



Ice Age Complex

FINAL GENERAL MANAGEMENT PLAN | ENVIRONMENTAL IMPACT STATEMENT

AT CROSS PLAINS

ICE AGE COMPLEX AT CROSS PLAINS, WISCONSIN

FINAL GENERAL MANAGEMENT PLAN/ENVIRONMENTAL IMPACT STATEMENT

THE ICE AGE COMPLEX AT CROSS PLAINS, WISCONSIN comprises land within a unit of the Ice Age National Scientific Reserve and includes the interpretive site for the Ice Age National Scenic Trail. Within the Complex are lands owned and managed by the National Park Service, the Wisconsin Department of Natural Resources, Dane County Parks, and the U.S. Fish and Wildlife Service. This general management plan is needed to establish a consistent vision for the Ice Age Complex that is shared by all of these partners.

This document establishes a framework to assist in making decisions about the Complex. It examines five alternatives for managing this site over the next 15 to 20 years, identifying desired conditions and analyzing the impacts of implementing each alternative. **Alternative 1: No Action, Continuation of Current Management** looks into the future of current management and provides a basis for comparison to other alternatives. **Alternative 2: Ecological Restoration Emphasis** would restore vegetative conditions to those present prior to European settlement, supporting interpretation of the post-glacial period. **Alternative 3: Interpretation and Education Emphasis** would focus on interpreting how the glacial landscape evolved over time, and ecological resources would be managed to reveal the glacial landscape. **Alternative 4: Outdoor Recreation Emphasis** would offer visitors a variety of low-impact recreational experiences supporting, and compatible with, the preservation and interpretation of glacial significance. **Alternative 5: Preferred Alternative** would provide interpretation of the landscape since glacial retreat and appropriate low-impact outdoor recreation opportunities.

The potential environmental impacts of all alternatives have been identified and assessed. The following impact topics are addressed in this GMP/EIS: soil resources, water quality, soundscapes, vegetation and wildlife, socioeconomics, and visitor use and experience.

The key impacts of **Alternative 1** would be short and long-term, minor to moderate, adverse impacts on soils from agricultural use on some lands and unauthorized trails on others, but beneficial impacts to soils which are converted from farmland to prairie. There would be negligible to minor benefits to visitor experience under current management and negligible impacts in all other areas.

The key impacts of **Alternative 2** would be short and long term, mild to moderate, adverse impacts on soils from compaction from visitor use, but beneficial impacts to soils which are converted from farmland to prairie. There would be temporary adverse impacts to the soundscape from construction activities and a moderate beneficial impact on vegetation and wildlife from ecological restoration. There would be negligible to minor benefit to visitor experience under this alternative.



The key impacts of **Alternative 3** would be minor to moderate adverse impacts to soils from building and trail construction as well as compaction due to trail use, but also beneficial impacts to soils as they are converted from farmland to prairie. There would be minor to moderate adverse impacts to the soundscape from construction and increased visitation and a negligible to moderate beneficial impact on vegetation and wildlife. There would be minor benefit to visitor experience from indoor exhibits and interpretive programs.

The key impacts of **Alternative 4** would be minor to moderate adverse impacts to soils from construction and trail use under this alternative, but also beneficial impacts to soils as they are converted from farmland to prairie. There would be minor beneficial impact on vegetation and wildlife. This alternative would have a minor to moderate benefit to visitor experience by offering broad outdoor experience and extensive exhibits.

The key impacts of **Alternative 5** would be minor to moderate adverse impacts on soils construction and trail use but also beneficial impacts to soils as they are converted from farmland to prairie. There would be minor beneficial impact on vegetation and wildlife under this alternative. This alternative would have a moderate benefit to visitor experience through broad outdoor experience and interpretive programming.

This *General Management Plan/ Environmental Impact Statement* was distributed to other agencies and interested organizations and individuals for review and comment. The public comment period for the document lasted for 60 days. For more information, contact Superintendent, Ice Age National Scenic Trail, 700 Rayovac Drive, Suite 100, Madison, Wisconsin 53711.



SUMMARY

BACKGROUND

A mere 20,000 years ago, two-thirds of what is today the state of Wisconsin lay under the grip of colossal ice sheets. The climate warmed and the ice sheets began to melt back. They left in their wake an impressive landscape of fascinating glacial landforms: moraines, drumlins, kames, kettles, eskers, outwash plains, meltwater channels, driftless (unglaciaded) topography, glacial lake beds and islands, and more. These Wisconsin Ice Age remnants are considered among the world's finest examples of how continental glaciation sculpts our planet. Located just west of Madison near the town of Cross Plains is a 1,500-acre area that contains an outstanding collection of glacial landforms, including a gorge carved by meltwater and expansive views of both driftless and glaciated terrain. These acres comprise a park called, for the purpose of this planning effort, the "Ice Age Complex at Cross Plains" (henceforth "Ice Age Complex" or "complex") (see figure ES-1). This site, however, has a rich history of different legal designations.

The lands and landscape of the Ice Age Complex have been deemed nationally significant under two related, but distinct, federal designations. The elements recognized in both designations are parts of the singular concept advanced by Wisconsin citizens in the late 1950s and early 1960s to protect and showcase Wisconsin's heritage from continental glaciation. Congress authorized the concept in two parts, at two different times, and through two different legislative vehicles.

In 1964 Congress enacted legislation (Public Law [PL] 88-655; 78 Stat. 1087; 16 United States Code [USC] 469d, *et seq.*) directing the Secretary of the Interior to cooperate with the governor of Wisconsin in studying and subsequently designating an Ice Age National Scientific Reserve ("Ice Age Reserve"). The purpose of the Ice Age Reserve is "to assure protection, preservation, and interpretation of the nationally significant values of Wisconsin continental

glaciation, including moraines, eskers, kames, kettleholes, drumlins, swamps, lakes, and other reminders of the ice age." The continental glaciers last advanced and retreated over the state some 30,000 to 10,000 years ago.

Congress envisioned the Ice Age Reserve as a network of distinct areas, each exhibiting an outstanding example of one type of landscape or landform resulting from continental glaciation. The legislation's intention is that the reserve would be owned and managed by the state of Wisconsin, with the assistance and collaboration of the Secretary of the Interior (acting through the National Park Service). Several of the outstanding sites selected were already Wisconsin state parks. The legislation made reference to the Ice Age National Scenic Trail but made no provisions for it.

When the study was completed, nine sites were identified to be protected and managed by the Wisconsin Department of Natural Resources (WDNR) as units of the Ice Age Reserve (see figure ES-2). On May 29, 1971, the Secretary of the Interior published an order in the *Federal Register* that formally brought the Ice Age Reserve into existence.

As noted in Black (1974), "The Cross Plains area was selected for inclusion in the Reserve in part because it contains a typical portion of the Johnstown Moraine on the uplands and a typical proglacial stream in Black Earth Creek Valley, and is close to a center of population. More importantly, it is the only place . . . where the terminal moraine rests directly on well exposed, weathered dolomite bedrock and where small marginal proglacial lakes, a marginal drainage way, and a subglacial drainage way may all be seen in a small area. The various glacial features associated with the moraine in the vicinity of Cross Plains are more varied and yet as definitive as one could hope to see, all preserved in a neat little package. The area is one of increasing urbanization, and preservation of parts of the front and its associated phenomena can only be assured in the Reserve."

SUMMARY

FIGURE ES-1: MAP OF ICE AGE COMPLEX AT CROSS PLAINS

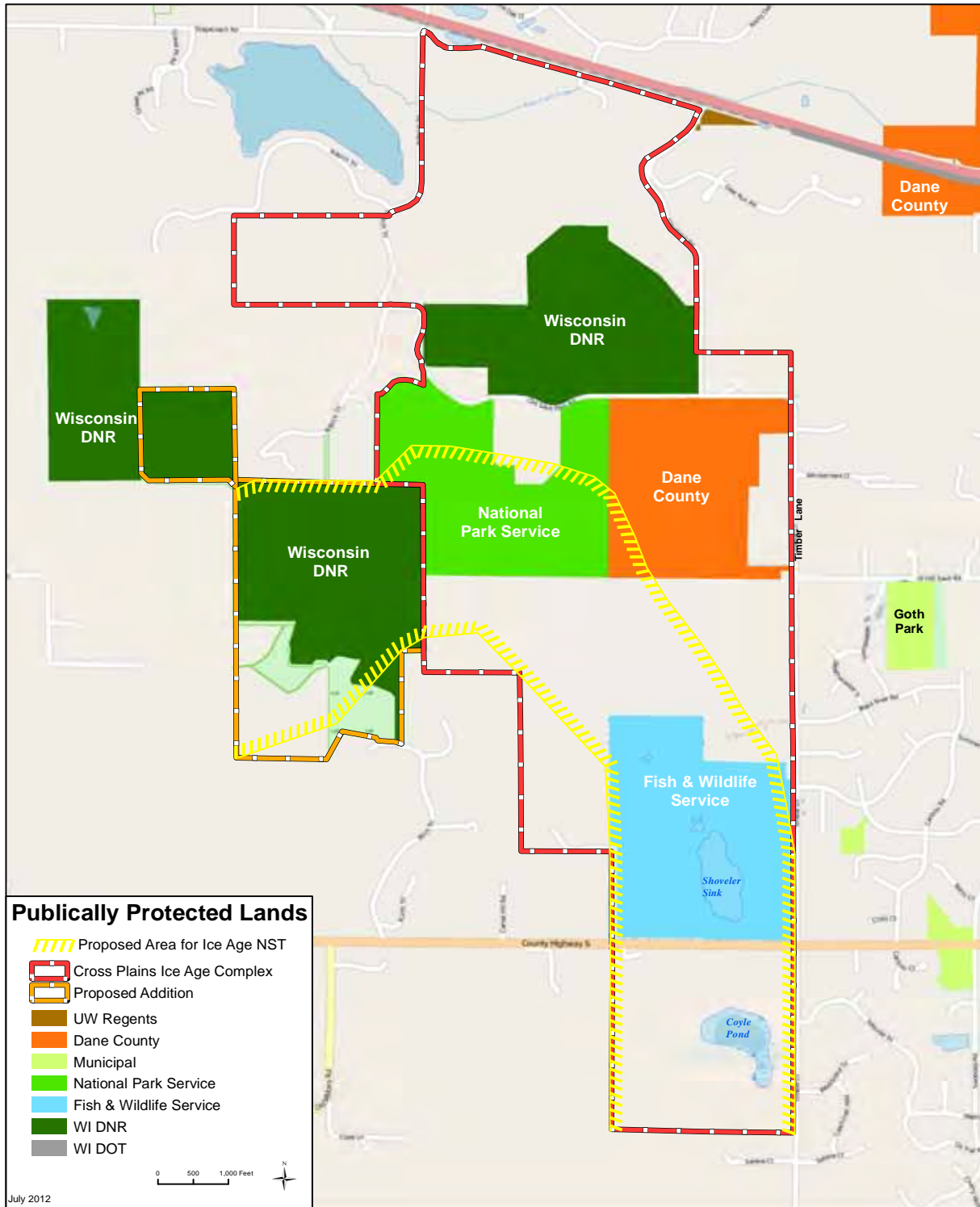


FIGURE ES-2: ICE AGE NATIONAL SCIENTIFIC RESERVE AND ITS NINE UNITS



SUMMARY

The Wisconsin Department of Natural Resources purchased 100 acres of the Cross Plains unit of the Ice Age Reserve in September 1975, and an additional 60 acres were subsequently purchased. The Cross Plains unit is also designated as Cross Plains State Park by Wisconsin Administrative Rule.

Congress again recognized the national significance of Wisconsin's glacial landscapes when, on October 3, 1980, it amended the *National Trails System Act* to authorize and establish the Ice Age National Scenic Trail as a component of the National Trails System (PL 96-370; 94 Stat. 1360; 16 USC 1244(a)(10)). The Ice Age National Scenic Trail meanders through Wisconsin for approximately 1,200 miles from Potawatomi State Park in Door County to Interstate State Park in Polk County, generally following the terminal moraine and other glacial landscape features and connecting six of the nine units of the Ice Age Reserve. The Secretary of the Interior was assigned administrative responsibility for the Ice Age National Scenic Trail.

The Secretary of the Interior delegated overall administrative responsibility for the Ice Age National Scenic Trail to the National Park Service. The Park Service, in cooperation with the Wisconsin Department of Natural Resources and other parties, completed a *Comprehensive Plan for Management and Use of the Ice Age National Scenic Trail* in September 1983. The National Park Service is responsible at the federal level for carrying out the provisions of the *National Trails System Act* as they relate to the Ice Age National Scenic Trail. The National Park Service carries out or facilitates trail planning, environmental compliance, trail development and management, public and private partner involvement, and land protection activities. The National Park Service assists partners by coordinating, guiding, and assisting their efforts to acquire, develop, operate, protect, and maintain the Ice Age National Scenic Trail in accordance with the comprehensive plan and supplemental trail corridor plans and

trailway protection strategies (land protection plans). The comprehensive plan identifies the Wisconsin Department of Natural Resources and the nonprofit Ice Age Trail Alliance as cooperators in the long-term effort to develop and manage the Ice Age National Scenic Trail. The Park Service serves as the primary liaison with other federal agencies in matters relating to the Ice Age National Scenic Trail. In carrying out this role, the Park Service reviews and comments on federal or federally assisted/permitted projects and activities (such as highway, utility, and other development proposals) that may affect trail segments.

The Wisconsin Department of Natural Resources is the state agency responsible for providing and maintaining outdoor recreation resources of statewide significance, including state parks and trails, in Wisconsin. Thus, the basis for the Wisconsin Department of Natural Resources' participation in developing and managing the Ice Age Reserve and Ice Age National Scenic Trail is the statewide significance of the reserve and trail and the inclusion of state parks, forests, trails, and recreation areas in the reserve and along the route of the trail. The state legislature formalized this role in 1987 by passing legislation that designates the Ice Age National Scenic Trail as a State Scenic Trail. The legislation assigned the responsibility to the Wisconsin Department of Natural Resources for coordinating the involvement of state agencies in the trail project and cooperating with the National Park Service and private interests in planning, acquiring, developing, and maintaining the Ice Age National Scenic Trail. The Wisconsin Department of Natural Resources has been the primary NPS partner in administering federal financial assistance for acquiring lands for the Ice Age National Scenic Trail.

The *National Trails System Act* authorizes the establishment of interpretive sites along national scenic trails. Congress appropriated funds, in fiscal year (FY) 2001, for the acquisition of specific lands, owned by James and Jane Wilkie, for an Ice Age National Scenic

Trail Interpretive Site. The lands specified for the interpretive site happen to lie within the boundaries of the Cross Plains unit of the Ice Age Reserve. The National Park Service purchased the lands in 2002, subject to a life estate, and took full possession in early 2008.

The Wilkie farmstead includes a stone house, the original two-story portion of which dates back to the 1850s, just a few years after statehood in 1848. The one-story addition, built with stone from the same quarry as the original house, dates to 1952 when the Wilkies purchased the farm. There is also a structurally sound wood barn, modern garage, shed used as a chicken coop, and Quonset for equipment storage. These structures are referred to elsewhere in this document as the “farmstead” or individually as the “stone house,” “barn,” and so forth. The structures were evaluated for eligibility to be listed on the National Register of Historic Places, but it was determined they were not historically significant.

The lands that comprise the Ice Age Complex are managed at both a state and federal level. That is, the Ice Age Reserve is owned and managed by the state of Wisconsin, and the Ice Age National Scenic Trail Interpretive Site is owned and managed by the National Park Service. Additionally, the Ice Age Complex also includes Shoveler Sink Waterfowl Production Area, which is owned and managed by the U.S. Fish and Wildlife Service. The involvement of both federal and state governments, as well as Dane County Parks, makes this plan to preserve and interpret the Ice Age Complex a true partnership effort.

PURPOSE OF THE PLAN

The final general management plan would provide a framework to assist NPS and WDNR managers in making decisions today and in the future. The alternatives proposed in this document describe general paths the National Park Service and Department of Natural Resources would follow in managing the Ice Age Complex over the next 15 to 20 years.

This general management plan / environmental impact statement

- identifies desired conditions in different parts of the Ice Age Complex

- identifies any necessary developments and support facilities to achieve the vision and desired conditions

- ensures that the foundation for decision making has been developed in consultation with the public and adopted by NPS leadership after sufficient analysis of the benefits, impacts, and economic costs of alternative courses of action

This document addresses the three purposes listed above, but it does not

- describe how particular programs or projects would be implemented or prioritized; these decisions are deferred to detailed implementation planning

- provide specific details and answers to all the issues facing the Ice Age Complex

- provide funding commitments for implementation of the plan

NEED FOR THE PLAN

The general management plan is needed in order to establish a consistent vision for the Ice Age Complex that is shared by all partners in this project. Those partners are the National Park Service, Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, Ice Age Trail Alliance, local government agencies, and the general public. Although the Department of Natural Resources’ 1998 feasibility study provided a rough outline for how the Ice Age Complex could be managed, the final general management plan would be the first plan designed to provide comprehensive management guidance for the complex.

SUMMARY

The Ice Age National Scenic Trail is guided by a 1983 comprehensive management plan, and the Ice Age Reserve is guided by a 1968 comprehensive management plan. Neither of these older overarching plans, however, articulates the shared vision between the National Park Service, Department of Natural Resources, and the public on how to best achieve the specific purpose of the Ice Age Complex and protect its resources for future generations.

Currently, the Ice Age Complex is essentially undeveloped for visitor use. Given its location just outside the fast-growing suburbs of Madison, Wisconsin, and the interest in Ice Age geology in the region, there is potential for significant visitation at the complex. There is also potential for damage to the glacial features at the site without long-term planning for their protection. Thus, this general management plan is needed because

the management plans for related areas (national scenic trail and scientific reserve) are outdated

there must be a consistent and shared vision for the complex

there is potential for both significant visitation and resource damage

THE FIVE ALTERNATIVES

This general management plan / environmental impact statement examines five alternatives for managing the Ice Age Complex. In all of the alternatives, NPS managers will continue to strive to protect, maintain, and monitor key resources. Each alternative proposes a different approach to managing resources, serving visitors, and providing interpretive and recreational opportunities.

Alternative 1: No Action, Continuation of Current Management

This alternative describes how the Ice Age Complex would look in the future if no *new*

actions were taken. The description for the no-action alternative was used as a baseline against which to assess the benefits, costs, and impacts of action alternatives 2, 3, 4, and 5.

The Ice Age Complex is undeveloped for visitor use and minimally maintained. Both the Wisconsin Department of Natural Resources and U.S. Fish and Wildlife Service manage vegetation on lands that each agency owns and on land owned by the National Park Service. Staff members for the Ice Age National Scenic Trail have stabilized facilities to prevent their deterioration. There are currently no improvements (such as parking or constructed trails) on either WDNR- or NPS-owned lands to facilitate visitor experience. The Shoveler Sink Waterfowl Production Area, managed by the U.S. Fish and Wildlife Service, is open to visitors for hunting, fishing, and other wildlife-dependent activities, but the production area has no visitor facilities other than two small unsurfaced parking lots. Privately owned lands in the complex consist of agricultural fields, along with several homes and their outbuildings.

The segment of the Ice Age National Scenic Trail would still be built (by the Ice Age Trail Alliance) within the identified corridor under this alternative, but other trails would not be constructed.

Boundary Expansion. The boundary of the Ice Age Complex would not be expanded.

Estimated Costs and Staffing. A staff of six full-time equivalents would be required to implement this alternative and administer the Ice Age National Scenic Trail across the state. The annual operating costs (in 2010 dollars) would be approximately \$560,000, including costs for resource management, employee salaries and benefits, and leasing office space. The total one-time costs would be approximately \$1.24 million (in 2010 dollars) for stabilizing the Wilkie property and purchasing seed to reestablish natural vegetation conditions. The one-time costs would not include the cost of land protection, such as acquisition or easements.

Alternative 2: Ecological Restoration Emphasis

The ecosystem throughout most of the site would be restored to vegetative conditions that were present prior to European settlement (circa 1830). The restoration would support interpretation of how natural conditions in the complex would have evolved after the glacial period under minimal human influence. Vegetation would be managed at key points to reveal glacial landscapes, but the focus would be on ecosystem management. Visitors would enjoy a sense of perceived remoteness and quiet, primarily by hiking on trails. The management concept in alternative 2 would be implemented by

- restoring presettlement vegetation by applying natural processes wherever possible

- removing the buildings at the core of the site that belonged to the Wilkie family and providing parking and trail access at this location, as well as outdoor exhibits and primitive restrooms

- providing a minimally developed trail to and along the rim of Cross Plains gorge

- interpreting the site with wayside and outdoor exhibits

- managing the complex from an off-site location — there would be no permanent staff stationed at the site, and visitor interaction with park staff would be rare

Boundary Expansion. The boundary of the Ice Age Complex would not be expanded.

Estimated Costs and Staffing. A staff of eight full-time equivalents would be required to implement this alternative, together with administering the Ice Age National Scenic Trail across the state. The work required to administer the Ice Age National Scenic Trail overlaps significantly with the work required

to manage the Ice Age Complex; therefore, staffing estimates for this alternative cover both of these functions. The annual operating costs (in 2010 dollars) would be approximately \$760,000 to pay for resource management, employee salaries and benefits, and leasing office space. The total one-time costs would be approximately \$1.94 million (in 2010 dollars) for removing the Wilkie structures, constructing trails, and purchasing seed to reestablish natural vegetation conditions over more acreage than the no-action alternative. The one-time costs would not include the cost of land protection (such as acquisition or easements).

Alternative 3: Interpretation and Education Emphasis

The glacial landscape would be interpreted to focus on how the Ice Age Complex has evolved over time since the retreat of the last glacier. Throughout most of the complex, ecological resources would be managed to reveal the glacial landscape. Visitors would have an opportunity to experience a wide variety of resources, both ecological and geological, as well as remnants of human use of the site. The visitor experience would involve sheltered and indoor settings at the core of the property and hiking throughout most other areas of the site. Trails would be placed to tell stories of the formation of the glacial landscape and, to a lesser extent, about the ecological resources, such as the oak savanna. Under this alternative, the Ice Age Complex would serve as the headquarters for the Ice Age National Scenic Trail. This management concept would be implemented by

- renovating the house and/or barn at the core of the site for reuse to accommodate visitor orientation, while interpreting human use and settlement patterns; space in these facilities would also be renovated for use as staff offices

- constructing a new facility at the core of the site to accommodate maintenance needs

SUMMARY

requesting the town of Cross Plains to manage traffic along Old Sauk Pass between Cleveland Road and North Birch Trail to reduce hazards to pedestrians

providing a trail to and along the gorge with overlooks, surfaced at least in part to accommodate people with disabilities, as well as controlled partial access along the floor of the gorge

preserving and enhancing key views through vegetation management (for example, by selective thinning and pruning)

expanding the complex boundary westward to include WDNR-owned land and enhance opportunities to interpret a wider expanse of driftless area terrain

Boundary Expansion. Alternative 3 proposes to expand the boundary of the Ice Age Complex, as well as the boundary of Cross Plains State Park. The boundary would be expanded to include a 228-acre WDNR-protected parcel. The Department of Natural Resources owns part of the parcel in full, and part of it is privately owned and protected by an easement. The parcel is recommended for incorporation into the complex's boundary in order to include and protect significant resources and values and to enhance opportunities for public enjoyment related to park purpose. The parcel would offer visitors an expansive view of the Driftless Area, a rare sight along the Ice Age National Scenic Trail.

Estimated Costs and Staffing. A staff of 10.5 full-time equivalents would be required to implement this alternative and administer the Ice Age National Scenic Trail across the state. The work required to administer the Ice Age National Scenic Trail would overlap significantly with the work required to manage the Ice Age Complex; therefore, staffing estimates for alternative 3 would cover both of these functions. The annual operating costs

(in 2010 dollars) would be approximately \$1.01 million, including costs for resource management, employee salaries and benefits, and maintenance and operations. The total one-time costs would be approximately \$4.74 million (in 2010 dollars) and would go toward renovating the Wilkie property, designing and installing exhibits, constructing trails and a maintenance facility, and purchasing seed to reestablish natural vegetation conditions. The one-time costs would not include the cost of land protection, such as acquisition or easements.

Alternative 4: Outdoor Recreation Emphasis

Visitors would be offered a variety of low-impact outdoor recreational experiences in support of, and compatible with, preserving and interpreting the glacial significance of the complex and restoring and managing the ecosystem. Visitors would be able to experience resources in diverse ways and would enjoy a broad range of interpretive programming in indoor and outdoor settings. Under this alternative, the Ice Age Complex would serve as the headquarters for the Ice Age National Scenic Trail. This management concept would be implemented by

developing the core of the complex to

renovate the Wilkie house and barn primarily for use as staff offices

selectively site and construct a new visitor center with orientation services (such as exhibits and film)

selectively site and construct a new maintenance facility, unless future land acquisitions would allow for this development away from the core of visitor activity

provide outdoor gathering spaces such as an amphitheater and picnic shelter

requesting the town of Cross Plains to manage access to Old Sauk Pass between Cleveland Road and North Birch Trail (same as proposed under alternative 3)

providing a trail to and along the gorge with overlooks that would be surfaced, at least in part, to accommodate people with disabilities. If feasible a pedestrian bridge spanning the gorge would be built to provide visitors a unique perspective on its formation

providing extensive, varied trails, including a hardened bicycle/pedestrian trail across the site

offering primitive camping in the western section of the complex

expanding the complex's boundary westward to enhance opportunities for recreation, especially for a primitive camping experience near the Ice Age National Scenic Trail

Boundary Expansion. The boundary of the Ice Age Complex would be expanded to include the same 228-acre WDNR-protected parcel (mentioned under alternative 3). This parcel would be necessary to enhance opportunities for public enjoyment related to park purpose. There is no appropriate area for camping along the Ice Age National Scenic Trail corridor within the current complex boundary, so the parcel would be managed for an expanded recreational experience to allow for primitive camping for hikers on the Ice Age National Scenic Trail, which would traverse this area. This addition would be feasible to manage for the same reasons cited under alternative 3.

Estimated Costs and Staffing. A staff of 14 full-time equivalents would be required to implement this alternative and administer the Ice Age National Scenic Trail across the state. The annual operating costs (in 2010 dollars) would be approximately \$1.26 million, including costs for resource management, employee salaries and benefits,

and maintenance and operations. The total one-time costs of approximately \$8.8 million (in 2010 dollars) would be spent on renovating the Wilkie property; designing and installing exhibits; constructing trails, a maintenance facility, and a new visitor center; and purchasing seed to reestablish natural vegetation conditions. The one-time costs do not include the cost of land protection (acquisition or easements).

Alternative 5: Preferred Alternative

This alternative would provide visitors with interpretation of the evolution of the complex from the last glacial retreat and opportunities to enjoy appropriate low-impact outdoor recreation. Ecological resources would largely be managed to reveal the glacial landscape. The most sensitive ecological areas would be carefully protected, and visitor access would be highly controlled in these areas. Visitors would experience a wide variety of indoor and outdoor interpretive programming. Under this alternative, the Ice Age Complex would serve as the headquarters for the Ice Age National Scenic Trail.

The management concept for alternative 5 would be implemented by developing the core of the site (the former Wilkie property) to accommodate offices for Ice Age National Scenic Trail staff (who would support administrative and maintenance functions) and provide for a visitor center, including a sheltered picnic area. The elements involved in developing the site include

producing a building complex that would be highly sustainable (the overall goal of this development); certified under the U.S. Green Building Council's Leadership in Energy and Environmental Design rating system at a gold level; have a minimal carbon footprint; and employ systems to carefully control surface water runoff and avoid impacting the quality of Black Earth Creek.

SUMMARY

retaining parts of the existing house and barn to the extent that is practical given the need for a cost-effective, environmentally sustainable visitor center, office space, and space to support maintenance functions. Ultimately, the design of the core area for public and operational use would reflect public feedback as well as cost and environmental factors.

Until the visitor center, office, and maintenance facility complex described above can be funded and constructed, the existing buildings in the core area may be minimally modified, as necessary, to make them useful on an interim basis as a visitor contact station and for maintenance and storage purposes.

The management concept for alternative 5 would also be implemented by

- requesting the town of Cross Plains to manage traffic along Old Sauk Pass between Cleveland Road and North Birch Trail to reduce hazards to pedestrians (same as alternatives 3 and 4)

- providing a trail leading to and along the gorge with overlooks surfaced at least in part to accommodate people with disabilities. Vegetation in the gorge would be restored and volunteer trails removed.

Additionally, the management concept for alternative 5 would be implemented by

- providing an extensive, varied hiking trail network throughout the complex

- providing a management area in a narrow strip along U.S. Highway 14 to accommodate a bicycle path (in the planning stages) to connect Middleton to Cross Plains. This alternative does not envision the National Park Service or the Wisconsin Department of Natural Resources building the bicycle path;

- rather, the agencies would accommodate local efforts to build the path

- offering primitive camping equipped with a privy in the western part of the complex

- establishing a wildlife corridor of unbroken habitat between the former Wilkie property and Shoveler Sink. The area of this corridor is defined as “landscape interpretation” because of the abundance of opportunity to view glacial features here. While the landscape interpretation management area generally allows for agricultural fields, the intent of landscape interpretation in this particular corridor is to return the land to a type of native vegetation (such as short prairie grasses rather than tall prairie grasses) that would not obscure the view of glacial features

- providing picnic tables next to parking areas along U.S. Highway 14 and along Mineral Point Road

Boundary Expansion. Alternative 5 proposes to expand the complex boundary westward to incorporate two expansion areas (parcels). The one parcel would be the same 228-acre WDNR-protected parcel (mentioned above under alternatives 3 and 4), and the other would be a 40-acre parcel protected and owned by the Department of Natural Resources. Both parcels would be necessary to enhance opportunities for public enjoyment related to park purpose under this alternative. Both parcels would be managed for an expanded recreational experience to allow for primitive camping for hikers on the Ice Age National Scenic Trail, which would traverse this area, and for hiking on other trails.

Estimated Costs and Staffing. A staff of 14 full-time equivalents would be required to implement this alternative and administer the Ice Age National Scenic Trail across the state. The annual operating costs (in 2010 dollars)

would be approximately \$1.26 million, including costs for resource management, employee salaries and benefits, and maintenance and operations. The total one-time costs of approximately \$7.09 million (in 2010 dollars) would be spent on renovating the Wilkie property and new construction within the core area, designing and installing exhibits, constructing trails, and purchasing seed to reestablish natural vegetation conditions. The one-time costs would not include the cost of land protection, such as acquisition or easements.

IMPACTS FROM IMPLEMENTATION OF THE ALTERNATIVES

Soil Resources

Alternative 1: No Action, Continuation of Current Management. It is expected that alternative 1 would have some beneficial impacts on soils due to conversion of farm land to prairie. Some soils would be removed from cultivation and converted to their presettlement condition (mostly prairie). The ability to farm the prime soils today would be curtailed, and the soils would be retained for the future because the deep roots of prairie grasses are very effective at holding soil.

The present land use in the Ice Age Complex would continue to be a mix of row crop agriculture (corn and soybeans), forest land, and oak savanna. When agricultural fields are plowed, soil surface is disturbed, and there is wind erosion of silt particles and organic particles off those surfaces. There is also water erosion from the fields. There is similar land use throughout Dane County. The impacts of agriculture on erosion would be minor to moderate, depending on numerous factors, such as the amount of tillage and use of grass strips to limit erosion in critical spots.

The intensity of impacts on soils caused by trail construction would be limited to minor

ground disturbance within the narrow tread corridor. The potential impacts on soils from constructing and using the trail would be mitigated to a negligible level with proper layout of the trail on the landscape (for example, on slopes less than 10%), erosion control techniques, planking or bridges, and trail monitoring.

The Ice Age National Scenic Trail would still be built under this alternative but other trails would not. Over time, unauthorized trails (such as paths created by visitors), would proliferate. There is currently minimal impact from erosion and compaction in forest and oak savanna areas under present use, with the exception of the Cross Plains gorge and the moraine between the Cross Plains gorge and Cleveland Road. There is currently minor impact on the trail on the moraine and impact would remain minor if usage is limited to hiking. If there is no enforcement of restrictions on the use of this trail, and if use by horseback riders were to increase, there would be a moderate impact due to compaction. There is compaction at small parking areas off Mineral Point Road and Timber Lane, but this land has already been disturbed, and there would be minimal further compaction.

The steep walls of Cross Plains gorge attract visitors, and human activity has the potential to damage both forest duff cover and soils, which could lead to substantial erosion problems. While the steep walls of Black Earth Creek valley are also susceptible to erosion if vegetation is disturbed, under present use, the slopes are not visited as much as those of the Cross Plains gorge. As time passes, however, this site could become better known, and residential development might increase in the area. If increased use were not accompanied by measures to protect these areas, such as a designed and delineated trail, damage to the steep walls could be expected. There could potentially be moderate to major erosion impacts if uncontrolled human activity in the vicinity of Cross Plains gorge and Black Earth Creek valley increased.

SUMMARY

Alternative 2: Ecological Restoration Emphasis.

Alternative 2 would have the same beneficial impacts on soils as expressed in the first paragraph under alternative 1.

This alternative would contribute to increased trail usage, compared to alternative 1 (no action), and would therefore likely have a minor impact on soils from compaction. There would be moderate impact on soils from compaction in parking areas, but these would not be large areas and would likely be in the same places as in alternative 1. Paving the parking lots would contribute to increased runoff and would require proper management.

The installation of trails near, but not in, Cross Plains gorge would minimize impact on the walls of the gorge. Erosion impacts in the gorge itself would be negligible because the public would be directed (with trail design and signage) to stay off the walls of the gorge. Because the complex would be managed from an off-site location, there would be little ability to enforce this direction. If the public does not comply with the direction to stay off the gorge walls, there could be moderate adverse impacts on soil and the forest duff covering the wall until the park has the capacity to stop this from happening, given the minimal off-site staff.

Alternative 3: Interpretation and Education Emphasis. Alternative 3 would have the same beneficial impacts on soils as expressed in the first paragraph under alternative 1.

The construction of buildings and a surfaced trail to Cross Plains gorge could potentially have a temporary moderate adverse impact on soils from erosion and compaction in areas subject to construction. Once construction is completed, there would still be some potential for minor compaction from visitor use, but the minor impacts would be confined to areas around buildings and parking lots. The on-site interpretation and maintenance facilities would potentially focus some visitor foot traffic to the interpretation building and away

from the steep walls of Cross Plains gorge and steep slopes at the edge of Black Earth Creek valley. This would reduce the potential for soil compaction and erosion from uncontrolled human activity, resulting in minor to moderate beneficial impacts on those areas.

Alternative 4: Outdoor Recreation Emphasis. Alternative 4 would have the same beneficial impacts on soils as expressed in the first paragraph under alternative 1.

The construction of buildings and a surfaced trail to Cross Plains gorge, as well as a bridge across the gorge, could potentially have a temporary moderate adverse impact on soils from erosion and compaction in areas subject to construction. There would be additional trails across the site that would create moderate compaction in the vicinity of the trail. Once the landscape is stabilized following construction, compaction from visitor foot traffic would be confined to the areas around buildings and parking lots, which could potentially result in minor adverse impacts. The addition of a bicycle trail from the visitor center to a parking lot north of Black Earth Creek would increase visitor activity in a sensitive area, resulting in an adverse moderate impact on the steep slopes facing the creek, especially along the trail. The on-site interpretation and maintenance facilities would potentially focus some visitor foot traffic to the interpretation building and away from the steep walls of Cross Plains gorge and steep slopes at the edge of Black Earth Creek valley. This would reduce the potential for soil compaction and erosion from uncontrolled human activity, resulting in minor to moderate beneficial impacts on those areas.

Alternative 5: Preferred Alternative. Alternative 5 would have the same beneficial impacts on soils as expressed in the first paragraph under alternative 1.

The construction of buildings and a surfaced trail to Cross Plains gorge could potentially have a moderate adverse impact on soils from

erosion and compaction during construction. There would be additional trails across the site that would create moderate compaction in the vicinity of the trail. Once the landscape is stabilized following construction, compaction from visitor foot traffic would be confined to the areas around buildings and parking lots, which could potentially result in minor adverse impacts. The on-site interpretation and maintenance facilities would potentially focus some visitor foot traffic to the interpretation building and away from the steep walls of Cross Plains gorge and steep slopes at the edge of Black Earth Creek valley. This would reduce the potential for soil compaction and erosion from uncontrolled human activity, resulting in minor to moderate beneficial impacts on those areas.

Water Quality

Alternative 1: No Action, Continuation of Current Management. At this time, the small basin that collects surface water that flows into Coyle Pond is partly used for row crops. Whatever tillage techniques are used, the application of herbicides and fertilizer has the potential to contaminate groundwater by passing through the limestone beneath the sinkhole. At this time land around Shoveler Sink is not in intensive agriculture, and chemicals are not being applied to the fields, so there is currently negligible adverse impact from agricultural runoff.

Alternative 2: Ecological Restoration Emphasis. The small basin that collects surface water flowing into the Coyle Pond would be put back into presettlement vegetation under this alternative, and any adverse impact on groundwater would be negligible. In fact, over time, agricultural chemicals would not enter the groundwater system through the sink, so this would likely have a beneficial effect on groundwater quality, but the amount of this effect cannot be quantified.

Alternative 3: Interpretation and Education Emphasis;
Alternative 4: Outdoor Recreation Emphasis;

and Alternative 5: Preferred Alternative. These alternatives envision an indoor facility with modern amenities (such as indoor plumbing) for visitors, so there would be a need for a new well and septic system near the core area of the property. These would be built to appropriate codes and would therefore have a negligible impact on groundwater.

Soundscapes

Alternative 1: No Action, Continuation of Current Management. Due to minimal development of visitor amenities, this alternative would be expected to have the lowest level of visitation out of the five alternatives and therefore the least visitor-created noise. It seems likely that, overall, there would be negligible impacts on the soundscape.

Alternative 2: Ecological Restoration Emphasis. This alternative would increase trail usage over the no-action alternative, which could potentially result in more visitor-generated noise. In the short term, there would be noise generated from the removal of the structures at the core of the property, but those moderate adverse impacts on the soundscape would be temporary. Over the long term, most of the complex would be managed to allow visitors “a direct sensory experience of natural resources” (refer to table 2 in chapter 2 for the natural experience management area description for desired visitor experience), indicating negligible impacts on the soundscape.

Alternative 3: Interpretation and Education Emphasis. Alternative 3 would result in a considerable increase in visitation compared to the no-action alternative, which could lead to more visitor-generated noise. In the short term, there would be noise generated from the renovation of the structures at the core of the property, but these moderate adverse impacts on the soundscape would be temporary. Over the long term, most of the complex would be managed for landscape interpretation, under which the management prescription (refer to table 2 in chapter 2) for visitor experience

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would concentrate on offering views of the results of glaciation, instead of offering direct sensory experience of natural resources as the natural experience management area would, indicating the potential for minor adverse soundscape impacts.

Alternative 4: Outdoor Recreation Emphasis.

Alternative 4 could result in a considerable increase in visitation, which would lead to considerably more visitor-generated noise. There would be noise generated from the construction of structures at the core of the property, but these moderate adverse impacts on the soundscape would be temporary. The bike path across the complex could generate more visitors and more noise per visitor than the hiking trails under the other alternatives. Most of the complex would be managed for landscape interpretation or for an expanded recreational experience, under which the management prescription for visitor experience would concentrate on offering views of the results of glaciation and the opportunity for low-impact recreation. However, there would also be a large natural experience area at the corner of two of the major roads on the edge of the complex. Overall, adverse impacts on the soundscape would be minor.

Alternative 5: Preferred Alternative. Impacts on the soundscape would be very similar to alternative 4, albeit slightly less because there would not be a bike path across the complex under this alternative. Overall, adverse impacts on the soundscape would be negligible to minor.

Vegetation and Wildlife

Alternative 1: No Action, Continuation of Current Management. There would be no comprehensive plan to guide management of the complex, so vegetation and wildlife habitat would not be consistently managed. Restoration goals (such as for the oak savanna or prairie) and activities (such as prescribed burning or mechanical invasive removal)

would be decided on a case-by-case basis as funding and/or volunteer labor allows. Since there would be few defined trails, there would be a risk of vegetation trampling throughout the site from the creation of social trails. However, since the site would not be advertised, there would be no facilities to accommodate visitors, and user capacity management would allow park managers a number of strategies to mitigate this risk; thus, adverse vegetation impacts from trampling would be negligible. It seems likely that, considering the site as a whole, there would be negligible impacts on vegetation and wildlife.

Alternative 2: Ecological Restoration Emphasis.

Most of the complex would be managed for natural experience, in which “Natural resources are managed to approximate presettlement (circa 1830) conditions. To the extent possible, natural ecological processes sustain the integrity of these resources.” This management prescription would have a moderate beneficial impact on vegetation and wildlife.

Alternative 3: Interpretation and Education

Emphasis. There would still be a significant area managed for natural experience, although most of the complex would be managed for landscape interpretation, under which the management prescription for resource conditions would include managing natural resources to reveal glacial features. Since there would be a range of ways to reveal glacial features through natural resource management (for example, planting short row crops or short prairie grasses), impacts on vegetation and wildlife would range from negligible to moderately beneficial.

Alternative 4: Outdoor Recreation Emphasis and Alternative 5: Preferred Alternative. Under these two alternatives, management prescriptions would be fairly evenly divided between landscape interpretation and expanded recreational experience (which share the same desired resource condition) and natural experience. Additionally, under alternative 5,

a wildlife corridor of unbroken habitat would be established in the southern half of the complex. This combination of management prescriptions would entail a minor beneficial impact on vegetation and wildlife.

Socioeconomics

All Alternatives. Typically, the addition of parklands to a community increases the value of land adjacent to the park. Because of this, all of the alternatives would be likely to produce beneficial economic impacts. Similarly, all alternatives would have adverse impacts on the local tax base if lands were federally owned because those lands would be exempt from property tax, and the payments in lieu of tax program historically has not fully compensated for this loss. However, these adverse impacts might be smaller than for similar areas of the National Park Service because the land would also be owned by the Department of Natural Resources, which does offset local property tax losses, so this potential tax loss could be mitigated.

Alternative 1: No Action, Continuation of Current Management and Alternative 2: Ecological Restoration Emphasis. These two alternatives would only provide an outdoor experience in which activities for visitors would be limited to hiking and other low-impact activities on a minimal trail system and rare interpretive tours. The visitation level under these alternatives could be compared to the most sparsely visited parks (10,000 visitors per year or less) in the national park system. These parks, on average, contribute about \$350,000 value-added annually to their communities. Without knowing what type of housing would have been built if neither of these alternatives were implemented, it is impossible to know what the tax receipts would have been. If net property tax receipts from residential development (after the costs of improving infrastructure to accommodate these residences, such as schools and roads are taken into account) were to exceed \$350,000 annually, then the economic impacts of the

no-action alternative and alternative 2 would be adverse. If, on the other hand, net property taxes were less than the estimated \$350,000 that visitation economic benefits would bring, the impacts of these two alternatives would be beneficial.

Alternative 3: Interpretation and Education Emphasis. This alternative would not only offer an outdoor experience, but also a place to stop and rest indoors, view some exhibits, and talk with park staff. Visitors would also benefit from regular interpretive programming provided by rangers. These elements would attract more visitors to the complex, but overall, the estimated visitation would still be relatively low. Visitation under this alternative could be compared to parks with low visitation (50,000–100,000 visitors per year) in the national park system. These parks, on average, contribute about \$2.5 million value-added annually to their communities. It is not possible to know what the tax receipts would have been if this alternative were not implemented. If net property tax receipts from residential development (after the costs of improving infrastructure to accommodate these residences such as schools and roads are taken into account) were to exceed \$2.5 million annually, then the economic impacts of alternative 3 would be adverse. If, on the other hand, net property taxes were less than the estimated \$2.5 million that visitation economic benefits would bring, then the impacts of this alternative would be beneficial.

Alternative 4: Outdoor Recreation Emphasis and Alternative 5: Preferred Alternative. These alternatives would offer a broader outdoor experience in a variety of ways, such as more trails, limited primitive camping, picnic areas, and for alternative 4, a bridge across the gorge and a bike path. The two alternatives would also offer a place to stop and rest indoors; view extensive exhibits, including a film; and talk with park staff. There would be space to accommodate visitors who come in a group, such as school groups. Visitors would also benefit from regular interpretive programming

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provided by rangers. These elements would attract more visitors to the complex, and overall, the estimated visitation would fall in the moderate range for visitation (150,000–200,000 visitors per year) in the national park system. These parks, on average, contribute about \$5 million value-added annually to their communities. It is not possible to know what the tax receipts would be if these alternatives were not implemented. If net property tax receipts from residential development (after taking into account the costs of improving infrastructure, such as schools and roads, to accommodate the new residences) were to exceed \$5 million annually, then the economic impacts of these alternatives would be adverse. If, on the other hand, net property taxes were less than the estimated \$5 million that visitation economic benefits would bring, then the impacts of these alternatives would be beneficial.

Visitor Use and Experience

Alternative 1: No Action, Continuation of Current Management and Alternative 2: Ecological Restoration Emphasis. These alternatives would only provide an outdoor experience in which activities for visitors would be limited to hiking and other low-impact activities on a minimal trail system and rare interpretive tours. While the activities would offer some beneficial experience for visitors over the current conditions, the benefits would likely range from negligible to minor.

Alternative 3: Interpretation and Education Emphasis This alternative would not only offer an outdoor experience, but also a place to stop and rest indoors, view some exhibits (not extensive given space limitations), and talk with park staff. Visitors would also benefit from regular interpretive programming provided by rangers. For visitors interested in the human history of the site, the ability to view and interpret the Wilkie house and barn would provide a pleasant variety of experience. However, visitors who might want to view a film in a theater or arrive in groups and gather in one indoor spot might be

disappointed by the indoor space limitations. Overall, this alternative would offer beneficial visitor experience at a minor level.

Alternative 4: Outdoor Recreation Emphasis.

This alternative would offer a broad outdoor experience in a variety of ways (more trails, limited outdoor camping, picnic areas, a bridge across the gorge, and a bike path). It would also offer a place to stop and rest indoors; view extensive exhibits, including a film; and talk with park staff. There would be space to accommodate visitors who come in group, such as school groups. Visitors would also benefit from regular interpretive programming provided by rangers. However, visitors seeking solitude and a quiet nature immersion experience might be disappointed to have to travel far from the core of the site to find this. Overall, this alternative would have a minor to moderate beneficial impact on visitor experience.

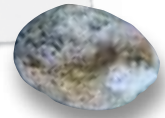
Alternative 5: Preferred Alternative. This alternative would offer a broad outdoor experience in a variety of ways (more trails, including a half-day-long loop trail; limited outdoor camping; and picnic areas). It would also offer a place to stop and rest indoors; view extensive exhibits, including a film; and talk with park staff. There would be space to accommodate visitors who come in group, such as school groups. Visitors would also benefit from regular interpretive programming provided by rangers. Various attractions (such as a bike path traversing the site and a pedestrian bridge across the gorge) are not proposed in this alternative (as they are in alternative 4) because those amenities were not widely supported by the public when they commented on the preliminary alternatives. Therefore, it seems like not many benefits to visitor experience were lost with the removal of those elements. Because the sensitive resources management area was enlarged, visitors seeking solitude and a quiet nature immersion experience would not have to travel far from the core of the site to find this. Overall, this alternative would have a moderate beneficial impact on visitor experience.

NEXT STEPS AND IMPLEMENTATION OF THE GENERAL MANAGEMENT PLAN

A 60-day public review and comment period on this general management plan / environmental impact statement has been completed. After the comment period, the NPS planning team evaluated comments from other federal agencies, tribes, organizations, businesses, and individuals regarding this document and incorporated appropriate changes into a final general management plan / environmental impact statement. The final document includes letters from government agencies, any substantive comments on the draft document, and NPS responses to those comments.

There will be a 30-day no-action period following distribution of the final general management plan / environmental impact statement. A “record of decision” may be prepared that would document the NPS selected alternative, which would become the new general management plan for the Ice Age Complex to be implemented over 15 to 20 years. Once a record of decision is signed by the NPS regional director, the plan would then be implemented as funding and staffing allows.

Please Note



IT IS IMPORTANT TO NOTE that not all of the actions in the selected alternative would necessarily be implemented immediately.

The implementation of the approved plan, no matter which alternative might be selected, would depend on future NPS, state, and partner funding levels; staff to implement the plan; servicewide priorities; and on partnership time and effort. Full implementation of the plan could be many years in the future.

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