

3. Recordkeeping

Actions would be the same as in Alternative 1. 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.

4. Interpretation (I) / Education (E)

In addition to the programs noted in Alternative 1 (Table 33), the following strategies are among those that could be used by the parks in Alternative 2 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 33: Northern Rocky Mountains Current / Future Park Interpretive / Education Programs

Park Unit	Current Programs	Future Programs
City of Rocks	Permanent / Seasonal Training	Weed Awareness Week Programming
Craters of the Moon	Permanent / Seasonal Training Interpretive Signs Herbarium Volunteer Programs Posters / Brochures CWMA's Weed Awareness Week 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 Weed Awareness Week Programming
Hagerman Fossil Beds	None	Permanent/Seasonal Training
Little Bighorn	Seasonal Training Interpretive Signs Herbarium Posters / Brochures Weed Awareness Week 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 Alternative 2. 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.

5. Partnerships

As noted in Alternative 1, 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 Alternative 2 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 34: 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

Park Unit	Future Potential or Desirable Partnerships
	Local Watershed Groups
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.

6. 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 Alternative 2 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.

7. 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.

8. 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.

Table 35: Alternative Comparison Chart

Invasive Plant Management Program Elements	Alternative 1	Alternative 2
Alternative Description	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.	Resource managers would identify high priority invasive species for treatment, determine what treatments are feasible to reduce the number 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 using systematic, documented and comprehensive methods and analysis.
Prevention and Early Detection	<p>The following actions would continue to be used by the parks to prevent the introduction and/or spread of nonnative invasive plants:</p> <ul style="list-style-type: none"> • The parks would continue to comply with weed management laws and policies. • Some parks would continue to use Best Management Practices (BMPs). • Where possible, early detection and rapid response (EDRR) techniques would be employed by the parks and NRM-EPMT. • The parks would continue to observe quarantines (if any) associated with nonnative plants. • Interpretation and education strategies would continue to be used. 	<p>Actions would be the same as Alternative 1 for application of law and policy and observation of quarantines (if any). The partner parks would continue to comply with weed management laws and policies.</p> <p>In addition to the BMPs in Alternative 1, partner parks would employ a more directed decision-making process to prevent the spread of (contain) existing weed infestations from affecting new areas.</p> <p>Partner parks would use the list of potential new invaders to look for new invasive species and would systematically monitor heavily developed or high use areas ("hot spots" or vectors for new invasions) to detect new invasive species establishment.</p> <p>Partner parks would have increased resources available for EDRR, including the new invaders list and more cooperation with each other as a result of this plan. A top 10 list of species for EDRR with photos and short descriptions would be made available to staff and visitors and updated as necessary. This would help weed watchers develop a search image and would increase the chances of early detection.</p>
Determining Weed Treatment Priorities	Parks would continue to use a variety of methods, including NRM-EPMT recommendations, county and state noxious weed lists and/or existing park information about the extent of the infestation and where it is located to determine which nonnative invasive plants would be the highest priority to treat.	<p>Partner parks would implement steps 1-3 of the 7-Step Decision-making Tool to determine which species are of the highest priority to treat.</p> <ul style="list-style-type: none"> • Step 1: Identify Nonnative Plants Partner parks would use federal, state and county weed lists or would determine if it was present from accidental or deliberate actions by humans to determine if treatment was a priority. • Step 2: Determine whether Nonnative Plant Meets Action Thresholds Nonnative invasive plants not present for an identified management purpose that pose a risk to native environments meet action thresholds. • Step 2a: Monitor to Determine Whether Nonnative Species is Invasive

Invasive Plant Management Program Elements	Alternative 1	Alternative 2
		<p>If nothing is known about the species, this step would be used to determine whether the plant meets one or more action thresholds.</p> <ul style="list-style-type: none"> Step 3: Identify Species Management Priorities Partner parks would use the Alien Plant Ranking System (APRS) combined with qualitative analysis, then one of two methods to determine if the plant is a high, medium or low priority for treatment.
<p>Conducting Treatments (description of current program)</p>	<p>Parks would continue to use all five treatment methods (cultural, manual/mechanical, biological, chemical, and fire) to reduce nonnative plant populations. Each of the treatment methods could continue to be applied alone or in combination with others as they have been used in the past at the partner parks, as appropriate to control nonnative invasive plants.</p> <p>Most of the parks would continue to focus on cultural, manual/mechanical, and chemical treatments. Grant-Kohrs would continue to use biological control and Craters of the Moon (monument area), Fossil Butte, Golden Spike and Grant-Kohrs could continue to use prescribed fire.</p> <p>A variety of application methods for chemical (herbicide) control would continue to be used by the parks, but only Grant-Kohrs would continue to use aerial spraying.</p> <p>City of Rocks, Hagerman Fossil Beds, Little Bighorn, Minidoka, and Nez Perce (Bear Paw and Big Hole) would continue no use of prescribed fire.</p>	<p>Actions would be similar to Alternative 1 except that partner parks would implement steps 4-6 of the 7-Step Decision-making Tool to select and implement effective nonnative plant treatment.</p> <ul style="list-style-type: none"> Step 4: Identify Area Management Strategy and Evaluate and Select Treatment Method(s) Depending on the patch size, its distribution, effectiveness of treatment method(s), and cost-effectiveness, the immediate goal would be eradication, containment or suppression. <p>Whereas treatment methods in Alternative 1 would be based on NRM-EPMT recommendations or the history of treatment of the nonnative invasive species in the park unit, in Alternative 2 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. In addition, treatment method(s) would also be selected to meet the management strategy (goal).</p> <ul style="list-style-type: none"> Step 5a: Confirm Compliance for Chemical and/or Biological Treatment Method(s) Appropriate pesticide or biocontrol use proposals would continue to be submitted and approved by NPS regional / national IPM coordinators. <p>Existing and new herbicides and biological control agents could be used if approved and if impacts would be the same as or fewer than currently used herbicides. New application methods for herbicides could also be used if impacts would be the same or less than described in this plan.</p> <ul style="list-style-type: none"> Step 5b: Confirm Compliance with NEPA (including NHPA, ESA, CWA, etc.) Appropriate analysis under this plan and/or other existing plans (such as IPM or fire management plans) and applicable environmental laws would be conducted. <ul style="list-style-type: none"> Step 6: Implement Selected Treatment(s) Alternative 2 would formalize generalized restrictions associated with special management areas for chemical and/or fire treatment methods employed in the parks. As appropriate, parks would establish special protection areas where no use of fire or herbicides would occur.

Invasive Plant Management Program Elements	Alternative 1	Alternative 2
Monitoring	<p>Most parks would primarily continue to depend on the NRM-EPMT inventory and monitoring efforts for invasive plants, and as they occurred or were revised upon development of park vegetation maps.</p> <p>NRM-EPMT monitoring currently consists of identifying and mapping a polygon of the invasive plant population, conducting an inventory of the area to record target nonnative species (cover estimate) and distribution estimate (patchy, dispersed, isolated, uniform, etc). In addition, information about plant phenology and the site are made.</p> <p>Additional park specific monitoring would continue to occur at City of Rocks, Craters of the Moon, Little Bighorn and Big Hole.</p>	<p>Partner parks would implement Step 7 of the 7-Step Decision-making Tool.</p> <ul style="list-style-type: none"> Step 7: Monitor treatments to Assess Control Efficacy <p>In addition to the monitoring conducted by the NRM-EPMT and individual parks (as in Alternative 1), the parks would conduct additional monitoring as needed to determine the effectiveness of applied nonnative invasive plant treatments. These monitoring programs would likely differ based on the species and park.</p> <p>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 also be measured by recording density and/or percent cover. As resources allow, density and percent cover of neighboring native plants would also be recorded to measure non-target impacts.</p>
Recordkeeping	<p>The parks and NRM-EPMT would continue to keep a variety of records, primarily those associated with implementation of pesticide use.</p> <p>Parks that conduct additional monitoring programs would also keep monitoring records.</p>	<p>Actions would be the same as in Alternative 1. Parks would continue to keep required records associated with invasive plant treatment, particularly regarding chemical and biological treatments and monitoring.</p>
Interpretation and Education	<p>Existing visitor awareness or public education activities that vary widely among parks would continue.</p> <p>Many parks would also continue to offer seasonal training to staff and volunteers on prevention or early detection and eradication of nonnative invasive plants.</p>	<p>In addition to the programs noted in Alternative 1, a variety of new strategies would likely be used by the parks in Alternative 2 to increase awareness among park staff, visitors, neighbors and partners to enhance knowledge about nonnative and invasive plants.</p>
Partnerships	<p>As partner parks in the NRM-EPMT ecoregion and as members of three different inventory and monitoring networks, the parks would continue to cooperate with each other on various projects as opportunities arose.</p> <p>Some of the parks would also continue partnerships with members of various 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.</p>	<p>Existing partnerships (Alternative 1) would continue and others would be developed to facilitate knowledge and control of nonnative invasive species.</p>
Adaptive Management	None	<p>Because new invasive plants would continue to affect the partner parks and new, potentially more effective treatment(s) would continue to be developed, a program of <i>adaptive management</i> would be employed by the partner parks to allow for treatment of these new invasive species or for use of new methods to treat the plants.</p>

Invasive Plant Management Program Elements	Alternative 1	Alternative 2
		<p>Adaptive management would allow the parks to treat invasive plants using the 7-Step Decision-making Tool if these treatments caused similar or fewer impacts than treatments already being used. Parks could develop criteria to compare the effects of existing treatments to new treatments. These criteria could include the circumstances under which a new treatment could be selected and whether there is a maximum level for that type of treatment that could occur in an area before a greater level of impact would occur.</p> <p>Proposed changes in the type of treatments or plants treated would be analyzed to ensure projected impacts were addressed by this plan and a written "consistency determination" would be prepared as part of Step 5b to document this. If proposed actions exceeded the impacts described by this plan additional environmental analysis would occur.</p>
Measures to Avoid, Minimize or Mitigate Impacts	<p>Among the few measures used by all of the parks include those associated with construction impacts, such as importation of clean fill, reseeded and other revegetation of areas disturbed by construction, etc.</p> <p>As park invasive plant management programs and standards continued to develop, additional measures to avoid, minimize or mitigate impacts would be employed more routinely by the parks.</p>	<p>A wide variety of new measures would minimize the opportunity for the introduction and spread of nonnative invasive plants in the partner parks and would minimize or avoid impacts associated with treatment of nonnative invasive plants. As more parks implemented these measures, additional strategies would also be developed.</p>

C. Alternatives Considered but Dismissed

Under the National Environmental Policy Act (NEPA) alternatives may be eliminated from detailed study based on the following reasons [40 CFR 1504.14 (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 alternatives or variations were considered during the design phase of the project, but because they met one of the above criteria, they were rejected.

1. Cease Treatment of Nonnative Plants

This alternative was eliminated from consideration because it is inconsistent with Executive Order 13112, the Federal Noxious Weed Control Act, state weed laws in Idaho, Montana, Wyoming and Utah, county weed regulations, *Management Policies* (NPS 2006) and resource management guidelines and the NPS Organic Act.

2. Treat Only High Priority Species

Treating only high priority species would be an arbitrary decision that would be better if it were based on the technical and economic feasibility of treating the species as well as on staffing and funding. Some medium priority species are identified as such because they have not yet spread as widely as other species, because there few or no effective means to treat the species, or because they are not on federal or state noxious weed lists. Nonetheless, these species have the potential to become more widespread based on changing conditions, such as from more favorable weather patterns or as more effective treatments are developed. Not considering these for treatment could mean that these would spread and cause unacceptable damage to park resources.

3. Treat All Nonnative Plants

Although some smaller parks with pristine habitats may be able to treat most of their nonnative plants, the effort, given staffing and funding would be generally infeasible, especially where the number of invasive plants is great or the infestations widespread. Decisions about which plants to treat are based on a variety of factors and in the action alternative, plants were systematically evaluated based on life history, presence and spread and other characteristics using APRS to determine which are of the highest priority for treatment given available treatment methods and these other factors.

4. Consider All Treatments except Chemical Control

This alternative was eliminated from additional consideration because chemical treatments can be effective, of low cost and low impact when used appropriately to treat invasive plants. In some cases, chemical treatments are the most effective means of controlling an invasive plant and have the fewest impacts, such as in an area where ground disturbance would affect archeological or paleontological resources. Therefore, in accordance with *Management Policies* (NPS 2006), which calls for not allowing exotic species to displace native species if that displacement can be prevented, this method has been retained. Use of chemical controls is also retained as specified in *Management Policies*, and therefore is considered when *all other available options are either not acceptable or not feasible* (NPS 2006: Section 4.4.5.3. Pesticide Use). Use of chemical treatments is also consistent with the principles of IPM, a holistic approach which takes advantage of all appropriate tools, which may include, but are not limited to pesticides.

5. Consider All Treatments except Biological Controls

This alternative was eliminated from additional consideration because biological control agents can be effective, and of low cost and low impact when used to treat invasive plants. Some plants are most effectively treated with biological controls, especially those that have few or no other proven effective means of suppression or control. As with chemical control, use of biological control means is also consistent with the principles of IPM. *Management Policies* (NPS 2006:47) states, “Exotic species will not be allowed to displace native species if displacement can be prevented.” In some instances, biological control may be the only feasible method available for reducing the threat of exotic plants to park resources.

D. Environmentally Preferable Alternative

In accordance with Director’s Order-12, *Conservation Planning, Environmental Impact Analysis, and Decision-making* and CEQ (Council on Environmental Quality) requirements, the NPS is required to identify the “environmentally preferable alternative” in all environmental documents, including EAs. The environmentally preferred alternative is determined by applying the criteria suggested in NEPA, which is guided by the CEQ. The CEQ (46 FR 18026 - 46 FR 18038) provides direction that the “environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in NEPA’s Section 101,” including:

- *Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;*
- *Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;*
- *Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;*
- *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;*
- *Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities; and*
- *Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources* (NEPA Section 101(b)).

Generally, these criteria mean the environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment and that best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 – 46 FR 18038).

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.