

Chapter I: Introduction

A. Description of the Proposed Plan

Under the proposed plan the National Park Service (NPS) would control nonnative invasive plants in the following 10 parks located in the Northern Rocky Mountains, within the Pacific West and Intermountain regions (Figure 1):

Parks Involved in the Preparation of this Plan	
City of Rocks National Reserve (CIRO) ¹ *	Hagerman Fossil Beds National Monument (HAFO)*
Craters of the Moon National Monument and Preserve (CRMO)*	Little Bighorn Battlefield National Monument (LIBI)*
Fossil Butte National Monument (FOBU)*	Minidoka National Historic Site (MIIN)*
Golden Spike National Historic Site (GOSP)*	Nez Perce National Historical Park (Bear Paw Battlefield) (BEP)*
Grant-Kohrs Ranch National Historic Site (GRKO)*	Nez Perce National Historical Park / Big Hole National Battlefield (BIHO)*

Vegetation in the 10 parks varies from high desert to sagebrush-steppe, and includes wetland and riparian areas and remnant native prairie. More than 482,914 acres are collectively managed by the parks. Annual visitation varies from approximately 10,000 at Bear Paw to approximately 305,000 at Little Bighorn. The smallest park area is Bear Paw Battlefield with 190 acres and the largest is Craters of the Moon with 467,063 acres.

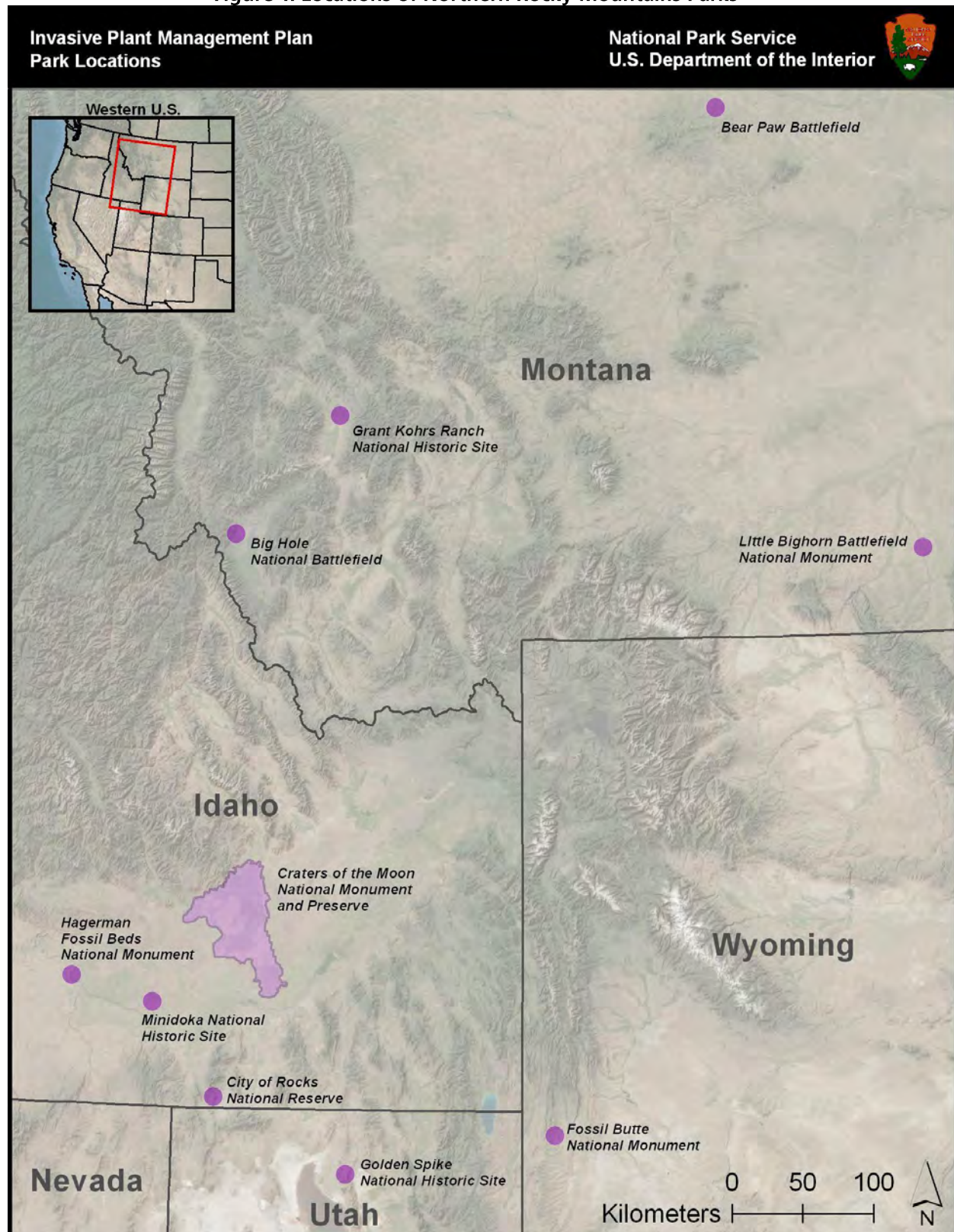
Under this plan, the 10 parks would continue to manage nonnative invasive plants to reduce their effects on native plant communities and other natural and cultural resources. Although the nature and extent of nonnative invasive species at the 10 parks varies, the invasion of nonnative plants severely impacts park ecosystems and cultural resources at all of the parks.

NPS Pacific West Region (PWR) and Intermountain Region (IMR) parks involved in development of this plan identified nonnative invasive plant management as a top natural and cultural resources priority. At Craters of the Moon, rush skeletonweed and leafy spurge threaten benchmark plant communities, including resources identified in the parks enabling proclamation. At Craters of the Moon and City of Rocks, the habitat for state listed and federally petitioned greater sage-grouse is degrading due to nonnative plant invasion (Aldridge *et al.* 2008, Wisdom and Chambers 2009)). These parks represent portions of the few large tracts of intact sagebrush communities in the Intermountain West. At Big Hole, rare plants, such as Lemhi penstemon (*Penstemon lemhiensis*) are being threatened by spotted knapweed invasion.

Nonnative invasive plants are plant species that occur outside of their natural ranges as a direct or indirect result of human activities and that threaten natural and cultural resources. Invasive plants may form single species stands within otherwise intact native plant ecosystems, taking over the habitat of native species. Invasive plants may alter historic landscapes associated with the events that parks commemorate. Nonnative invasive plants can change soil chemistry (Evans *et al.* 2001), hydrologic regimes or disturbance cycles that formed the native ecosystem (D'Antonio and Vitousek 1992). In some areas of the western United States, the nonnative invasive grass, cheatgrass (*Bromus tectorum*) has altered the fire regime (frequency of natural fire occurrence). Nonnative invasive plants may also affect the ability of threatened or endangered species to survive (Melgoza *et al.* 1990). The potential for new invasive weeds, *hitchhikers*, to invade the parks by arriving on vehicles, clothing, animals, and gear is high (Balbach *et al.* 2008 and Rothlisberger *et al.* 2010).

¹ In this document, four letter park codes (indicated by asterisks here) are primarily used in tables and references.

Figure 1: Locations of Northern Rocky Mountains Parks²



² Bear Paw Battlefield and Big Hole National Battlefield are both part of Nez Perce National Historical Park

Under NPS Management Policies (NPS 2006: 4.4.4.2):

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.*

B. Scope of the Northern Rocky Mountains Invasive Plant Management Plan / Environmental Assessment

This plan only applies to the management of nonnative plants. The intent of this Invasive Plant Management Plan / EA is to develop a long-term management plan to reduce the impacts of (or threats from) nonnative plants on native plant communities and other natural and cultural resources, including cultural landscapes, at 10 national park units located in the Northern Rocky Mountains. Because this plan involves 10 parks with different resources, located in four states (Idaho, Montana, Utah, and Wyoming), the plan focuses on providing resource managers with flexibility to manage their diverse resources affected by nonnative invasive plants. Plan components include management strategies and treatment options that can be tailored to fit individual park environments.

In addition to NPS lands, the 10 park units may have other federal, state, tribal, other public and/or private lands within their boundary. Although the plan is primarily directed at the management of nonnative species on NPS lands, it also includes direction to enable NPS resource managers to conduct cooperative weed management efforts with partners (such as those associated with other federal, state, or county authorities or adjacent private or government landowners) in areas outside the parks.

Actions in this plan apply to NPS lands and easements and to other lands within or adjacent to the boundary of each of the 10 park units, if these actions involve the use of NPS resources and/or funding. Nonnative plant management activities within park unit boundaries on non-NPS owned lands that do not use NPS resources/funding and/or are conducted by other entities (such as counties) are not covered under this plan. Where nonnative plant management activities occur within or adjacent to the park unit boundary on non-NPS owned lands, these activities would be conducted in full cooperation and agreement with landowners.

For the NPS, nonnative invasive plant management uses an integrated pest management (IPM) approach. IPM is a decision-making process that coordinates knowledge of pest biology, the environment, and available technology to prevent unacceptable levels of pest damage, by cost-effective means, while posing the least possible risk to people, resources, and the environment (Appendix A: *11-Step IPM Process*). This plan also relies on a technical evaluation of nonnative invasive species, including analysis of the most effective means to control them. Appendix B: *Natural History and Control of Nonnative Invasive Plants found in 10 Northern Rocky Mountains Parks* describes species currently present as well as species culled from lists of nonnative invasive plants that could occur in the parks in the foreseeable future.

In summary, when implementing weed management actions, the 10 partner parks would be guided by the following strategy: “The goal of any management plan should be not only controlling the noxious weed, but also improving the degraded community, enhancing the utility of that ecosystem, and preventing

reinvasion or invasion by other noxious weed species. To accomplish this usually requires a long-term integrated management plan. . .” (DiTomaso 2010).

C. Purpose of the Environmental Assessment

This Environmental Assessment (EA) has been prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, 42 U.S. C. 4321-4347, as amended), including the Council on Environmental Quality (CEQ) regulations found at 40 CFR 1500 -1508 and other applicable laws, *Management Policies* (NPS 2006) and management directives. This EA facilitates compliance with Section 106 of the National Historic Preservation Act, Section 7 of the Endangered Species Act, and the Wilderness Act, as well as other laws enacted for the protection of the environment.

NEPA requires the documentation and evaluation of potential impacts resulting from federal actions on lands under federal jurisdiction. Federal actions may include projects financed, assisted, conducted, regulated or approved by a federal agency. An EA discloses the potential environmental consequences of implementing the proposed action and other reasonable and feasible alternatives.

Decision: NEPA is intended to provide decision-makers with sound knowledge of the environmental consequences of the alternatives available to them. In this case, the superintendent of the following parks: City of Rocks National Reserve, Craters of the Moon National Monument and Preserve, Fossil Butte National Monument, Golden Spike National Historic Site, Grant-Kohrs Ranch National Historic Site, Hagerman Fossil Beds National Monument, Little Bighorn Battlefield National Monument, and Minidoka National Historic Site, and Nez Perce National Historical Park (Bear Paw Battlefield and Big Hole National Battlefield), and the NPS Pacific West and Intermountain Regional Directors are faced with a decision regarding whether to adopt and implement an Invasive Plant Management Plan for 10 Northern Rocky Mountains national parks as described herein.

The purpose of this EA is to evaluate options for managing invasive plants in 10 parks located in the Northern Rocky Mountains to reduce the effect of these nonnative plants on natural and cultural resources. Existing conditions constitute the baseline for evaluating the effects of the proposed actions. The effects of the alternatives are presented in Table 38: *Impact Comparison Chart*. Existing conditions constitute the No Action Alternative (Alternative 1). The preferred and environmentally preferred alternative is Alternative 2. The alternatives are compared in Table 35: *Alternative Comparison Chart*.

Impacts: An interdisciplinary team comprised of NPS natural and cultural resources professionals and other subject-matter experts identified the likely beneficial and adverse effects of the proposed actions compared to existing conditions as documented herein.

Analysis of Impairment: NPS *Management Policies* require analysis of potential effects to determine whether or not actions would impair park resources. “The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values (NPS 2006).”

The laws do, however, give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of park resources and values. Although Congress has given the NPS the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, “would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values. An impact

to any park resource or value may, but does not necessarily, constitute an impairment, but an impact would be more likely to constitute an impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated (NPS 2006).” While impairment conclusions are noted for each applicable resource topic in Chapter V: *Environmental Consequences*, in compliance with new NPS, Washington Office guidance, a full impairment analysis is only made for the preferred alternative and can be found in Appendix P.

D. Park Purposes and Significance

The following section provides a general description of each park unit, followed by the purpose and significance of each.

1. City of Rocks National Reserve

General Description: City of Rocks National Reserve (Figure 2) encompasses 14,464 acres in Cassia County in southern Idaho’s Albion Mountains. Approximately 9,520 acres are federally-owned, while 640 acres are state owned and 4,887 acres are privately owned. City of Rocks staff also manages the nearby Castle Rocks State Park (CRSP) (1,400 acres). Both are located near Almo, Idaho, 55 miles south of Burley, Idaho in Cassia County. The parks are within two miles of each other and are surrounded by other public (Bureau of Land Management and U.S. Forest Service) and private lands.

City of Rocks was an important milestone on the California Trail / Salt Lake Alternate west. Its stunning scenery provided inspiration and respite from the journey. It was a landmark enroute to California and Oregon and later for the gold fields of southern Idaho. It also became an important ranching and dryland farming area. For centuries, Native Americans, including the later Shoshone, used the City of Rocks area to procure a wide variety of resources, including pinon nuts.

City of Rocks is world-renowned for climbing and for geologic features, including some of the oldest rock types in western North America.

The area was settled mostly by Mormon settlers during the late 1800s after use of the California Trail brought upwards of 250,000 people through what is now the reserve. Today, land uses in the area are dominated by agricultural industries including grazing and farming, with some mining.

Purpose of City of Rocks National Reserve: With the passage of the Arizona-Idaho Conservation Act of 1988 (PL 100-696), the City of the Rocks National Reserve was added to the National Park System: “There is hereby established the City of Rocks National Reserve in order to preserve and protect the significant historical and cultural resources; to manage recreational use; to protect and maintain scenic quality; and to interpret the nationally significant values of the reserve” [Section 201 (a)].

The in-process GMP involved creating a foundation statement which simplifies the legal language to state: “City of Rocks National Reserve was created to preserve and protect through cooperative efforts the scenic qualities and attributes of the California Trail landscape, historic rural setting, and granite features, while interpreting its values and managing recreation” (NPS CIRO 2009).

The creation of City of Rocks initiated a unique relationship with the NPS and Idaho Department of Parks and Recreation (IDPR). The enabling legislation directs a cooperative effort between the NPS and IDPR in the protection and management of City of Rocks National Reserve. “The National Park Service will transfer management and administration of City of Rocks to IDPR effective upon the approval date of this Cooperative Agreement. ...[NPS will continue to] provide oversight ...and evaluation of IDPRs’ management. ...provide technical assistance, expertise and training in programs such as ...resource management” (Agreement No. 1443-CA9000-96-002 Article II.1.).

CRSP was established in 2000 through a land exchange between NPS and IDPR. It is located two miles east of the City of Rocks and adds to the complexity of managing the reserve. This plan, however, is not legally binding on the state park, although practices at the state park would be similar because they are managed by the same resource staff.

Significance of City of Rocks National Reserve (NPS CIRO 1994): The final Comprehensive Management Plan (CMP) 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 (NPS CIRO 1994).

The following are the Draft Significance Statements crafted for the in-process GMP:

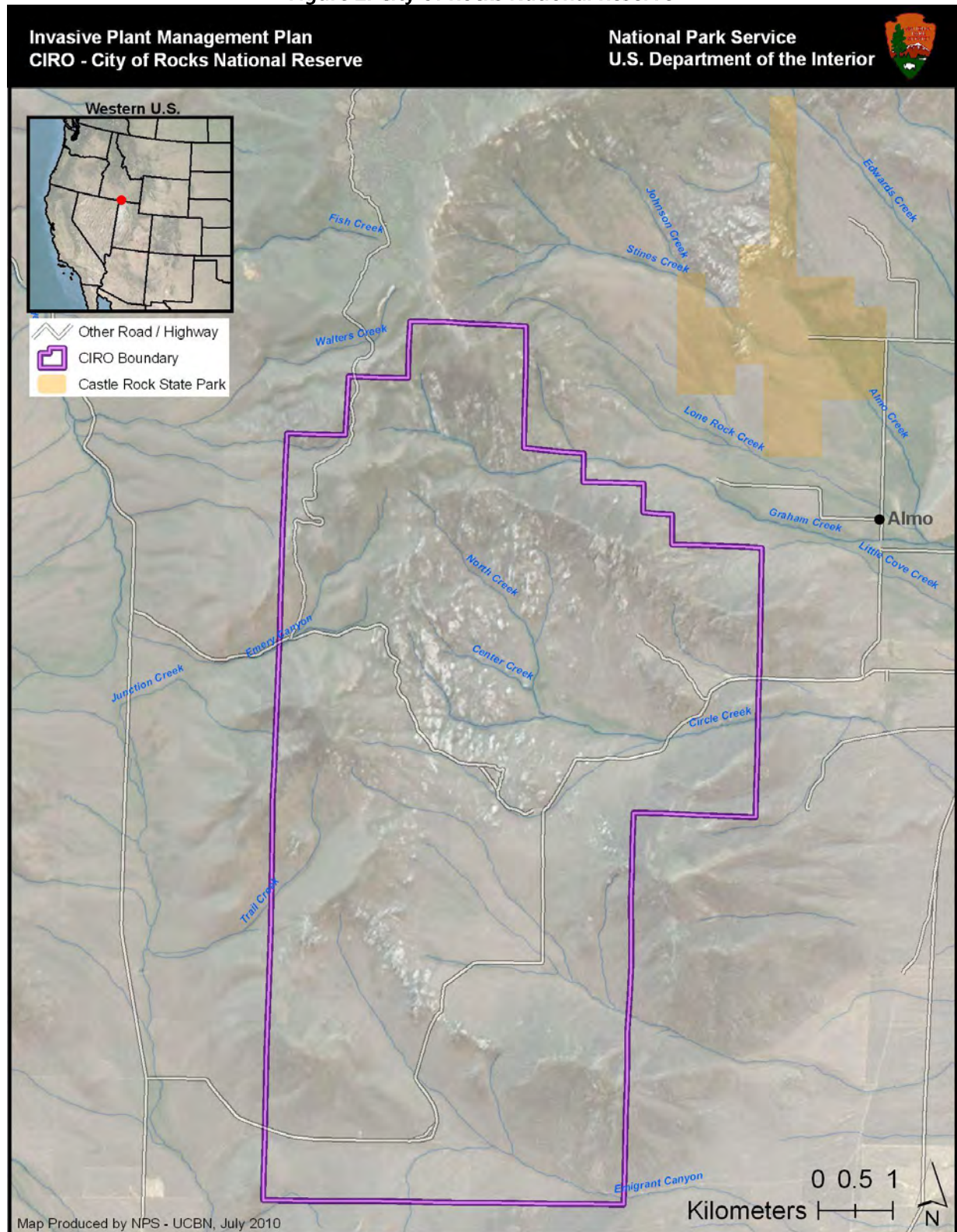
California Trail: As part of the largest overland emigrant route in American history, the Reserve preserves the most intact and authentic setting of the California Trail. City of Rocks serves as a landmark and critical refuge that inspired numerous written accounts of the landscape.

Primary Interpretive Theme: City of Rocks was a major landmark for emigrants traveling along the California Trail. City of Rocks provided rest and inspiration for the many weary travelers who were heading for Granite pass and ultimately for California or Oregon.

Scenery: The Reserve has a timeless natural quality. It protects and preserves outstanding scenery, set among sculpted granite monoliths, framed by the Albion and surrounding mountains.

Primary Interpretive Theme: The timeless scenery of City of Rocks National Reserve is broad

Figure 2: City of Rocks National Reserve



and expansive yet accessible and personal. People developed a personal relationship with this landscape as evidenced by pioneer journals and comments from modern-day visitors.

Western Rural Setting: The Reserve embraces the western rural setting by preserving remnants of traditional occupation, transportation, and land use of prehistoric and historic peoples.

Primary Interpretive Theme: The rural historic setting of City of Rocks National Reserve still provides authenticity to the traditional western rural lifestyles of the past 150 years, as well as much of the prehistoric culture period.

Geologic Landscape: The Reserve is a dramatic geologic landscape with naturally sculpted spires and domes that evoke emotional responses as recorded in emigrant diaries and from visitors of today.

Primary Interpretive Theme: erosion of a cross-jointed granite Pluton has resulted in the formation of a maze of spires and domes that are noted for their impressive scenery, stark silence, and inspirational qualities.

Study Of Geologic Processes: The uplifted and eroded rocks at the Reserve are like an open window into the crust of the earth where visitors and scientists can view (1) geologic structures and rock types resulting from ancient tectonic events that raised the mountainous interior of the western United States and (2) landforms that provide clues to the surficial processes that shaped the current landscape.

Primary Interpretive Theme: The uplifted and eroded rocks at City of Rocks National Reserve are like an open window into the earth where visitors and scientists can view tectonic events that raised the mountainous interior of the western United States and can view surficial processes that are shaping the current landscape.

Biological Diversity: The Reserve protects a rich ecological diversity found within the overlay of two biogeographic regions, which provides exceptional opportunities for scientific study and shared learning.

Primary Interpretive Theme: To be developed

Rock Climbing: The Reserve provides one of the highest quality granite face-climbing areas in the United States.

Primary Interpretive Theme: People come from around the world to experience the challenge of climbing the rocks in a quiet and scenic western setting

Nonnative Invasive Plants

City of Rocks contains approximately 19 nonnative plant species. Nine of these are currently targeted for treatment. It is estimated that approximately 30 acres of the 14,464 acres at City of Rocks are affected by nonnative species.

2. Craters of the Moon National Monument and Preserve

General Description: The NPS administered portion of Craters of the Moon (Figure 3) covers 467,063 acres and is located in south-central Idaho. It contains three major lava flows along the Great Rift Volcanic System, interspersed with scattered islands of cinder cones and sagebrush steppe. Over 90% of the area has been either designated as wilderness or recommended for wilderness designation.

Purpose of Craters of the Moon National Monument and Preserve: Based upon the proclamations and legislation for the Monument, the Monument Management Plan (NPS CRMO 2005:7) characterizes the purposes of Craters of the Moon National Monument and Preserve:

- Safeguard the volcanic features and geologic processes of the Great Rift.
- Provide scientific, educational, and interpretive opportunities for the public to foster an understanding and appreciation of the volcanic geology and associated natural phenomena.
- Maintain the wilderness character of the Craters of the Moon Wilderness Area and of the Wilderness Study Areas.
- Perpetuate the scenic vistas and great open western landscapes for future generations.
- Protect kipukas (older vegetated terrain surrounded by lava flows) and remnant vegetation areas and preserve important habitat for sage-grouse, a BLM sensitive species. (*Note:* Sage-grouse are currently a USFWS candidate for listing under the Endangered Species Act (ESA).)
- Continue the historic and traditional human relationships with the land that have existed on much of this landscape for generations.

Significance of 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:

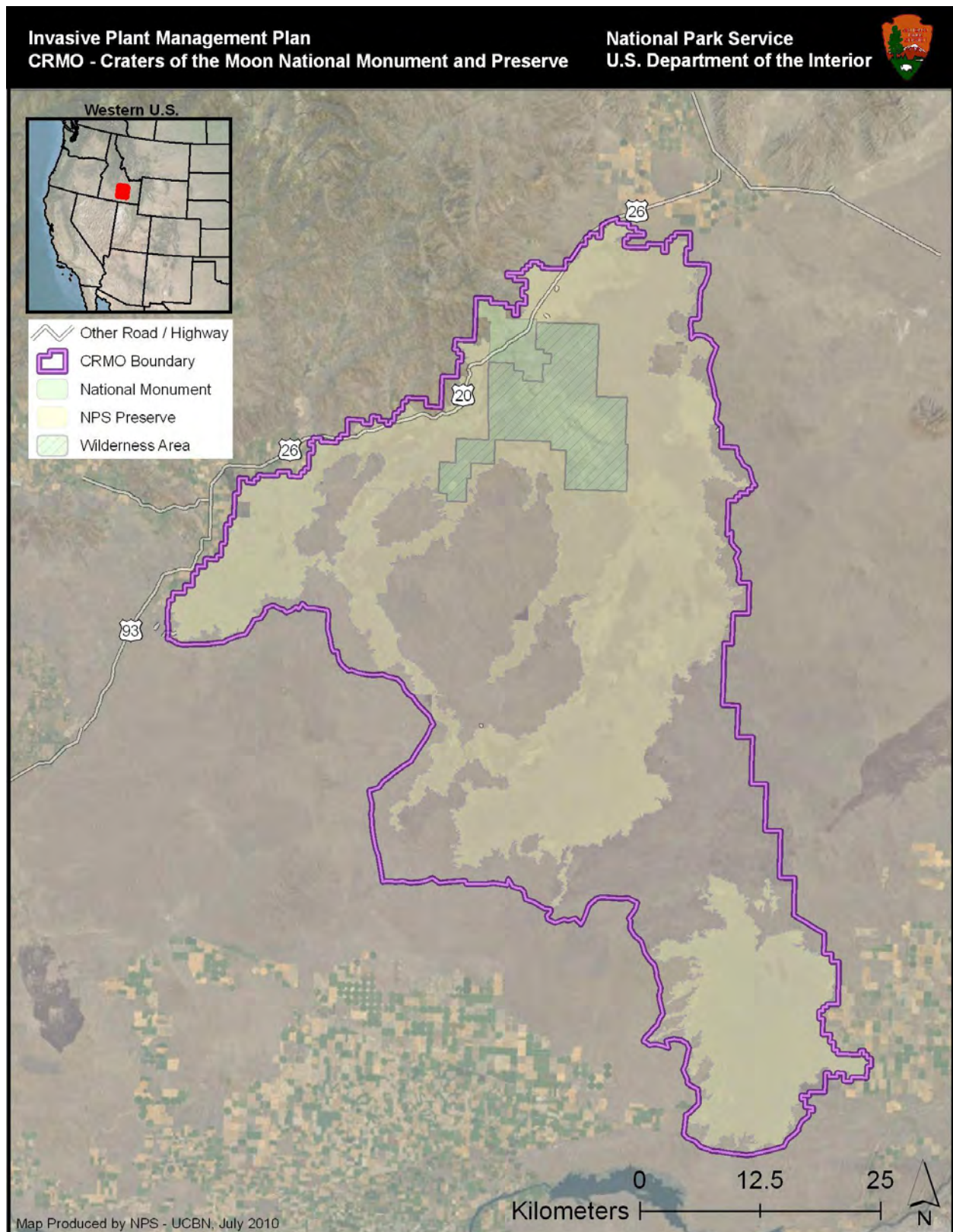
- It contains a remarkable and unusual diversity of exquisitely preserved volcanic features, including nearly all of the familiar features of purely basaltic volcanism – craters, cones, lava flows, caves, and fissures.
- It contains most of the Great Rift area, the deepest known land-based open volcanic 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.

Nonnative Invasive Plants

Craters of the Moon has been conducting weed management activities since 1968, although no comprehensive effort was made until 1996. Craters of the Moon currently hires and supervises 3-5 biological technicians each season to survey, map, and treat noxious weeds and nonnative plants in the monument and preserve. This is supplemented by additional interns and volunteers whenever possible. The Craters of the Moon vegetation ecologist also spends approximately 30 percent of his time on weed management activities and other resource staff is used when necessary. Craters of the Moon works closely with the BLM and two state sponsored cooperative weed management areas to address weed issues on adjoining lands.

Craters of the Moon contains approximately 101 nonnative plant species, of which approximately 24 are currently targeted for treatment. It is estimated that approximately 185,000 acres of the 467,063 acres (about 40 percent) at Craters of the Moon are affected by nonnative species. Control efforts focus on state listed noxious weeds including spotted and diffuse knapweed, dyers woad, and leafy spurge.

Figure 3: Craters of the Moon National Monument and Preserve



3. Fossil Butte National Monument

General Description: Fossil Butte (Figure 4) covers 8,198 acres, and is located in southwest Wyoming near U.S. Highway 30, approximately 13 miles west of Kemmerer and 15 miles east of Sage Junction near the Utah/Wyoming state lines. The landscape is high desert, dominated by sagebrush and perennial grasses. The park contains 13 square miles of a former 930 square mile lake and is known for its great diversity of fossils and associated geology of the fossil lake.

Purpose of Fossil Butte National Monument: Fossil Butte National Monument, established in 1972, preserves for the benefit and enjoyment of present and future generations paleontological sites and geological phenomena of the Eocene Green River Formation; provides for research, display, and interpretation of scientific specimens; and conserves unimpaired for future generations the resources, scenery, and the wildlife of a portion of Fossil Basin (NPS FOBU 2005).

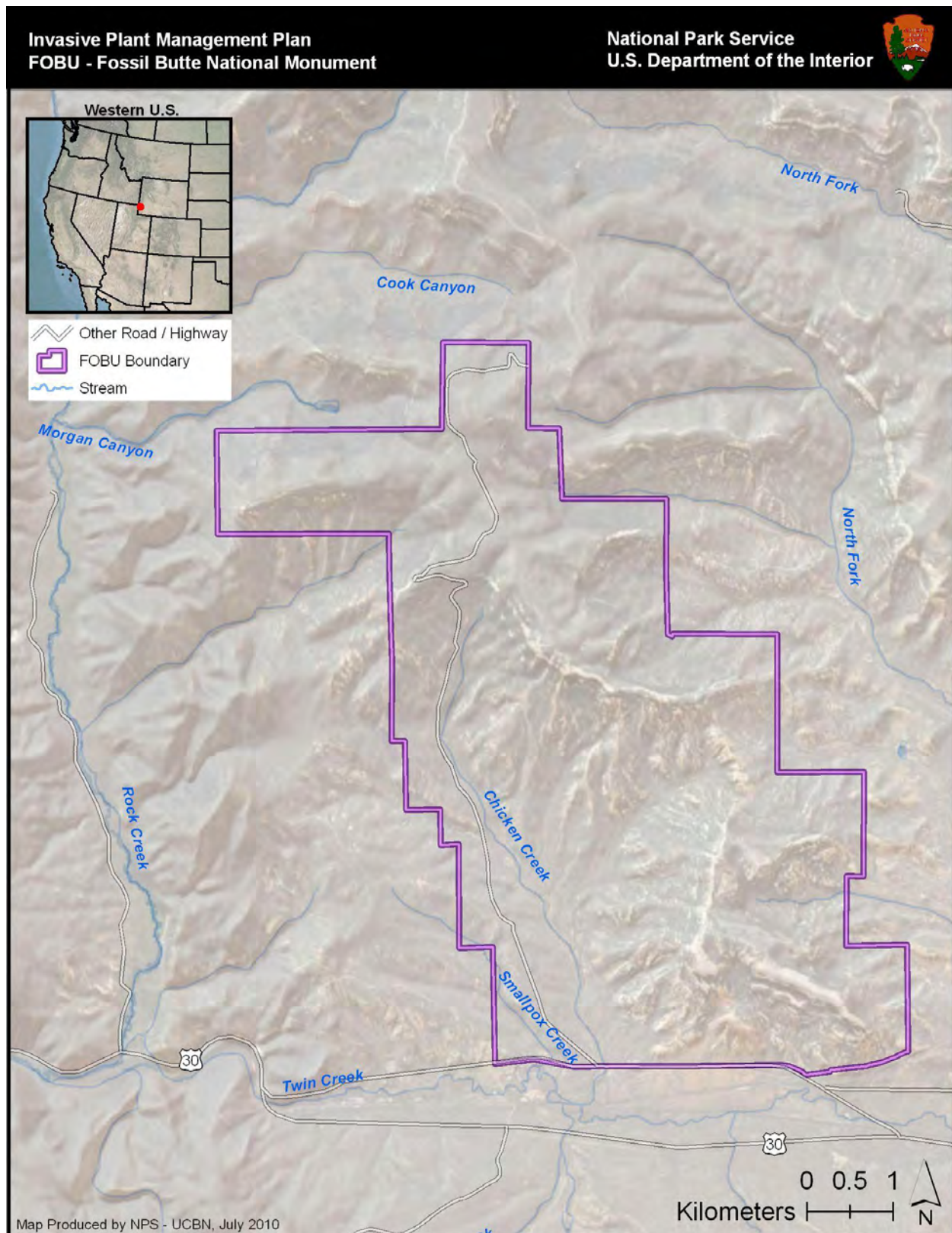
Significance of Fossil Butte National Monument: Some of the world's best preserved fossils are found in the flat-topped ridges of southwestern Wyoming's cold sagebrush desert. Fossilized fish, insects, plants, reptiles, birds, and mammals are exceptional for their abundance, variety, and detail of preservation. 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 (NPS FOBU 2005).

Nonnative Invasive Plants

Fossil Butte contains approximately 65 nonnative plant species. Of these, approximately 12 are currently targeted for treatment. It is estimated that approximately 2,000 acres of the 8,198 acres at Fossil Butte are affected by nonnative species. A single saltcedar found in the park was immediately eradicated by park staff without a recurrence.

Figure 4: Fossil Butte National Monument



4. Golden Spike National Historic Site

General Description: Golden Spike (Figure 5) encompasses 2,735 acres in the northwest corner of Utah. The park is surrounded by dry-land farming and cattle grazing. This Transcontinental Railroad site is approximately 15 miles long and 800 feet across – including 400 feet on each side of railroad bed. Most of the park, however, only includes the railbed and is therefore 400 feet wide. Although railroad operations have ceased, the land uses adjacent to the railroad corridor remain predominantly agricultural, and contribute to the high level of integrity of setting found in most areas of the historic site (NPS GOSP 2005). On May 10, 1869 the Union and Central Pacific Railroads joined their rails at Promontory Summit. Golden Spike National Historic Site commemorates this incredible accomplishment of this nation's first transcontinental railroad.

Purpose of Golden Spike National Historic Site: On July 30, 1965 Golden Spike National Historic Site was created "for the purpose of establishing a national historic site commemorating the completion of the first transcontinental railroad across the United States" (NPS GOSP 1976). Public Law 89-102 (July 1965) set aside such lands as necessary "for the purpose of establishing a national historic site commemorating the completion of the first transcontinental railroad across the United States. . ." (NPS GOSP 1976). Originally the area was designated a National Historic Site in non-federal ownership by the Secretary of the Interior on April 2, 1957.

Some 690 miles east of Sacramento, California and 1,087 miles west of Omaha, Nebraska, Golden Spike lies in the northern reaches of the Great Basin Desert and ranges from 4,300 to 4,900 feet above sea level. Located at the site of the driving of the last spike of the first transcontinental railroad on May 10, 1869, its paramount purpose is to illustrate the social, economic, and political impacts of the transcontinental railroad on the growth and westward development of the United States.

... the paramount historical significance of the first transcontinental railroad lies in its effect upon the Far Western frontier. It made the first serious and permanent breach in the frontier, and established the process by which the entire frontier was to be demolished. As the site where the Central Pacific and Union Pacific united to inaugurate cross-country rail travel, Promontory Summit best illustrates the historical meaning, as well as the dramatic construction story, of the first transcontinental railroad (Utley 1960).

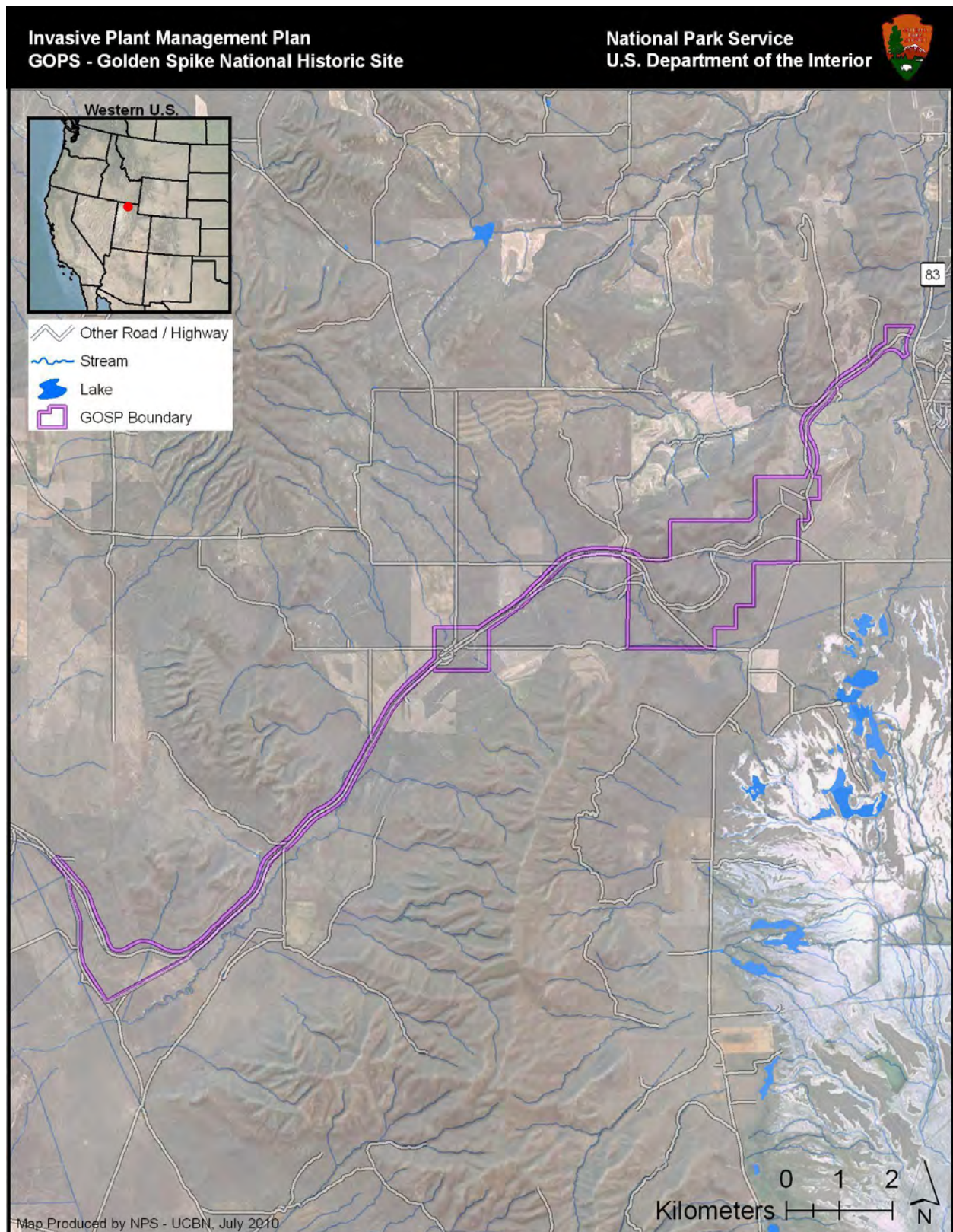
Significance of Golden Spike National Historic Site

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.

Among the Management Objectives identified by the 1976 GMP include:

- To manage the park's historic scene and resources, as closely as practical, in keeping with their character and appearance in 1869.
- To support preservation and restoration of the site through identification, evaluation, and interpretation of historic resources.
- To provide visitors with an opportunity to understand and appreciate the railroad race to Promontory, and the effects of its completion on the development of the West, and on the social, political and economic history of the nation.

Figure 5: Golden Spike National Historic Site



- To promote better understanding of the historic site within the region by increasing the level of programs and activities for school and other organized groups.
- To promote enjoyment and understanding of the park's resources through the provision of visitor services and recreational facilities that do not adversely affect historic values.
- To promote the sphere of NPS influence in the region to support interest and action in the preservation of our national heritage (NPS GOSP 1976).

Nonnative Invasive Plants

Golden Spike contains approximately 133 plant species of which 63 are nonnative. Of these, approximately 10 are currently targeted for treatment, including dyers woad, which requires annual follow-up treatments for years. In 2007, a limited infestation of saltcedar was eradicated. It is estimated that approximately all of the 2,735 acres at Golden Spike are affected by nonnative species.

5. Grant-Kohrs Ranch National Historic Site

General Description: Grant-Kohrs (Figure 6) is a historic ranch in southwest Montana. The ranch combines picturesque grasslands, historic buildings and structures, ranging cattle and horses, and is framed by the snow covered peaks of Deer Lodge Mountain and the Continental Divide (NPS GRKO 2008b).

The park was established in 1972, with the enabling legislation stating the park's purpose to provide an understanding of the frontier cattle era of the Nation's history. In 1988 the original 216 acres was expanded to 1,618 acres. The intent of Congress and all subsequent management plans is to manage the area as a working ranch. The GMP states that natural resource management will support the park's primary purpose of preserving and interpreting a working ranch and that noxious weed control programs . . . will be pursued (NPS GRKO 2008b:19). The park consists of nine component landscapes and is a National Historic Landmark encompassing a period of significance from 1862 – 1972.

Cattle have historically grazed most of the land and this grazing is an integral part of the park and its interpretive program. Wide open spaces, the hard-working cowboy, his spirited cow pony, and vast herds of cattle are among the strongest symbols of the American West. Once the headquarters of a 10 million acre cattle empire, the park is now a working cattle ranch that preserves these symbols and commemorates the role of cattlemen in American history.

Purpose of Grant-Kohrs Ranch National Historic Site

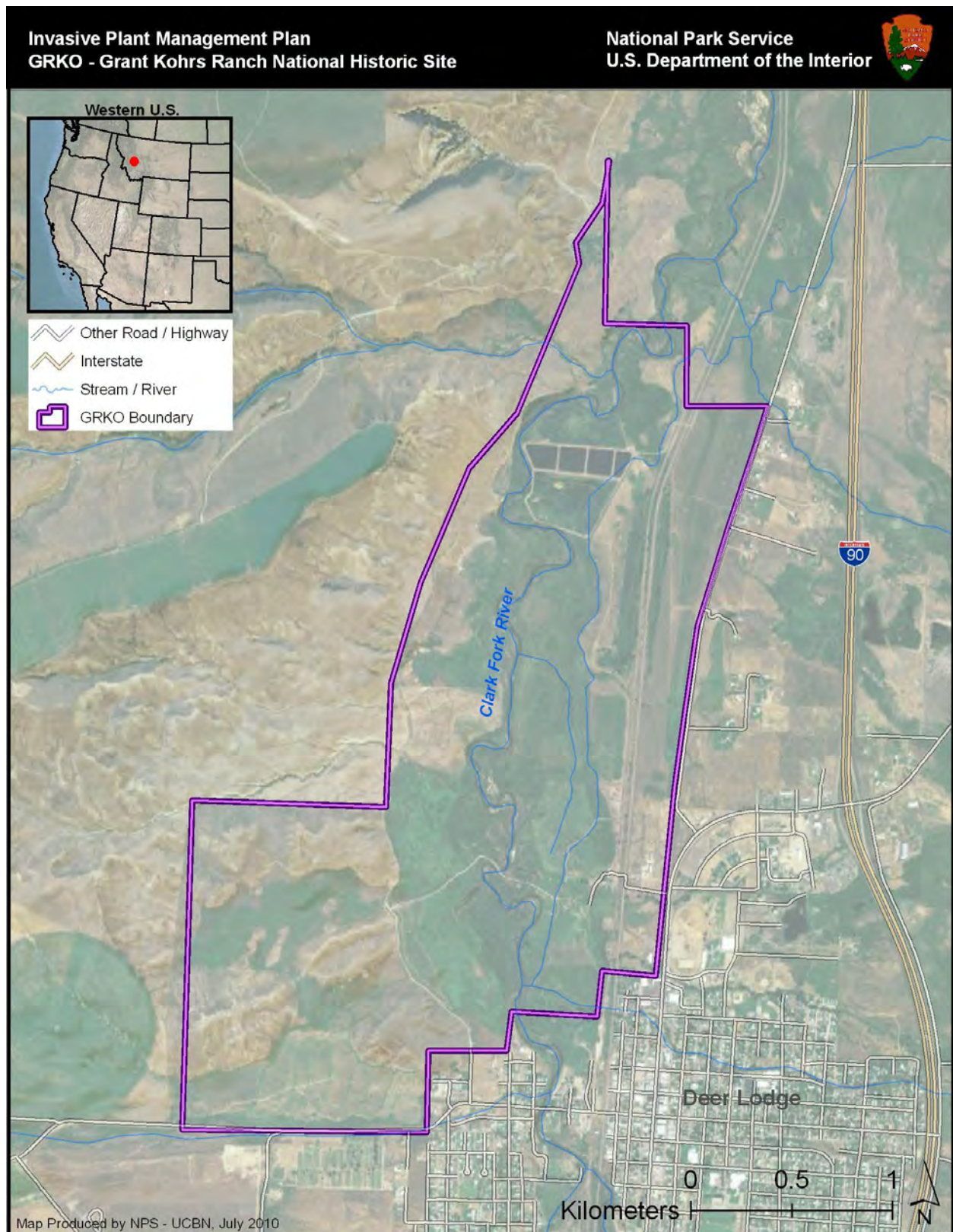
Founded in 1860 by pioneer stock grower John Grant, succeeded in 1866 by cattle baron Conrad Kohrs and preserved between 1940 and 1972 by Hereford rancher Conrad Kohrs Warren, Grant-Kohrs Ranch joined the NPS on August 25, 1972. Congress authorized this site's establishment to:

. . . provide [visitors with] an understanding of the frontier cattle era of the Nation's history, to preserve the Grant-Kohrs Ranch, and to interpret the nationally significant values thereof for the benefit and inspiration of present and future generations (Public Law 92-406, 86 Stat. 632, August 25, 1972).

Significance of 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.

Figure 6: Grant-Kohrs Ranch National Historic Site



- 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).

Grant-Kohrs Ranch Management Objectives (NPS 1993:3) state that the basis for preparing planning documents, formulating alternatives, and analyzing potential impacts to park operations are:

- To provide opportunities for the visitor to understand the cattle industry and its evolution from the open range of the mid-1860s, to mechanized feedlot operations that began in the 1930s and extended until establishment of the park in the 1970s.
- To maintain historic structures, buildings, objects, and landscapes in such a manner as to complement the ranch's primary purpose and enhance visitor understanding and appreciation of cattle ranch operations.
- To manage natural resources in such a manner as to complement the historic context of the ranch and cattle ranching operations.

Nonnative Invasive Plants

Grant-Kohrs contains approximately 86 nonnative plant species. Of these, approximately 18 are currently targeted for treatment. It is estimated that approximately 625 acres of the 1,618 acres at Grant-Kohrs are affected by nonnative species.

Noxious weed management has been implemented through an IPM approach at Grant-Kohrs since in 1985. Initially, spotted knapweed and Canada thistle were considered the primary pests. As of 2010, there are 12 Montana listed noxious weeds present and managed for at Grant-Kohrs including leafy spurge and yellow toadflax. IPM strategies implemented at Grant-Kohrs have included mapping and monitoring, hand-pulling, mowing, biocontrol, livestock grazing, herbicide application, and cooperation in the Gold Creek Cooperative Weed Management Area.

6. Hagerman Fossil Beds National Monument

General Description: Hagerman Fossil Beds (Figure 7) was established on November 18, 1988 by Public Law 100-696. The monument protects the world's richest known fossil deposits from the late Pliocene period (3.5 million years ago). The diverse Hagerman fossil specimens represent the last vestiges of species that existed before the Ice Age and the earliest appearances of modern plants and animals. The deposits are contained in continuous, uninterrupted geologic strata exposing 500,000 years of an intact paleoecosystem, including wetland, riparian and grassland savanna habitats (NPS HAFO 1996).

Hagerman Fossil Beds encompasses 4,350 acres located in Gooding and Twin Falls counties in south central Idaho. This includes 420 acres owned by Idaho, but managed by the monument under a cooperative agreement with the Idaho Department of Parks and Recreation. The monument is located on steep bluffs which rise 600 feet above the Snake River. Two dams, the Upper Salmon Falls and Lower Salmon Falls are located a short distance up- and downstream.

Purpose of Hagerman Fossil Beds National Monument: The purpose of Hagerman Fossil Beds is:

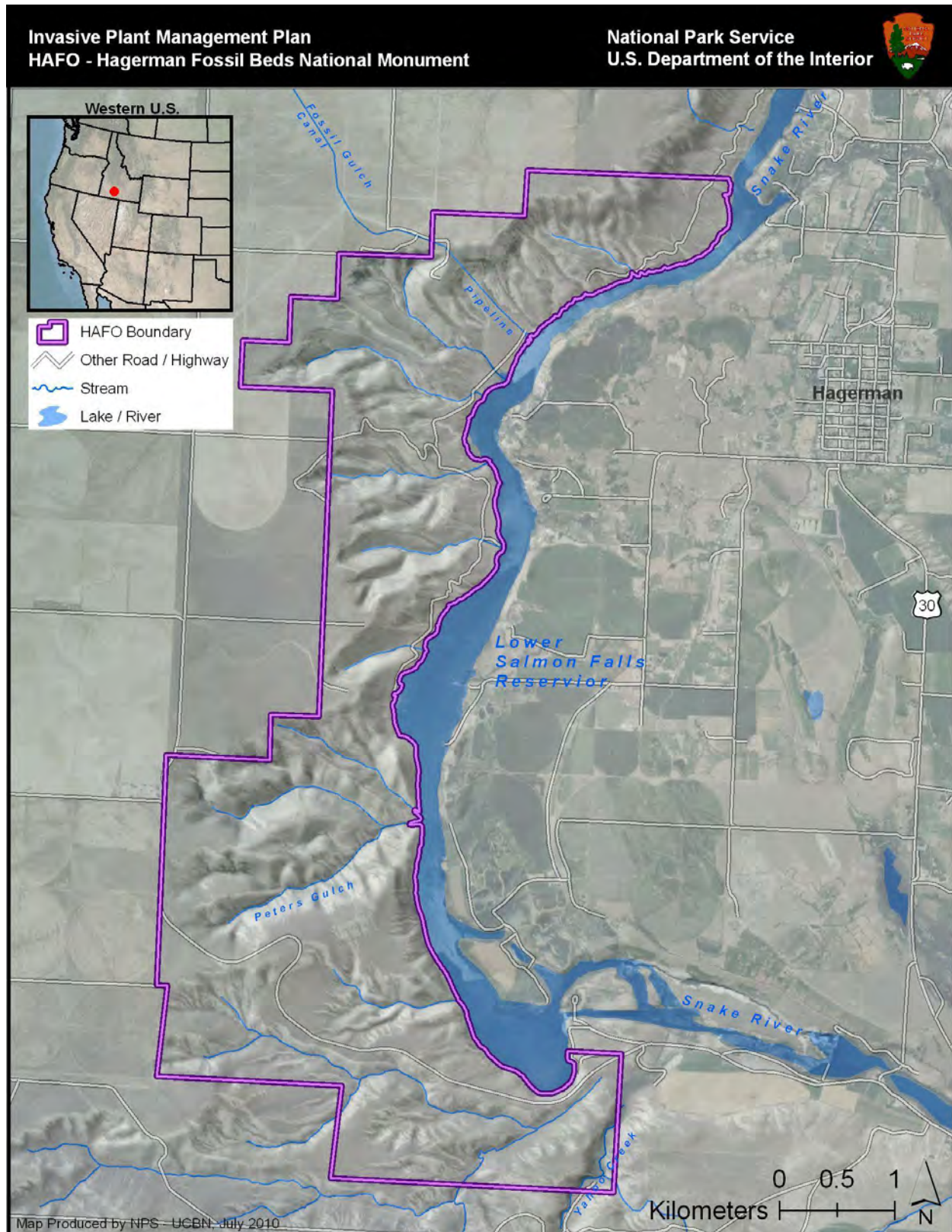
- To preserve for the benefit and enjoyment of present and future generations the outstanding paleontological sites known as the Hagerman Valley fossil sites.

- To provide a center for continuing paleontological research.
- To provide for the display and interpretation of the scientific specimens uncovered at such sites.
- To provide for the orderly and regulated use of and research in the monument by qualified scientists, scientific groups, and students under the jurisdiction of such qualified individuals and groups (NPS HAFO 1996:7).

Significance (national and international) of 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.

Figure 7: Hagerman Fossil Beds National Monument



- 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 HAFO 1996:7-8).

Nonnative Invasive Plants

Hagerman Fossil Beds contains approximately 20 nonnative plant species. Of these, approximately 16 are currently targeted for treatment. It is estimated that approximately most of the 4,350 acres at Hagerman Fossil Beds are affected by nonnative species.

7. Little Bighorn Battlefield National Monument

General Description: Little Bighorn (Figure 8) is comprised of 765 acres just north of the Montana / Wyoming border and commemorates one of the last armed actions between the U.S. Army and the Northern Plains Indians as the tribes fought boldly to preserve their way of life. In 1876 Lt. Col. George A. Custer and 262 soldiers and attached personnel of the Seventh Cavalry met defeat and death by an overwhelming force of more than 1,500 Lakota Sioux, Cheyenne, and Arapaho warriors.

The battlefield “consists of two separate parcels. The main parcel contains the ridge where Custer made his last stand against the Indians. The second parcel contains the site of the Reno-Bentzen defense perimeter” (NPS LIBI 1986:3). The 4.1-mile Tour Road is a right-of-way connecting the two battlefields.

Custer Battlefield National Cemetery was established in 1879 by General Orders Number 79 to protect the graves of Seventh Cavalrymen who fell in the Battle of the Little Bighorn. In 1886 the boundary was established, setting aside one square mile within the Crow Reservation for military purposes.

The primary purpose of Little Bighorn Battlefield National Monument is to preserve and protect the historic and natural resources pertaining to the Battle of the Little Bighorn... Landscapes within the primary viewshed surrounding the national monument are an important element of the national monument's historic resources. Preservation of these viewsheds in a natural appearing condition is necessary to maintain the element of "historic association" the visitor feels with the landscape while at Custer Battlefield (NPS LIBI 1986:3).

Purpose of Little Bighorn Battlefield National Monument: The primary purpose of little Bighorn Battlefield National Monument is to preserve and protect the historic and natural resources pertaining to the Battle of the Little Bighorn and to provide visitors with a greater understanding of those events which led up to the battle, the encounter itself, and the various effects the encounter had on the two cultures involved (NPS LIBI 1986:3).

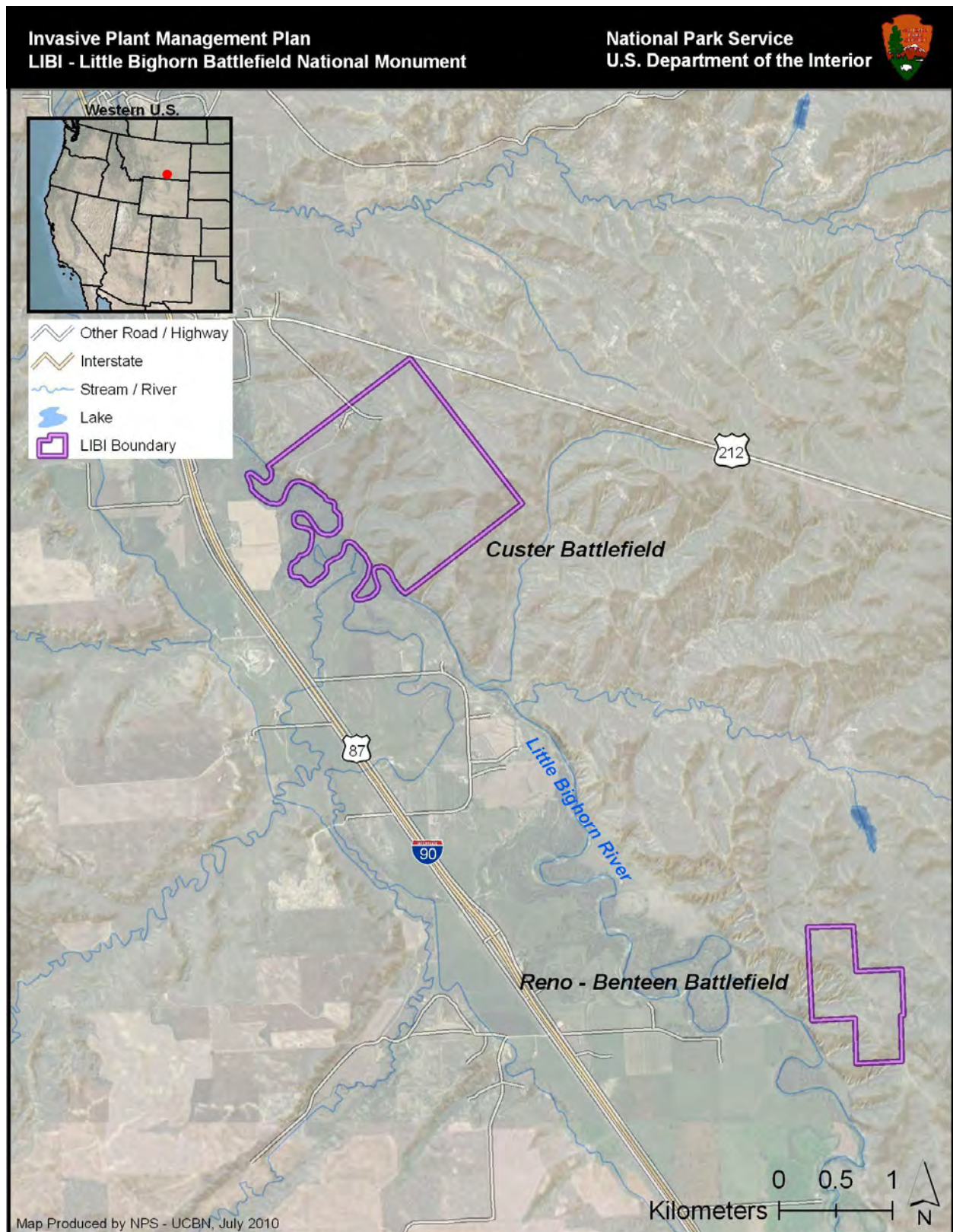
In 1991 Custer Battlefield was redesignated as Little Bighorn Battlefield National Monument and the design, construction, and maintenance of a memorial was authorized "in order to honor and recognize the Indians who fought to preserve their land and culture in the Battle of the Little Bighorn, to provide visitors with an improved understanding of the events leading up to and the consequences of the fateful battle, and to encourage peace among peoples of all races..." (P.L. 102-201).

Significance of Little Bighorn Battlefield National Monument:

The following are the Draft Significance Statements crafted for the in-process Long Range Interpretive Management Plan:

- 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

Figure 8: Little Bighorn Battlefield National Monument



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 (NPS LIBI 2010).

Nonnative Invasive Plants

Little Bighorn contains approximately 77 nonnative plant species within the park boundary and on the 4.1 mile right-of-way easement between the two battlefields. Of these, approximately 18 are currently targeted for treatment. It is estimated that approximately 253 acres of the 765 acres at Little Bighorn, or one third of park lands, are affected by nonnative species.

8. Minidoka National Historic Site

General Description: Minidoka (Figure 9) encompasses 300 acres in south central Idaho. Established by presidential proclamation on January 17, 2001, Minidoka National Historic Site preserves and interprets the historic features and history of the former Minidoka Relocation Center, which held 13,000 Nikkei (Japanese American citizens and legal resident aliens of Japanese ancestry) from Washington, Oregon, California, and Alaska during World War II. In February 1942, President Franklin D. Roosevelt signed an executive order that moved nearly 120,000 Japanese and Japanese Americans into 10 isolated relocation centers in Arizona, Arkansas, California, Colorado, Idaho, Utah, and Wyoming. Minidoka is one of those sites. The national monument contains only a small part of the 33,000-acre historic camp.

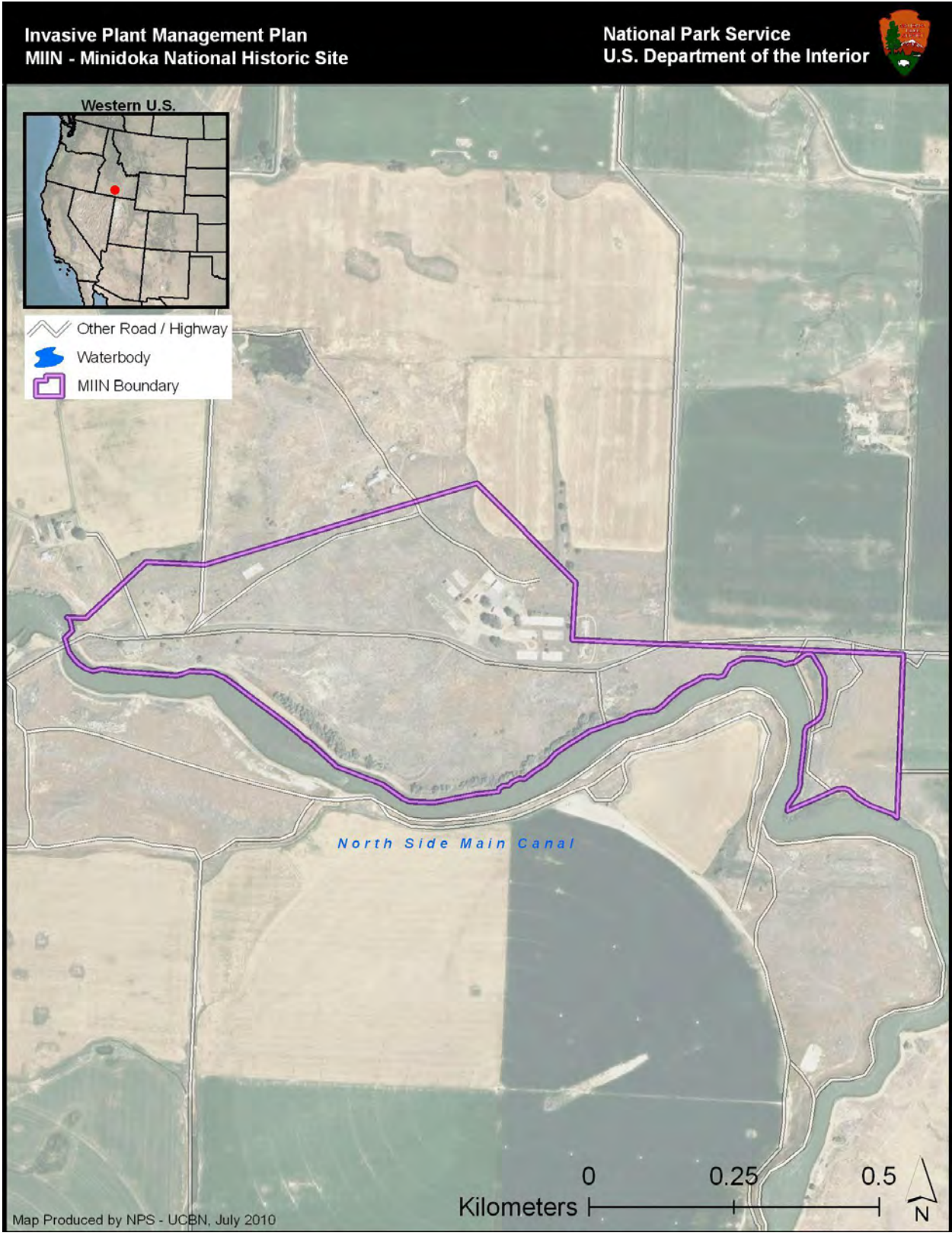
Purpose of Minidoka National Historic Site: The purpose of the Minidoka National Historic Site is to provide opportunities for public education and interpretation of the internment and incarceration of Nikkei during World War II. The national monument protects and manages resources related to the Minidoka Relocation Center (NPS MIIN 2006).

Significance of 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.

Figure 9: Minidoka National Historic Site



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 (NPS MIIN 2006).

Nonnative Invasive Plants

Minidoka contains approximately 20 nonnative plant species. Of these, approximately nine are currently targeted for treatment. It is estimated that approximately 300 acres of the 300 acres at Minidoka are affected by nonnative species.

9. Nez Perce National Historical Park: Bear Paw Battlefield

10. Nez Perce National Historical Park: Big Hole National Battlefield

Bear Paw Battlefield (Figure 10) and Big Hole National Battlefield (Figure 11) are among the 38 sites within Nez Perce National Historical Park and are part of this plan.

General Description Nez Perce National Historical Park: Nez Perce National Historical Park currently encompasses 38 sites, spread over more than 1,000 miles in Oregon, Idaho, Washington, and Montana. The park was established on May 15, 1965 to “facilitate protection and provide interpretation of sites in the Nez Perce Country of Idaho that have exceptional value in commemorating the history of the Nation.” Specifically mentioned are sites that related to “the early Nez Perce culture, the Lewis and Clark Expedition through the area, the fur trade, missionaries, gold mining and logging, the Nez Perce War of 1877, and such other sites as will depict the role of the Nez Perce Country in the westward expansion of the Nation” (NPS NEPE 1997). Twenty four sites were designated part of the park as a result of this legislation. Subsequent legislation (October 30, 1992) authorized additional sites in Oregon, Washington, Montana and Wyoming to be added and specified 14 sites to be included in the park, including Bear Paw Battlefield, near Chinook Montana (NPS NEPE 2000:2). Nez Perce National Historical Park sites include historic buildings, battlefields, missions, landscapes, cemeteries, trails, archeological sites and geological formations.

Purpose of Nez Perce National Historical Park: The GMP for Nez Perce National Historical Park and Big Hole National Battlefield identified the following park purposes:

- Facilitate protection and offer interpretation of Nez Perce sites in Idaho, Oregon, Washington, Montana and Wyoming that have exceptional value in commemorating the history of the United States.
- Preserve and protect tangible resources that document the history of the Nez Perce peoples and significant role of the Nez Perce in North American history.
- Interpret the culture and history of the Nez Perce peoples and promote documentation to enhance that interpretation (NPS NEPE 1997).

Significance of 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 (NPS NEPE 1997).

General Description Bear Paw Battlefield: The battlefield, containing approximately 190 acres, is located approximately 16 miles south of the town of Chinook, Montana along County Route 240. Bear Paw Battlefield is the site of the last battle with the non-treaty Nez Perce at the end of the Nez Perce's 1877 flight from the U.S. military following a final attempt by the military to move them to a smaller reservation because gold had been discovered on their larger reservation 14 years earlier. It is considered to be one of the last major Indian battles in the United States. The Battlefield, withdrawn from lands available under the Homestead Act of 1862 by congressional action in 1928 is listed on the National Register of Historic Places as a National Historic Landmark. The battlefield was designated a unit of Nez Perce National Historical Park in 1992. The site, however, continued to be managed by the State of Montana Fish, Wildlife and Parks until the NPS acquired the property in 2005. Bear Paw Battlefield is also the ending point for of the Nez Perce (Nee-Me-Poo) National Historic Trail, which is administered by the U.S. Forest Service.

Today, except for the addition of a 0.75 mile interpretive trail, nearby parking, restrooms and a picnic shelter and agricultural changes to surrounding lands, including a county access road, the site remains similar to its appearance during the battle.

Significance of 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.

Bear Paw Battlefield Nonnative Invasive Plants

Bear Paw contains approximately nine nonnative plant species. Of these, one is currently targeted for treatment. It is estimated that approximately five acres of the 190 acres at Bear Paw are affected by nonnative species.

Figure 10: Bear Paw Battlefield

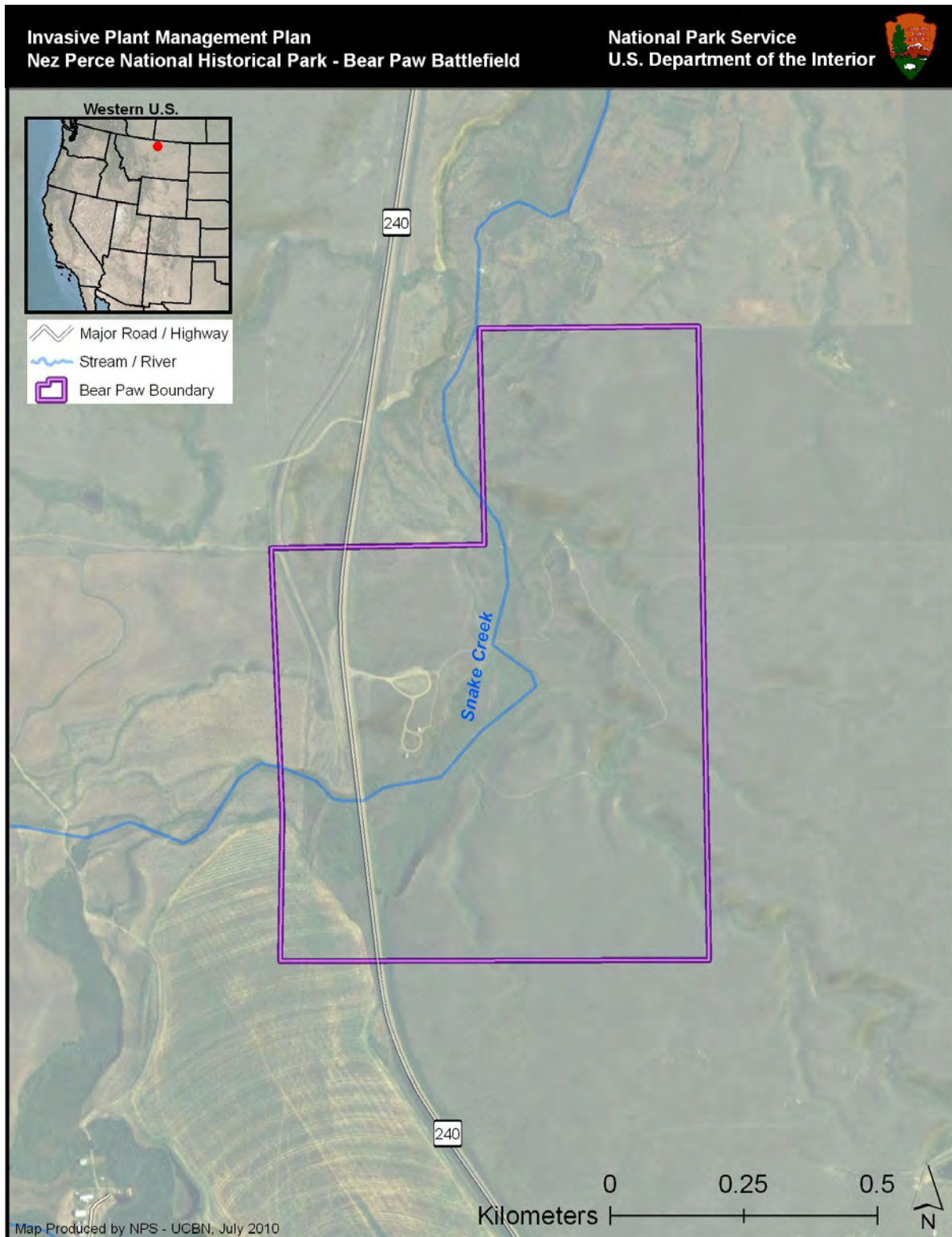
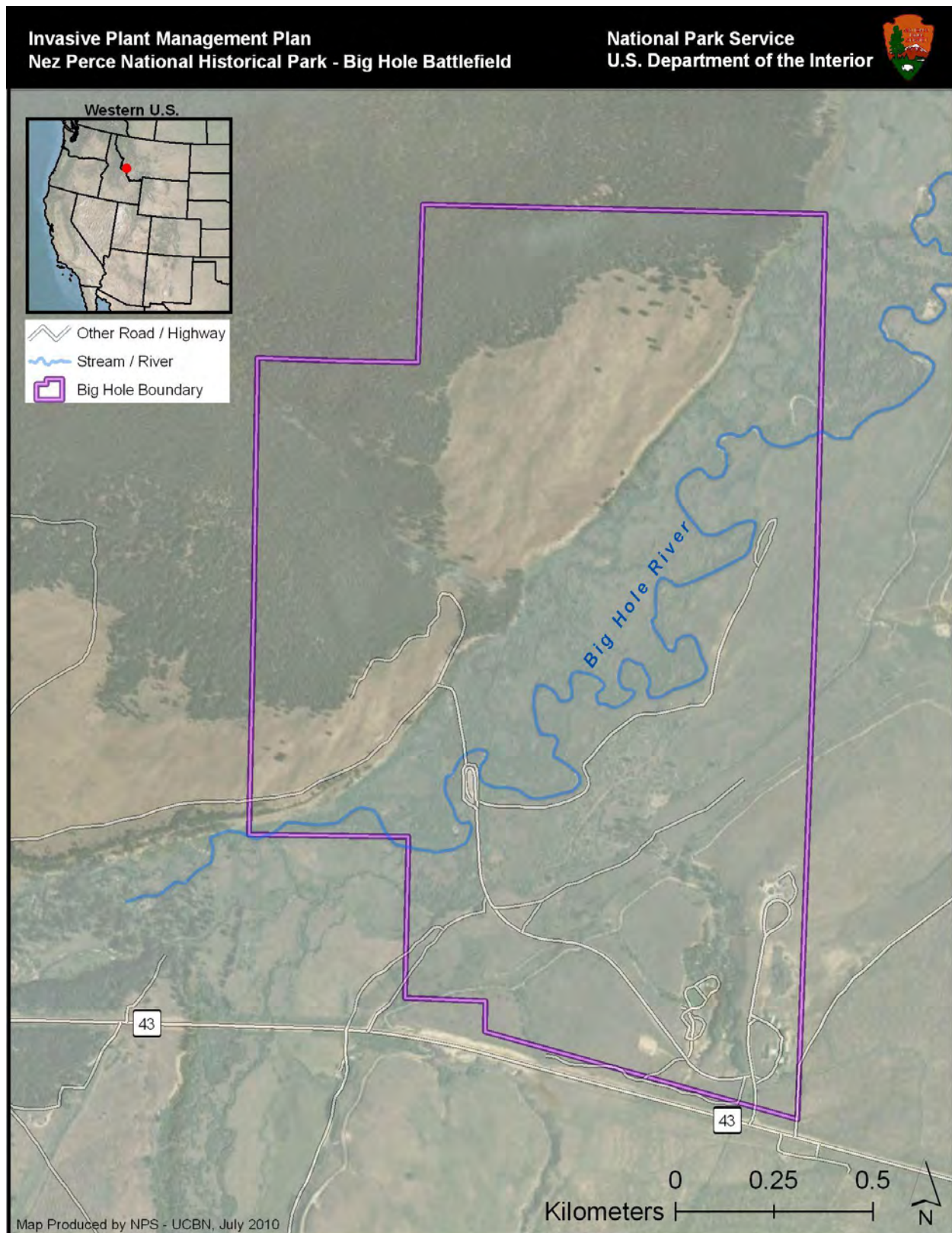


Figure 11: Big Hole National Battlefield



General Description Big Hole National Battlefield: Big Hole (655 acres) is located in the southwest corner of Montana, 10 miles west of Wisdom. Unlike Bear Paw (see previous description), Big Hole is a separate unit of the national park system. The Nez Perce were camped along the Big Hole River in 1877 when they were attacked and overrun by Col. John Gibbon's troops. The visitor center at the site primarily interprets the Big Hole Battle and the War of 1877. Wayside exhibits and battlefield markers identify key events on the battlefield.

Big Hole retains much of its character because it is surrounded by ranching operations and the Beaverhead National Forest. The few visual intrusions include the visitor center, park housing, and neighboring ranch outbuildings. Big Hole is also a site along the Nez Perce (Nee-Me-Poo) National Historic Trail.

Big Hole contains a visitor center, five residential structures (providing 10 living units), a water treatment plant, a picnic area, two self-guided interpretive trails, parking lots, and an internal road circulation system.

Some surrounding NPS land is used for agriculture. Water rights deeds reserve private use of four irrigation ditches and the right of access to maintain and repair them across NPS property.

Significance of 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.

Big Hole National Battlefield Nonnative Invasive Plants

Big Hole contains approximately eight nonnative plant species. Of these, approximately four are currently targeted for treatment. It is estimated that approximately 75 acres of the 655 acres at Big Hole are affected by nonnative species.

E. History of NPS Nonnative Plant Management Program

National parks are home to complex native ecosystems that have developed over millions of years. This natural heritage is threatened by the invasion of nonnative plants and animals, including human-caused disturbance that fosters the establishment of nonnative species. The introduction of nonnative invasive species is an emerging global problem (NPS 2010). A recent Cornell University study estimated that invasive plants and animals cost the United States economy \$120 billion annually (Pimentel *et al.* 2005). In the U.S., approximately 400 of the 958 species listed as threatened or endangered are considered to be at risk primarily because of competition with or predation by nonnative species (Wilcove *et al.* 1998). Today, nonnative plants infest some 2.6 million acres in the national parks (Asher and Harmon 1995). In other parts of the world as many as 80 percent of protected areas are threatened by nonnative invasive species pressures (Armstrong 1995). About 234 national parks also have invasive animals in need of management. Control of nonnative species is one of the most critical land management issues facing national parks.

To supplement individual park efforts to manage invasive plants on park lands, 16 Exotic Plant Management Teams (EPMTs) have been established. The teams support management of nonnative plants throughout the United States especially in small parks previously unable to address this threat. The teams were modeled after the coordinated rapid response approach used in wildland fire fighting. The success of the EPMT derives from its ability to adapt to local conditions and needs, using weed science expertise and partnerships (NPS 2010). In addition to the NRM-EPMT, there are EPMT teams in the following areas:

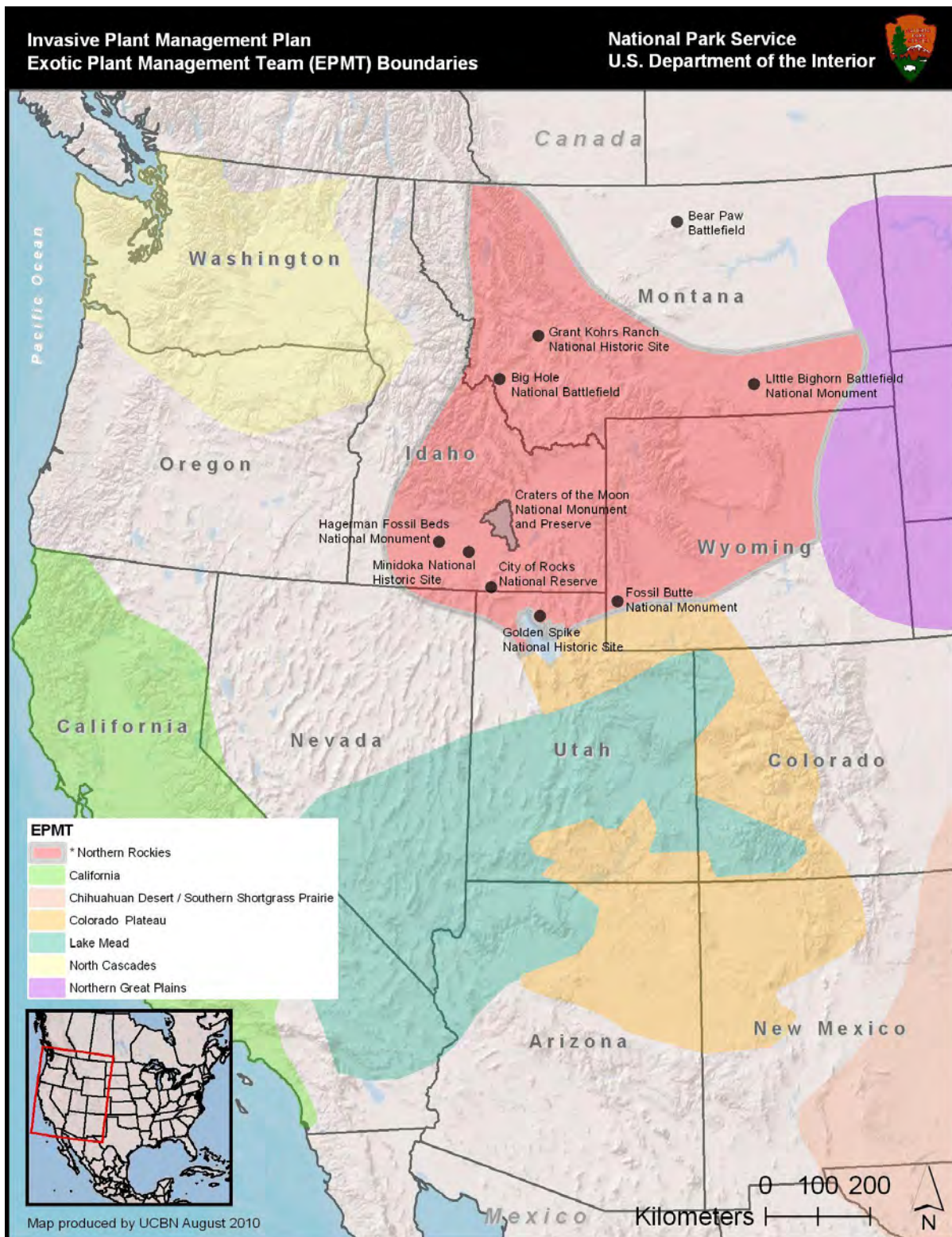
- Alaska
- California
- Chihuahuan Desert / Southern Shortgrass Prairie
- Upper Colorado Plateau
- Florida / Caribbean Partnership
- Great Lakes
- Lake Mead
- Mid-Atlantic Cooperative
- National Capital
- North Coast Cascades Network
- Northeast
- Northern Great Plains
- Pacific Islands
- Southeast

Nationwide nonnative invasive plants threaten numerous ecosystems (Vitousek *et al.* 1996, Lodge *et al.* 2006). The Northern Rocky Mountains Exotic Plant Management Team (NRM-EPMT) assists 15 parks in four states and two regions consisting of 4,175,945 acres, of which nearly five percent is infested with nonnative invasive weeds (Figure 12). In the Northern Rocky Mountains, these ecosystems include native sagebrush steppe and riparian areas, both important wildlife habitat (Stewart *et al.* 2010, Lowe *et al.* 2009). Protecting and retaining these habitat types from weed invasion is one of the goals of the NRM-EPMT at these parks. EPMTs focus on early detection of new invaders and a rapid treatment when any new nonnatives are found. The most successful control occurs when weed infestations are treated early, while they are small.

Another goal of the EPMTs is to reduce the size and prevent the expansion of existing weed infestations. If the current, maintenance level of weed management is suspended, notable losses in weed-free habitat would be incurred. At Big Hole, Bear Paw, Grant-Kohrs, Little Bighorn and Minidoka, the invasion of nonnative plant species is an obstacle to the restoration of cultural landscapes that the parks are mandated to protect. Nonnative invasive plants have the potential to change the way the public experiences and sees these parks.

The Northern Rocky Mountain Exotic Plant Management Team (NRM-EPMT) serves fifteen parks in Idaho, Montana, Utah, and Wyoming. These parks vary from high desert to montane forest, alpine and sub-alpine meadow, sagebrush-steppe, and wetland and riparian areas to unique hydrothermal communities. Covering more than four million acres and serving millions of visitors, these national treasures are constantly threatened by the invasion of nonnative plants. Nearly five percent of the managed park lands are infested with plants listed on state “noxious weed” lists. The proliferation of nonnative plants has been a major problem for parks in the west for at least the last 70 years. Invaders such as leafy spurge (*Euphorbia esula*), Canada thistle (*Cirsium arvense*), spotted knapweed (*Centaurea maculosa* vice *stoebe*), rush skeletonweed (*Chondrilla juncea*), Dalmatian toadflax (*Linaria dalmatica*), yellow toadflax (*Linaria vulgaris*), houndstongue (*Cynoglossom officinale*), orange hawkweed (*Hieracium aurantiacum*), purple loosestrife (*Lythrum salicaria*), cheatgrass (*Bromus tectorum*) and St. Johnswort (*Hypericum perforatum*) have made their way into the sagebrush-steppe, mixed-grass prairie, alpine meadow, wetland, and forested ecosystems and have displaced thousands of acres of native plants.

Figure 12: Northern Rocky Mountains Exotic Plant Management Team Locations



(Note: Glacier National Park, Grand Teton National Park, John D. Rockefeller Memorial Parkway, Yellowstone National Park, and Bighorn Canyon National Recreation Area, although part of the Northern Rocky Mountains area, are not part of this Invasive Plant Management Plan).

The NRM-EPMT augments existing park programs by providing field support and expertise. The purpose of the NRM-EPMT is to: assess the range and abundance of nonnative plant species; rapidly respond to new populations; manage (control and reduce) target nonnative plant species; use partnerships to increase effectiveness of control techniques; and develop strategic approaches and best management practices for nonnative plant species control activities.

A primary directive of the NRM-EPMT is to provide technical and professional assistance to parks that lack staff and resources for vegetation management within their operating area. Ten of the parks within the NRM-EPMT area have become partners in the development of this Invasive Plant Management Plan (IPMP). The NRM-EPMT's objectives for all parks are to:

- Meet park resource management plan, IPM plan, and GPRA goals;
- Support and develop existing IPM practices and programs;
- Assist in the development of nonnative vegetation management plans through National Environmental Policy Act (NEPA) documentation and compliance;
- Prevent and detect new invasive species;
- Control identified invasive plant species;
- Map and identify nonnative species to determine extent of infestation;
- Provide nonnative plant management expertise and technical support; and
- Restore sagebrush steppe, riparian, and other plant communities to native plant composition and diversity (NPS 2007).

F. Overview of Northern Rocky Mountains Exotic Plant Management Team (NRM-EPMT) Work

Summary of NRM-EPMT Treatment

Table 1 is a summary of the annual accomplishments of the team through 2009³ (NPS 2003a, 2004a, 2005a, 2006a, 2007a, 2008a, 2009a). Although acreage treated is shown in Appendix C: *NRM-EPMT Treatment of Nonnative Invasive Plants in the 10 Parks (2005-2009)*, neither Table 1 nor Appendix C represents complete treatment of nonnative invasive plants at any park during any one year. Some parks, such as Craters of the Moon, Grant-Kohrs Ranch and Little Bighorn have a considerable program of their own. In some parks, the EPMT effort is often only a part, and in some cases is only a small part of the overall invasive weed management program for a park. In other parks, it is a major effort or a large part of the overall invasive species management program. As a result, EPMT work in any given park varies from year to year as EPMT priorities shift to address new or expanded invasions.

Table 1: Northern Rocky Mountains Invasive Plant Treatment

Number of Acres	2003	2004	2005	2006	2007	2008	2009
Inventoried	2,664	3,605	7,319	14,134	10,425	7,578	4,041
Gross Infested	2,664	2,335	4,337	5,662	8,175	9,251	4918
Infested	78	252	297	587	461	616	104
Treated	67	159	231	508	409	584	101
Monitored	0	215	1,437	1,060	5,334	8,306	2,859
Retreated	2	43	7	0.7	39	9	2

Note: This table includes data from Yellowstone, Grand Teton, and Glacier national parks, John D. Rockefeller Memorial Parkway and Bighorn Canyon National Recreation Area in addition to the data from the 10 NPS park units listed below.