who died during one of the nation’s most famous Indian War battles.

d) A “because statement” as to why the action will or will not result in impairment of the resource. This “because statement” should include a discussion of the context, severity, duration and timing of any impacts and also discussion of any mitigation measures, if applicable.

- **Air Quality**

For air quality information in the parks, please see Chapter IV: A. 1. Air Quality in the EA.

Good air quality is necessary to fulfill the purposes for which the 10 parks were established and is key to the natural integrity and enjoyment of the 10 parks. In the preferred alternative, there would be short-term impacts from implementation of the plan. These impacts would be localized and would not be detectable over ambient conditions. There would be no impairment of air quality or air quality related values from the actions in the preferred alternative.

- **Geology / Soils**

For geology information in the parks, please see Chapter IV: A. 2. Geology in the EA.

For soils information in the parks, please see Chapter IV: A. 3. Soils in the EA.

Geological resources and healthy soils are necessary to fulfill the purposes for which the 10 parks were established, are identified in park planning documents as significant, and are key to the natural integrity and enjoyment of the park. The preferred alternative would have short- and long-term impacts from treatment of nonnative invasive plants. Beneficial effects would occur from removal of nonnative invasive plants and restoration. As a result, there would be no impairment of geological resources or values.

- **Paleontological Resources**

For paleontological resources information in the parks, please see Chapter IV: Section 4. Paleontological Resources in the EA.

Paleontological resources are necessary to fulfill the purposes for which two of the 10 parks were established (Fossil Butte and Hagerman Fossil Beds), are identified in park planning documents as significant, and are key to the natural integrity and enjoyment of the parks. The preferred alternative would have minimal short- and long-term impacts from treatment of nonnative invasive plants. Mitigation measures would avoid or limit impacts. As a result, there would be no impairment of paleontological resources or values.

- **Water Resources (including water quality, wetlands and floodplains)**

For water resources information in the parks, please see Chapter IV: A. 5. Water Resources (including Hydrology and Water Quantity, Water Quality and Wetlands) in the EA.

Water resources are necessary to fulfill the purposes for which the 10 parks were established, are identified in park planning documents as significant, and are key to the natural integrity and enjoyment of the parks. The preferred alternative would have short-term adverse impacts on physical hydrology, water quantity, water quality and wetlands. Because impacts would be localized and short-term, there would be no impairment of water resources or water resources values.

- **Vegetation**

For vegetation information in the parks, please see Chapter IV: B. 1. Vegetation in the EA.

Vegetation resources are necessary to fulfill the purposes for which the 10 parks were established, are identified in park planning documents as significant, and are key to the natural integrity and enjoyment of the parks. The preferred alternative would have short-term adverse and long-term beneficial effects on native plant resources. Restoration would provide additional beneficial effects. Because adverse impacts would affect individual plants and nonnative invasive species, rather than native plant populations or communities, impacts would primarily be beneficial and there would be no impairment of vegetation or the values associated with it.

- **Wildlife**

For wildlife information in the parks, please see Chapter IV: B. 3. in the EA.

Healthy wildlife populations are necessary to fulfill the purposes for which the 10 parks were established, are identified in park planning documents as significant, and are key to the natural integrity and enjoyment of the parks. There would be a variety of short-term adverse impacts to wildlife combined with some long-term beneficial impacts associated with removal of nonnative invasive species. Restoration would have long-term beneficial effects. Because individual animals, rather than wildlife populations and communities would be affected, there would be no impairment of wildlife or wildlife values.

- **Special Status Species**

For special status species information in the parks, please see Chapter IV: B. 4. in the EA.

Viable populations of special status species are necessary to fulfill the purposes for which the 10 parks were established and are key to the natural integrity of the parks. Because effects to special status wildlife species would result primarily from noise and disturbance; because a wide range of mitigation measures would be applied to limit impacts; and because the actions would not result in the loss of individuals or in jeopardy to species, there would be no impairment of special status species or values associated with them.

- **Prehistoric and Historic Archeological Resources**

For prehistoric and historic archeological resources information in the parks, please see Chapter IV: C. 1. Prehistoric and Historic Archeological Resources in the EA.

Intact prehistoric and historic archeological resources are necessary to fulfill the purposes for which the 10 parks were established and are key to the cultural integrity and enjoyment of the parks. Because there would be limited effects from nonnative invasive plant treatment and because a wide range of mitigation measures would be used to avoid or reduce impacts, there would be no impairment of archeological resources or the values associated with them.

- **Historic Structures/Cultural Landscapes**

For historic structures / cultural landscapes information in the parks, please see Chapter IV: C. 3. Historic Structures / Cultural Landscapes in the EA.

Intact historic structures and cultural landscapes are necessary to fulfill the purposes for which the 10 parks were established, are identified in park planning documents as significant, and are key to the cultural integrity and enjoyment of the parks. Because there would be no impacts to historic structures and long-term beneficial impacts to cultural landscapes, there would be no impairment of historic structures or cultural landscapes or their values.

- **Wilderness**

For wilderness information in Craters of the Moon National Monument and Preserve, please see Chapter IV: D. 2. Wilderness in the EA.

Wilderness values and experiences are necessary to fulfill the purposes for which Craters of the Moon was established, are identified in park planning documents as significant, and are key to the natural and cultural integrity of the monument and preserve. Because the preferred alternative would generally have short-term adverse impacts on wilderness and wilderness values, there would be no impairment of wilderness or wilderness values.

Conclusion

Because there would be no significant adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the 10 parks establishing legislation, (2) key to the natural or cultural integrity of the 10 parks or to opportunities for the enjoyment of the 10 parks, or (3) identified as a goal in one of the 10 park's GMPs, CMP or MMP or other relevant National Park Service planning documents, there would be no impairment of resources and values in the 10 parks.

ATTACHMENT 2: Craters of the Moon National Monument and Preserve Minimum Requirement Analysis



ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

MINIMUM REQUIREMENTS DECISION GUIDE

WORKSHEETS

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

– the Wilderness Act, 1964

Step 1: Determine if any administrative action is necessary.

Description: Briefly describe the situation that may prompt action.

Several Idaho state listed noxious weeds have been located across southern portions of Craters of the Moon National Monument and Preserve along the southern edges of the Wapi Lava Field and Great Rift WSA. These weeds were likely introduced by a combination of on-road and illegal off-road recreational travel as well as use of the railroad immediately south of the park boundary. Several of these plants have spread aggressively in areas to the south and they appear to be particularly suited for the rocky lava flows of this area.

To determine if administrative action is necessary, answer the questions listed in A - F on the following pages.

A. Describe Options Outside of Wilderness

Is action necessary within wilderness?

Yes: ☒ No: ☐

Explain:

- *Control or containment activities outside this wilderness study area (WSA) are important, but will not be sufficient. Infestations have entered the WSA and are spreading further north into the WSA each year. The area inside the WSA must be treated in order to have any effect on spread of these noxious weeds.*

B. Describe Valid Existing Rights or Special Provisions of Wilderness Legislation

Are there valid existing rights or is there a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows consideration of action involving Section 4(c) uses? Cite law and section.

Yes: ☐ No: ☐ Not Applicable: ☒

Explain: *The WSA has been recommended for wilderness designation but no legislative action has been taken.*

There are no special provisions that apply in The Wilderness Act (1964).

Section 4 (c) Prohibition of certain uses

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

C. Describe Requirements of Other Legislation

Do other laws require action?

Yes: ☒ No: ☐ Not Applicable: ☐

Explain:

The Noxious Weeds Act of 1974 provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health.

Executive Order 13112 (1999) on Invasive Species requires all federal agencies to:

- ✓ *identify actions that may affect the status of invasive species,*
- ✓ *prevent the introduction of invasive species,*
- ✓ *detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner,*
- ✓ *monitor invasive species populations accurately and reliably,*
- ✓ *provide for restoration of native species and habitat conditions in ecosystems that have been invaded,*
- ✓ *conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species, and*
- ✓ *promote public education on invasive species and the means to address them.*

Title 22 of the Idaho code, section 22-2407 states:

“ LANDOWNER AND CITIZEN DUTIES. (1) It shall be the duty and responsibility of all landowners to control noxious weeds on their land and property, in accordance with this chapter and with rules and regulations promulgated by the director.

D. Describe Other Guidance

Does taking action conform to and implement relevant standards and guidelines and direction contained in agency policy, unit and wilderness management plans, species recovery plans, tribal

Yes: ☒ **No:** ☐ **Not Applicable:** ☐

Explain:

NPS Management Policies 4.4.4 (2006):

Exotic species will not be allowed to displace native species if displacement can be prevented.

NPS Management Policies 4.4.4.2 (2006):

All exotic plant and animal species that are not maintained to meet an identified park purpose will be managed . . . if control is prudent and feasible, and the exotic species interferes with natural processes and the perpetuation of natural features, native species or natural habitats

High priority will be given to managing exotic species that have, or potentially could have, a substantial impact on park resources, and that can reasonably be expected to be successfully controlled. Lower priority will be given to exotic species that have almost no impact on park resources or that probably cannot be successfully controlled. Where an exotic species cannot be successfully eliminated, managers will seek to contain the exotic species to prevent further spread or resource damage.

Director's Order 41: Wilderness Management Guideline: This guideline provides additional detail about NPS wilderness management policies not found in NPS Management Policies.

Presidential Proclamation 7373 transferred portions of Wilderness Study Areas to the National Park Service (Craters of the Moon NM&P) in 2000. Wilderness Study Areas included in the Monument will continue to be managed under Section 603(c) of the Federal Land Policy and Management Act of 1976 (43 U.S. Code 17011782). Section 603(c) requires that Wilderness Study Areas be managed to maintain their suitability for wilderness designation and prevent unnecessary or undue degradation.

As stated in the Monument Management Plan (MMP) for Craters of the Moon National Monument and Preserve (2007), one of the purposes of the area is to maintain the wilderness character of the Craters of the Moon Wilderness Area and of the Wilderness Study Areas. Invasive plants threaten the ecological integrity of the natural environment, a key resource for this unit of the National Park system.

Important desired future conditions defined in the MMP include:

- Natural ecological processes are the dominant factor in determining the composition and distribution of plant communities in the Preserve and Wilderness areas.*
- Preventing or limiting the spread of noxious weeds using integrated weed management perpetuates the natural condition and biodiversity of the planning area.*
- The areas dominated by invasive annual species (cheatgrass and other similar plants) are minimized.*
- Kipukas in the Pristine Zone are free of noxious weeds. [Pristine Zone is equal to wilderness areas for this minimum requirements analysis and kipukas are defined as isolated areas free of*

recent lava flows and represent some of the last undisturbed vegetation communities on the Snake River Plain].

Appropriate management actions in the MMP listed to achieve these conditions include:

- *Weed infestations in wilderness areas will be controlled by methods consistent with minimum tool requirements and integrated weed management principles including prevention of disturbance activities, use of cultural and mechanical methods to control or physically remove noxious weeds, and selective application of herbicides and possibly biological controls (VEG-13).*
- *Integrated weed management principles will be applied proactively throughout all zones. This program will emphasize protection of weed-free areas and aggressive detection and control of noxious or highly invasive exotic weeds and will include an analysis of the trade-offs involved in herbicide use versus non-chemical methods of weed control (VEG-14).*

E. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation, or unique components that reflect the character of this wilderness area?

Untrammeled: Yes: ☒ No: ☐

Explain: *Whether any action is taken or not, the untrammeled quality of this wilderness area is threatened. The spread of noxious weeds in the wilderness area is partly caused or enhanced by human actions (seed introduction, spread along trails, etc.), so to allow it to continue spreading would be a direct sign of human influence. But, to interfere in some way to "fix" the problem would be a manipulation of the natural processes and would impede on the untrammeled quality of wilderness as well.*

Undeveloped: Yes: ☐ No: ☒

Explain: *No management action is necessary that would affect the undeveloped nature of the wilderness area.*

Natural: Yes: ☒ No: ☐

Explain: *The presence of these non-native, noxious weeds interfere with the natural conditions of the wilderness resource.*

Outstanding opportunities for solitude or a primitive and unconfined type of recreation:

Yes: ☒ No: ☐

Explain: *The wilderness recreation experience is in part dependent on the wilderness setting representing a natural and native ecosystem. If these weeds are allowed to continue their spread and replacement of native vegetation, the human experience in wilderness will be affected. The effects include changes in vegetation type and type and abundance of wildlife that depend on the natural conditions.*

Other unique components that reflect the character of this wilderness:

Yes: ☐ No: ☐ Not Applicable: ☒

Explain: *None identified for this area.*

F. Describe Effects to the Public Purposes of Wilderness

Is it necessary to take administrative action in support of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

Recreation: Yes: ☒ No: ☐ Not Applicable: ☐

Explain: *It can be argued that the presence and spread of noxious weeds in wilderness will degrade the quality of the recreation experience in wilderness as native species are replaced. This may happen due to the changes in vegetation and effects on scenery, habitat, and hunting potential.*

Scenic: Yes: ☒ No: ☐ Not Applicable: ☐

Explain: *Noxious weeds have the potential to lower the scenic quality of an area as they alter the makeup of the plant communities they invade.*

Scientific: Yes: ☒ No: ☐ Not Applicable: ☐

Explain: *The scientific value of this wilderness area will decline as these noxious weeds crowd out native species and affect wildlife habitat. These areas are no longer considered intact benchmark plant communities worthy of comparison to disturbed sites.*

Education: Yes: ☐ No: ☒ Not Applicable: ☐

Explain: *The educational value of this wilderness area will not change considerably.*

Conservation: Yes: ☒ No: ☐ Not Applicable: ☐

Explain: *Noxious weeds tend to interfere with the proliferation of native species and they degrade habitats of native wildlife species.*

Historical use: Yes: ☐ No: ☒ Not Applicable: ☐

Explain: *The historical interpretation of this wilderness area will not change considerably.*

Step 1 Decision: Is any administrative action necessary?

Yes: ☒ No: ☐ More information needed: ☐

Explain:

Without control, the infestation is almost certain to spread and grow many times larger. As a result, the infestation may never be contained and a permanent conversion of vegetation type may occur. Even though the original introduction of these weeds to the wilderness is the result of human influences, it can be argued that this is part of the natural process and the wilderness should be left to evolve on its' own.

On the other hand, the argument is that if it is possible to effectively treat an infestation and

either confine or eradicate it, the wilderness resource will be better off without this unnatural influence. In this case, confinement to the existing areas is critical and essential if eradication is ever going to be possible. Spread beyond the existing areas would threaten the remainder of the wilderness, and movement beyond the wilderness could go into adjacent non-infested agricultural and federal lands.

The existing infestations are still relatively small and containable and the spread vectors are known and can be managed. Threats to adjacent lands are significant. Because these weeds are not native but can be controlled the decision is to take action by 'trammeling' the wilderness to protect the natural quality of its' wilderness character.

If action is necessary, proceed to Step 2 to determine the minimum activity.

Step 2: Determine the minimum activity.

Description of Alternatives

For each alternative, describe what methods and techniques will be used, when the activity will take place, where the activity will take place, what mitigation measures are necessary, and the general effects to the wilderness resource and character.

Actions common to all alternatives:

Outreach: Staff will educate and inform the park's wilderness visitors and adjacent landowners to prevent the further introduction and spread of these noxious weeds.

Early Detection and Monitoring: Staff will detect new infestations, map weed spread, and monitor weed treatment effectiveness.

Mitigation: Staff will implement prevention measures to ensure that treatment activities will not adversely affect native vegetation.

Safety: Staff will wear required personal protective equipment and implement all required safety procedures.

Alternative # 1

Description: Hand-pulling

This alternative would use hand-pulling as the only treatment method. Shovels would be used when necessary. No mechanical transport, aircraft, or herbicides would be used. Initial focus would be on extremely remote sites in order to contain each weed.

Effects:

Wilderness Character

"Untrammelled" – *This treatment reduces the untrammelled quality of wilderness because it involves human control and manipulation of the wilderness resource.*

"Undeveloped" – *There is no effect on the undeveloped quality of wilderness character.*

"Natural" – *Effective weed treatment would enhance the natural quality by allowing native vegetation to recover and reducing the influence of non-native species on all components of the wilderness resource.*

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”

- *In the short term, the presence of treatment crews may adversely affect the wilderness experience of those in the area, though far less than other alternatives that include use of additional control methods. In the long term, the recovery of native vegetation will serve to enhance the wilderness recreation experience.*

Heritage and Cultural Resources – *None identified.*

Special Provisions – *None.*

Safety of Visitors, Personnel, and Contractors - *There is a risk to crews from working with tools and from travelling over rugged terrain. The risk is significantly higher in respect to terrain hazards. Foot travel across lava fields is extremely difficult. The risk is lower in respect to equipment use and chemical exposure than alternatives that involve use of mechanized equipment or transport or herbicides. Effects on visitors can be minimized by making the areas and times of treatment known.*

Economic and Time Constraints – *Implementing the treatment using only traditional non-motorized skills and tools will increase the project time needed but may be more cost effective than alternatives that include motorized equipment (i.e. helicopters). Hand-pulling alone is less effective than herbicides particularly with those weeds that show preference for rocky lava cracks. Hand-pulling will require repeated treatments in one year.*

Additional Wilderness-specific Comparison Criteria – *None identified.*

Alternative # 2

Description: *Herbicide Use and Hand-pulling*

Herbicide spraying by horseback would occur in the spring once staging areas are dry and accessible. This activity would occur on wilderness boundaries only where horses can safely reach. Herbicide applications by backpack sprayer would be applied on foot in late spring and early fall. Hand-pulling would be used where and when it can be effective. Shovels would be used when necessary (rocky conditions hamper ability to pull out roots).

Effects:

Wilderness Character

“Untrammeled” – *This treatment reduces the untrammeled quality of wilderness because it involves human control and manipulation of the wilderness resource.*

“Undeveloped” – *There is no effect on the undeveloped quality of wilderness character.*

“Natural” – *Effective weed treatment would enhance the natural quality by allowing native vegetation to recover and reducing the influence of non-native species on all components of the wilderness resource.*

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”

- *In the short term, the presence of treatment crews may adversely affect the wilderness experience of those in the area, though far less than other alternatives that include use of additional control methods. In the long term, the recovery of native vegetation will serve to enhance the wilderness recreation experience.*

Heritage and Cultural Resources – *None identified.*

Special Provisions – *None.*

Safety of Visitors, Personnel, and Contractors - *There is a risk to crews from working with tools, herbicides, and from travelling over rugged terrain. The risk may be less than with alternatives that involve use of motorized equipment (i.e. all terrain vehicles or helicopters). Effects on visitors can be minimized by making the areas and time and span of treatment known.*

Economic and Time Constraints – *Implementing the treatment using only traditional non-motorized skills and tools will increase the project time needed but may be more cost effective than alternatives that include motorized equipment (i.e. helicopters). Herbicide applications, though more effective than hand-pulling, will require large amounts of water and other supplies, PPE, etc.*

Additional Wilderness-specific Comparison Criteria – *None identified.*

Alternative # 3

Description: *Herbicide Use, Hand-pulling, Pack Stock and Helicopter Use*

Herbicide spraying by horseback would occur in the spring once nearby staging areas are dry and accessible. This activity would occur on wilderness boundaries only where horses can safely reach. Herbicide applications by backpack sprayer would be applied on foot in late spring and early fall. Hand-pulling would be used where and when it can be effective. Shovels would be used when necessary. Non-mechanical ground transport methods (foot and pack stock) would be used to move water, herbicide, people, and other supplies to treatment areas in the spring and fall. Helicopters would be used in the mid to late spring to grid survey and land and treat remote sites that are practically inaccessible on foot.

Effects:

Wilderness Character

“Untrammeled” – *This treatment reduces the untrammeled quality of wilderness because it involves human control and manipulation of the wilderness resource.*

“Undeveloped” – *There is no effect on the undeveloped quality of wilderness character.*

“Natural” – *Effective weed treatment would enhance the natural quality by allowing native vegetation to recover and reducing the influence of non-native species on all components of the wilderness resource.*

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”
– *In the short term, the presence of treatment crews may adversely affect the wilderness experience of those in the area. In the long term, the recovery of native vegetation will serve to enhance the wilderness recreation experience.*

Heritage and Cultural Resources – *None identified.*

Special Provisions – *None.*

Safety of Visitors, Personnel, and Contractors - *There is a risk to crews from working with tools, pack stock, helicopters, and from travelling over rugged terrain. Travel risks will be less than with alternatives that involve the carrying of water and supplies on foot. Effects on visitors can be minimized by making the areas and times and span of treatment known.*

Economic and Time Constraints – *Implementing herbicide treatments supported by pack stock and helicopters will greatly reduce the project time needed but may be more costly than alternatives that are limited to traditional non-motorized skills and tools.*

Additional Wilderness-specific Comparison Criteria – *None identified.*

Comparison of Alternatives

It may be useful to compare each alternative's positive and negative effects to each of the criteria in tabular form, keeping in mind the law's mandate to "preserve wilderness character."

	Alternative 1	Alternative 2	Alternative 3	No Action
Untrammelled	-	-	-	-
Undeveloped	no effect	no effect	no effect	no effect
Natural	+	+	+	-
Solitude or Primitive Recreation	-	--	---	-
Unique components	no effect	no effect	no effect	no effect
WILDERNESS CHARACTER				

	Alternative A	Alternative B	Alternative C	No Action
Heritage & Cultural Resources	no effect	no effect	no effect	no effect
Maintaining Traditional Skills	+++	++	+	no effect
Special Provisions	no effect	no effect	no effect	no effect
Economics & Time	---	--	-	no effect
Additional Wilderness Criteria	no effect	no effect	no effect	no effect
OTHER CRITERIA SUMMARY				

	Alternative A	Alternative B	Alternative C	No Action
SAFETY	-	-	-	no effect

Safety Criterion

If safety issues override impacts to wilderness character or other criteria, provide documentation that the use of motorized equipment or other prohibited uses is necessary because to do otherwise would cause increased risks to workers or visitors that cannot be satisfactorily mitigated through training, use of personal protective equipment (PPE), or other requirements to alleviate the safety risk. (This documentation can take the form of agency accident-rate data tracking occurrences and severity; a project-specific job hazard analysis; research literature; or other specific agency guidelines.)

Documentation:

The use of helicopters is necessary in this wilderness area because there is too high a risk to workers associated with the alternatives that cannot be satisfactorily mitigated. Physical limitations of carrying and applying herbicides and supplies long distances over lava fields are too great to overcome. Distances are great but more importantly, the terrain is far too challenging. The entire area is covered with loose foot holds and jagged rocks; falling and tripping hazards are a significant concern even without gear.

Since BLM provide aviation support to NPS for these operations, BLM aviation safety plans for these operations can be amended to this document.

Step 2 Decision: What is the Minimum Activity?

The selected alternative is: **Alternative # 3**

Herbicide spraying by horseback would occur in the spring once nearby staging areas are dry and accessible. This activity would occur on wilderness boundaries only where horses can safely reach. Herbicide applications by backpack sprayer would be applied on foot in late spring and early fall. Hand-pulling would be used where and when it can be effective. Shovels would be used when necessary. Non-mechanical transport methods (foot and pack stock) would be used to move water, herbicide, people, and other supplies to treatment areas in the spring and fall. Helicopters would be used in the mid to late spring to grid survey and land and treat remote sites that are practically inaccessible on foot.

When possible, high use periods of recreation will be avoided and only weekday operation will be considered. Helicopter use will be limited to 1-2 work days to reduce recreational impacts and ground disturbance. Helicopter operators and surveyors will be trained and certified. Pack stock operators will not be allowed to provide supplemental feed to their stock in wilderness areas except in emergencies.

Adjacent land owners and local county weed management agencies will be contacted to keep them informed and assist with weed management activities. An effective public information and education program will be promoted to increase prevention efforts. Helicopter and ground survey efforts will continue to detect noxious weeds early.

Describe the rationale for selecting this alternative:

This alternative provides effective control with minimum use of herbicides and a helicopter and practical use of non-mechanical ground transport methods.

- Manual treatments to control invasive species are known to be unsuccessful for eradication without the use of herbicides. Despite repeated efforts, reliance exclusively on hand-pulling as the primary treatment method has slowed the spread but has not totally kept noxious weeds from spreading. While hand-pulling of knapweed can be effective with repeated treatments, hand-pulling of dyers woad is not an effective eradication measure because the species has a taproot which can extend up to 3 feet into the ground. Hand-pulling often results in breaking off the taproot only a few inches underground particularly in rocky lava terrain of Craters of the Moon NM&P. Therefore, some form of herbicide use is needed for effective control of most noxious weeds under consideration.*
- Use of herbicide on park lands to the north, in conjunction with hand-pulling, has been successful at containing many noxious weeds when spraying is conducted for a minimum of three to five consecutive years.*
- Limited transport of water on foot has been attempted across lava fields of Craters of the Moon National Monument and Preserve and it has been found extremely impractical. Hiking distances are typically 2-3 miles in one direction and it is likely that several large water caches will be necessary to effectively treat all noxious weed locations. Carrying 40 additional pounds of water and supplies on foot any distance greatly increases the potential for personal injury.*
- Public input from the local county governments and adjacent landowners is entirely in favor of aggressive weed treatment using herbicides in wilderness.*

Describe any monitoring and reporting requirements:

Monitoring of treatments will be conducted in all areas to determine effectiveness and minimize future treatments.

Pesticide requests and uses will be documented in the NPS Pesticide Use Proposal System.

Pesticide use logs will be populated for daily herbicide uses.

Please check any Wilderness Act Section 4(c) uses approved in this alternative:

- | | |
|---|---|
| ☐ mechanical transport | ☒ landing of aircraft |
| ☐ motorized equipment | ☐ temporary road |
| ☐ motor vehicles | ☐ structure or installation |
| ☐ motorboats | |

Be sure to record and report any authorizations of Wilderness Act Section 4(c) uses according to agency procedures.

<i>Approvals</i>	Signature	Name	Position	Date
Prepared by:		Steven Bekedam	Plant Ecologist	
Recommended:		John Apel	Chief, Integrated Resources	
Minimum Requirement Analysis Approved:		Lisa Garrett	Acting Superintendent, Craters of the Moon	

Errata

Northern Rocky Mountains Invasive Plant Management Plan Environmental Assessment

Note: Page and paragraph numbers follow the copy of the EA printed in January 2011 by Yellowstone National Park. (It was printed there because the NRM-EPMT Coordinator position is duty-stationed at Yellowstone.)

Alternatives: page 119 (bulleted list): Add (s) to “Treatment” in title of Step 7.

Alternatives: page 137: Add below Table 30: “a) City of Rocks: City of Rocks would not apply herbicide treatments in areas with granitic soils if wet weather was forecast.

Alternatives: page 145: Add the following sentence to the end of the first paragraph under Step 5b: Additional consultation under Section 106 is required for all applicable actions.

Alternatives: page 145: Add the following underlined header above the 2nd paragraph under Step 5b: “If the action does not comply with this Invasive Plant Management Plan:” and insert the word “currently” before “applicable” in the first sentence.

Alternatives: page 145: Replace the parenthetical in the 2nd to last paragraph with the following sentence after the first sentence: Park managers should review the list of Departmental and NPS CEs to determine if any others might apply or should prepare an implementation EA if this plan or those CEs do not apply.

Alternatives: page 146: Above the last paragraph under Step 5b, add the following underlined header: “Section 106 Compliance:” and after the first sentence insert the following sentence: “If the action is not identified, separate Section 106 compliance must be completed.”

Alternatives: page 152, Figure 25: Add (s) to “Treatment” in title of Step 7.

Alternatives: page 154: Table 33, line 1, Column 3 (City of Rocks): Replace Weed Awareness Week with “Staff will visit local high school classrooms twice a year and host a weed day at the park once each summer.

Affected Environment: page 230: In the special status species table for Craters of the Moon Replace FT for gray wolf with “Experimental nonessential population (south of I-90 in Idaho)” then with “Delisted (May 2011).”

Affected Environment: page 239: paragraph 1: Replace “six species of special concern” with “one species of special concern and two threatened, and two endangered species.” to acknowledge interim listing of freshwater snails. In the table following this paragraph, replace “SC” with FE (federally endangered) for the Snake River physa snail (*Haitia (Physa) natricinia*), and the Banbury Springs lanx (*Lanx* sp.) and FT (federally threatened) for the Bliss Rapids snail (*Taylorconcha serpenticola*).

Affected Environment: page 242: In the table, replace “T” with “SC” for the arctic grayling.

Environmental Consequences: page 324: paragraph 3: Make the following changes. Replace first sentence with: “Pygmy rabbits were found in Craters of the Moon in winter 2011.” Delete: “If pygmy rabbits were later found,” and start sentence with capital T. In fourth sentence, replace “have no” with “be not likely to adversely affect.”

Environmental Consequences: page 326: paragraph 5: Replace first sentence with: “Actions would be not likely to adversely affect freshwater snails. Buffer zones would be used for herbicide treatment adjacent to the Snake River to prevent potential impacts to listed and candidate snails.”