

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service**

[RIN 1018-AG47]

Draft Policy on Maintaining the Ecological Integrity of the National Wildlife Refuge System; Notice**AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Notice.

SUMMARY: We (U.S. Fish and Wildlife Service) propose to establish an internal policy to guide personnel of the National Wildlife Refuge System (Refuge System) in implementing the clause of the National Wildlife Refuge System Improvement Act of 1997 (Refuge Improvement Act) that calls for maintaining the "biological integrity, diversity, and environmental health" of the Refuge System. The holistic integration of these three qualities constitutes ecological integrity. The concept of ecological integrity requires a frame of reference for natural conditions. Our frame of reference extends from 800 AD to 1800 AD. The former date marked the beginning of an ecological transformation associated with higher temperatures; the latter approximates the advent of the industrial era, including drastic and widespread habitat loss. In areas where pre-industrial European settlement was particularly intensive, however, our frame of reference may be shorter. Natural conditions also include those that would have persisted or evolved to the present time if European settlement and industrialization had not occurred. At each refuge, we ascertain natural conditions, assess current conditions, and strive to decrease the difference. However, we are especially concerned with ecological integrity of the Refuge System as a whole, which can conflict with the maintenance of ecological integrity at individual refuges. In some cases, we may compromise the ecological integrity of a refuge for the sake of maintaining a higher level of ecological integrity at the Refuge System scale.

DATES: Submit comments on or before December 1, 2000.**ADDRESSES:** Send comments or questions concerning the draft ecological integrity policy via mail, fax, or email to: Elizabeth Souheaver, Chief, Branch of Wildlife Resources, National Wildlife Refuge System, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Room 670, Arlington, Virginia 22203; fax (703) 358-2248; e-mail Ecointegrity__policy_comments@fws.gov.**FOR FURTHER INFORMATION CONTACT:**

Elizabeth Souheaver, Chief, Branch of Wildlife Resources, National Wildlife Refuge System, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Room 670, Arlington, Virginia 22203; telephone (703) 358-1744.

SUPPLEMENTARY INFORMATION:

Disposition. The policy presented in this notice is a draft policy that may be modified pursuant to public comment. The finalized policy will constitute Part 601 Chapter 3 of the Fish and Wildlife Service Manual.

Comment Solicitation. We seek public comments on this draft policy and will consider all comments received during the 45-day comment period. You may submit comments by any one of several methods:

- You may mail comments to:

Elizabeth Souheaver, Branch Chief of Wildlife Resources, National Wildlife Refuge System, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Room 670, Arlington, VA 22203.

- You may fax comments to:

Elizabeth Souheaver, Chief, Branch of Wildlife Resources, National Wildlife Refuge System, (703) 358-2248.

You may comment via the Internet to: Ecointegrity__policy_comments@fws.gov.

- You may hand-deliver comments to the U.S. Fish and Wildlife Service, National Wildlife Refuge System, Room 670, 4401 North Fairfax Drive, Arlington, VA.

Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. There also may be circumstances in which we take the initiative to withhold from the record a respondent's identity, as allowable by law. If you wish that we withhold your name and/or address, you must state this prominently at the beginning of your comment. However, we will not consider anonymous comments. We will make all submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

We published a notice in the **Federal Register** on January 23, 1998 (63 FR 3583) notifying the public that we would be revising the Fish and Wildlife Service Manual, establishing regulations as they relate to the Refuge Improvement Act, and offering to send copies of specific draft Fish and Wildlife Service Manual chapters to

anyone who would like to receive them. We will mail a copy of this draft Fish and Wildlife Service Manual ecological integrity chapter to those who requested one. In addition, this draft Fish and Wildlife Service Manual ecological integrity chapter will be available on the National Wildlife Refuge System web site (<http://refuges.fws.gov>) during the 45-day comment period.

Ecological Integrity Draft Policy (Fish and Wildlife Service Manual, Part 601, Draft Chapter 3)*3.1 What Is the Purpose of This Chapter?*

This chapter provides policy for maintaining and restoring the biological integrity, biological diversity, and environmental health of the National Wildlife Refuge System. Throughout this policy, we use the term "ecological integrity" to refer to biological integrity, biological diversity, and environmental health.

3.2 What Is the Scope of This Policy?

This policy applies to the National Wildlife Refuge System as a whole and to all individual units within the System.

3.3 What Is the Ecological Integrity Policy?

We will, first and foremost, maintain existing levels of ecological integrity at all landscape scales. In addition, we will restore lost elements of ecological integrity at all landscape scales where it is consistent with refuge purposes.

3.4 What Are the Objectives of This Policy?

A. Provide guidelines for determining what conditions constitute ecological integrity.

B. Provide guidelines for determining how to maintain existing levels of ecological integrity.

C. Provide guidelines for determining how and when to restore lost elements of ecological integrity.

3.5 What Is the Authority for This Policy?

The authority for this draft policy is the National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd-668ee (Refuge Administration Act). This law states that "In administering the System, the Secretary shall—(A) Provide for the conservation of fish, wildlife, and plants, and their habitats within the System; (B) ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present

and future generations of Americans; (C) plan and direct the continued growth of the System in a manner that is best designed to accomplish the mission of the System, to contribute to the conservation of the ecosystems of the United States, to complement efforts of States and other Federal agencies to conserve fish and wildlife and their habitats, and to increase support for the System and participation from conservation partners and the public; (D) ensure that the mission of the System described in paragraph (2) and the purposes of each refuge are carried out, except that if a conflict exists between the purposes of a refuge and the mission of the System, the conflict shall be resolved in a manner that first protects the purposes of the refuge, and, to the extent practicable, that also achieves the mission of the System; * * *

The law also provides that, in administering the National Wildlife Refuge System, “* * * the Secretary is authorized to * * *

Issue regulations to carry out this Act.”

3.6 What Do These Terms Mean?

A. Biological diversity. The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and communities and ecosystems in which they occur.

B. Biological integrity. Biotic composition, structure, and functioning at genetic, organism, and community levels consistent with natural conditions, including the natural biological processes that shape genomes, organisms, and communities.

C. Ecological integrity. Biological diversity, biological integrity, and environmental health.

D. Environmental health. Composition, structure, and functioning of soil, water, air, and other abiotic features consistent with natural conditions, including the natural abiotic processes that shape the environment.

E. Native. Not introduced. Present under natural conditions.

F. Natural conditions. Composition, structure, and functioning of ecosystems thought to exist during a reference period from approximately 800 AD to the onset of European settlement or the industrial era and that would have persisted or evolved to the present time if European settlement had not occurred or the industrial era had not arrived. Our assessment of natural conditions is based on sound professional judgment.

G. Sound professional judgment. A finding, determination, or decision that is consistent with principles of sound fish and wildlife management and administration, available science and

resources, and adherence to the requirements of the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), and other applicable laws. Included in this finding, determination, or decision is a refuge manager’s field experience and knowledge of the particular refuge’s resources.

3.7 What Are the Principles Underlying This Policy?

A. Wildlife First

The Refuge Administration Act clearly establishes that wildlife conservation is the singular National Wildlife Refuge System mission. House Report 105–106 accompanying the National Wildlife Refuge System Improvement Act of 1997 states “* * * the fundamental mission of our Refuge System is wildlife conservation: wildlife and wildlife conservation must come first.” Maintaining biological integrity, biological diversity, and environmental health are integral and high priority components of wildlife conservation.

B. Maintaining Ecological Integrity of the System and Accomplishing Refuge Purposes

Each refuge will be managed to fulfill refuge purposes as well as to help fulfill the System mission. If a conflict exists between managing for refuge purposes and the System mission, the conflict will be resolved in a manner that first protects the refuge purposes, and, to the extent practicable, that also achieves the System mission. Likewise, if a conflict exists between managing for refuge purposes and maintaining or restoring the ecological integrity of the System, the conflict will be resolved in a manner that first protects the refuge purposes, and, to the extent practicable, that also maintains or restores the ecological integrity of the System. When refuge managers select management actions that fulfill refuge purposes, they will follow as closely as possible the guidelines provided in this ecological integrity policy so as to maximize our ability to maintain the ecological integrity of the System while fulfilling refuge purposes. These decisions are based on sound professional judgment.

C. Ecological Integrity in a Landscape Context

Biological integrity, biological diversity, and environmental health occur at various landscape scales from local to ecosystem, national, and international. All refuges have varying levels of biological integrity, biological diversity, and environmental health, and they contribute to ecological

integrity at multiple landscape scales. At the local landscape scale, ecological integrity varies at individual refuges to the extent that refuge habitats have been altered and natural conditions have been compromised. Also, refuges contribute to ecological integrity at other landscape scales, especially when they provide for populations and habitats that have been lost at the larger landscape scales. When determining strategies to maintain and restore ecological integrity, we consider refuges in the context of multiple landscape scales from local to international.

D. Maintenance and Restoration of Ecological Integrity

We will, first and foremost, maintain existing levels of ecological integrity at all landscape scales. In addition, we will restore lost elements of ecological integrity at all landscape scales where it is consistent with refuge purposes. Maintaining and restoring ecological integrity helps to minimize the effects of further losses of natural conditions at all landscape scales.

E. Management Based on Goals and Objectives

Refuge purposes and the System mission serve as the basis for goals and objectives at all levels of the System (*e.g.*, System, Regional, ecosystem, and refuge level). When we develop these goals and objectives we include goals and objectives for maintaining and restoring the ecological integrity of the System as described in this policy.

F. Wildlife and Habitat Management

Refuge management ranging from preservation to active manipulation of habitats and populations is necessary to maintain ecological integrity. We favor management that mimics natural processes to achieve refuge purposes, goals and objectives, and to help fulfill the System mission, goals and objectives. Our management may differ from the frequency and timing of natural processes when necessary to compensate for the loss of habitat that existed under natural conditions at landscape scales beyond the refuge boundaries.

G. Adaptive Management

We make management decisions based on sound professional judgment and we evaluate the effectiveness of these decisions by comparing results to desired outcomes. If the results are unsatisfactory, we assess the causes of failure and adapt our management decisions accordingly. In part, we base management decisions on natural resource related research that has been

conducted on refuges. This type of research adds to the general body of information related to natural resource management and aids us in continually adapting our management decisions. We generally encourage natural resource related research on refuges.

H. Sound Professional Judgment

We use sound professional judgment to determine what conditions constitute ecological integrity, how to maintain existing levels of ecological integrity; and how and when to restore lost elements of ecological integrity. These determinations are inherently complex and require us to consider our field experiences and knowledge of refuge resources, particularly biological resources, and make conclusions that are consistent with principles of sound fish and wildlife management and administration, available scientific information, and applicable laws. We consult with others inside and outside the Service as necessary.

3.8 What are our responsibilities?

A. Director

(1) Provides national policy, goals and objectives for maintaining and restoring the ecological integrity of the System.

(2) Ensures that national plans and partnerships support maintaining and restoring the ecological integrity of the System.

(3) Ensures that the national land acquisition strategy for the System is designed to maintain the ecological integrity of the System at all landscape scales.

B. Regional Director

(1) Provides regional policy, goals and objectives for maintaining and restoring the ecological integrity of the System.

Regional policy will include guidance pertaining to the relative merits of pursuing ecological integrity on a particular refuge versus pursuing ecological integrity for other landscape scales.

(2) Ensures that regional and ecosystem plans, and regional partnerships support the maintenance and restoration of Refuge System ecological integrity.

(3) Resolves conflicts that arise between maintaining ecological integrity at the refuge landscape scale and maintaining ecological integrity at larger landscape scales.

C. Regional Refuge Chief

(1) Ensures that individual refuge Comprehensive Conservation Plans support the maintenance and restoration of Refuge System ecological integrity.

(2) Reviews and ensures that refuge management programs that occur on many refuges (e.g., fire management) are consistent with this policy.

D. Refuge Manager

(1) Follows the procedure outlined in section 3.9 of this chapter.

(2) Incorporates the principles of this policy into all refuge management plans and actions.

(3) Ensures that refuge management plans, goals and objectives are consistent with System, regional and ecosystem goals and objectives to maintain ecological integrity.

3.9 How do we implement this policy?

The Director, regional directors, regional chiefs and refuge managers carry out their responsibilities as specified in section 3.8 of this chapter. In addition, refuge managers:

A. Identify the refuge's purposes.

B. Ascertain natural conditions for the refuge, including representative successional stages.

C. Assess current conditions and compare them to natural conditions to determine the most appropriate management strategies for maintaining and restoring ecological integrity. This assessment includes determining the capabilities and limitations of the refuge to maintain and restore ecological integrity.

D. Consider the refuge's importance to local, ecosystem, national and international landscape scales of ecological integrity.

E. Identify the refuge's roles and responsibilities within the Regional and System administrative levels.

F. Consider the relationships among biological integrity, biological diversity and environmental health, and resolve conflicts that may result when attempting to maintain and restore all three.

G. Consider refuge purposes and, in coordination with the comprehensive conservation planning process, prescribe appropriate wildlife and habitat management to maintain and restore ecological integrity at the appropriate landscape scales.

H. Evaluate the effectiveness of our management by comparing results to desired outcomes. If the results of our management strategies are unsatisfactory, assess the causes of failure and adapt our strategies accordingly.

3.10 What factors do we consider when maintaining and restoring ecological integrity?

This section provides guidance for maintaining and restoring each

component of ecological integrity; that is, biological integrity, biological diversity, and environmental health. We plan for the maintenance and restoration of each component, while considering all three components in an integrated and holistic manner.

A. Biological Integrity

We evaluate biological integrity by examining the extent to which biological composition, structure, and function have been altered from natural conditions. Biological composition refers to biological components such as genes, populations, species, and communities. Biological structure refers to the organization of biological components, such as gene frequencies, social structures of populations, food webs of species, and niche partitioning within communities. Biological function refers to the processes undergone by biological components, such as genetic recombination, population migration, the evolution of species, and community succession.

Biological integrity lies along a continuum from a biological system completely altered by industrial development to a completely natural system. No landscape retains absolute biological integrity. However, we strive to prevent the further loss of natural biological features and processes; that is, biological integrity.

Maintaining or restoring biological integrity is not the same as maximizing biological diversity. Maintaining biological integrity may entail managing for a single species or community at some refuges and combinations of species or communities at other refuges. For example, a refuge may contain critical habitat for an endangered species. Maintaining that habitat (and, therefore, that species), even though it may reduce biological diversity at the local landscape scale, helps maintain biological integrity and biological diversity at the national landscape scale.

In deciding which management activities to conduct to accomplish refuge purposes while maintaining biological integrity, we start by considering how the ecosystem functioned under natural conditions. For example, we consider the natural frequency and timing of processes such as flooding, fires, and migration. Our management will mimic these natural processes in natural frequencies and timing at the local landscape scale, where they support accomplishing refuge purposes.

We may find it necessary to modify the frequency and timing of natural processes at the local landscape scale to fulfill refuge purposes or to contribute

to ecological integrity at larger landscape scales. For example, under natural conditions, an area may be flooded only a few times per decade. Migratory birds dependent upon wetlands may have used the area in some years, and used other areas that flooded in other years. Because many wetlands have been converted to agriculture or other land uses, the remaining wetlands must produce more habitat, more consistently, to support wetland-dependent migratory birds. Therefore, to conserve biological integrity at larger landscape scales we may flood areas more frequently and for longer periods of time than they were flooded under natural conditions.

B. Biological diversity

We evaluate biological diversity at various taxonomic levels, including class, order, family, genus, species, subspecies, and—for purposes of Endangered Species Act implementation—distinct population. These evaluations of biological diversity begin with population surveys and studies of flora and fauna. The System's focus is on native species and natural communities.

We also evaluate biological diversity at various landscape scales, including local, ecosystem, national, and international. On refuges, we typically focus our evaluations of biological diversity at the local scale; however, these local evaluations can contribute to assessments at larger landscape scales.

We strive to maintain populations of breeding individuals that are genetically viable and functional. We provide for the breeding, migrating, and wintering needs of migratory species. We also strive to maximize the size of habitat blocks and maintain connectivity between blocks of habitats, unless such connectivity causes adverse effects on wildlife or habitat (*e.g.*, by facilitating the spread of invasive species).

At the community level, the most reliable indicator of biological diversity is plant community composition. We use the National Vegetation Classification System to identify biological diversity at this level.

C. Environmental Health.

We evaluate environmental health by examining the extent to which environmental composition, structure, and function have been altered from natural conditions. Environmental composition refers to abiotic components such as air, water, and soils, all of which are generally interwoven with biotic components (*e.g.*, decomposers live in soils). Environmental structure refers to the

organization of abiotic components, such as atmospheric layering, aquifer structure, and topography. Environmental function refers to the processes undergone by abiotic components, such as wind, evaporation, and erosion. A diversity of abiotic composition, structure, and function tends to support a diversity of biological composition, structure, and function.

Environmental health affects biological integrity at all levels. Consistent with the wildlife first principle, we are especially concerned with environmental features as they affect living organisms. For example, at the genetic level, we manage for environmental health by preventing chemical contamination of air, water, and soils that may interfere with reproductive physiology or stimulate high rates of mutation. Such contamination includes carcinogens and other toxic substances that are released within or outside of refuges.

At the population and community levels, we consider the habitat components of food, water, cover, and space. Food and water may become contaminated with chemicals that are not naturally present. Activities such as logging and mining or structures such as buildings and fences may modify security or thermal cover. Unnatural noise and light pollution also compromise security. Unnatural physical structures, including buildings, reservoirs, and other infrastructure, may displace space. Refuge facility construction and maintenance projects necessary to accomplish refuge purposes should be designed to minimize their impacts on the environmental health of the refuge.

3.11 How Do We Apply Our Management Strategies to Maintain and Restore Ecological Integrity?

We strive to manage for ecological integrity in a holistic manner by optimizing the combination of biological integrity, biological diversity, and environmental health. We balance these three components of ecological integrity by considering refuge purposes, landscape scales, and the wildlife first principle. Considered independently, management strategies to maintain and restore biological integrity, biological diversity, and environmental health may conflict.

For example, physical structures and chemical applications are often necessary to maintain biological integrity and to fulfill refuge purposes. We may use dikes and water control structures to maintain and restore natural hydrological cycles, or use rotenone to eliminate invasive carp from

a pond. These unnatural physical alterations and chemical applications would compromise environmental health if considered in isolation, but they may be appropriate management actions for maintaining ecological integrity when they are essential for maintaining biological integrity and accomplishing refuge purposes.

We may remove physical structures to promote endangered species recovery in some areas, or we may remove plants or animals (*e.g.*, beavers) to protect structures (*e.g.*, dikes), depending upon refuge purposes. Unless we determine that a species was present in the area of a refuge under natural conditions, we will not introduce or maintain the presence of that species for the purpose of biological diversity. We may make exceptions where areas are essential for the conservation of a threatened or endangered species and suitable habitats are not available elsewhere. In such cases, we strive to minimize unnatural effects and to restore or maintain natural processes and ecosystem components to the extent practicable without jeopardizing refuge purposes.

3.12 What Do We Use as a Frame of Reference for Natural Conditions?

We examine the time period from 800 AD to European settlement or to the industrial era to choose a timeframe that is appropriate for determining natural conditions for a given area of the country. In each area of the country, the timeframe for determining natural conditions must be long enough to define the full range of an area's plant community succession, fire regimes, hydrology, and climatic cycles. Natural conditions also may include those natural evolutionary forces and events, such as range expansions, that would have occurred if European settlement had not occurred or the industrial era had not arrived.

We use 800 AD as the starting point for natural conditions because it marks a major ecological transition in North America. The period from 800 AD to the industrial era includes warm, cool, and moderate climates that supported a variety of naturally occurring ecosystems. We use both European settlement and the industrial era as end points for determining natural conditions because we recognize both for causing landscape alterations. European settlers cleared land, established farms, and built towns and cities. Their impacts on the landscape varied, depending on density and land use. During the industrial era, the use of intensive energy sources, such as fossil fuels, have resulted in degradation and

elimination of habitats, extirpation of species, and created a need for both local and landscape level conservation efforts.

In the United States, European settlement and the industrial era began approximately 1600 AD and 1800 AD, respectively. In some areas the land use changes that degrade or destroy wildlife habitat did not begin until much later than 1800, particularly in Alaska. In these areas, we may extend the frame of reference for natural conditions beyond 1800.

In some cases, non-natural and irreversible changes have occurred since the industrial era. For example, some areas have been converted to urban or industrial uses, some species have been driven to extinction, and widespread phenomena like global warming may increasingly impact ecosystems. We acknowledge the existence of such irreversible, non-natural changes and strive to maintain remaining levels of ecological integrity without investing resources in futile management activities. However, where feasible we will attempt to mimic the structure, composition and function of natural conditions.

3.13 *Where Do We Get Information on Natural Conditions?*

Information on natural conditions may be ethnographic, historical, archeological, or paleoecological. Ethnographic information consists primarily of Native American oral traditions and belongings passed down through many generations. Historical information includes the written and, in some cases, the pictographic accounts of explorers, surveyors, traders, and others present in the United States prior to the industrial era. Archeological information comes from collections of cultural artifacts maintained by scientific institutions. Paleoecological information comes from a variety of ecological artifacts including fossils, packrat middens, pollen cores, soil sediments, and tree rings.

We obtain information on natural conditions from our investigations and from partners in academia, conservation organizations, and other Federal, State, Tribal, and local government agencies. In many cases, we use historical vegetation maps to provide data on natural conditions. Such historical maps are usually drawn at relatively coarse scales, perhaps to the level of vegetation alliance. Small areas such as bogs would have gone undocumented or undetected in the historical or paleoecological records, and generally a comprehensive list of plant and animal species is not available or necessary. The

determination of natural species and ecosystem composition will be based on sound professional judgment. We periodically update our information on natural conditions with results from ongoing archeological and paleoecological studies.

When information on natural conditions is not available for a particular area, we obtain information on natural conditions of nearby areas that have similar environmental traits at a broad scale, including topography, geology, soils, and climate. We use these conditions as a proxy for natural conditions of the area in question.

3.14 *How Do We Incorporate Information From the Natural Conditions Reference Period Into Our Management Decisions?*

Maintaining biological integrity, biological diversity, and environmental health requires an ecological frame of reference. This frame of reference allows us to contrast current conditions with the natural conditions that existed prior to European settlement and the advent of the industrial era. The reference period guides us in two ways. It provides information on how the landscape looked prior to changes in land use that destroyed and fragmented habitats and resulted in diminished wildlife populations and the extirpation or extinction of species. It also allows us to examine how natural ecosystems function and maintain themselves. We use these conditions as a frame of reference in which to set current management goals.

We use the natural conditions frame of reference to identify composition, structure, and functional processes that naturally shaped ecosystems. We especially seek to identify keystone species, indicator species, and types of communities that occurred during the frame of reference. We also seek to ascertain basic information on natural structures such as predator/prey relationships and topography. Finally, we seek to identify the scale and frequency of processes that accompanied these components and structures, such as fire regimes, flooding events, and plant community succession. Where feasible, we also pursue ecological integrity by eliminating unnatural biotic and abiotic features and processes not necessary to accomplish refuge purposes.

We do not expect, however, to reconstruct a complete inventory of components, structures, and functions for any successional stage occurring during the frame of reference. Rather, we use sound professional judgment to fit the pieces together as if building a

puzzle. For example, if there is fossilized evidence that beavers lived in an area, then we may conclude that there were beaver dams with associated floral and faunal components, community structure, and hydrological functions. Similarly, if tree ring analysis indicates a highly regular fire regime of every 10–15 years in a ponderosa pine forest, we may conclude that this functioned to maintain an understory with a relatively open structure, with a community of plants and animals typical of open-structured ponderosa pine forests.

We ensure that our management activities result in the establishment of a community that fits within the natural successional series, unless doing so conflicts with accomplishing refuge purposes. For example, if we determine that an area in question was an aspen parkland in 1800, we may manage for aspen parkland or any other community that fits within the natural successional series, with a focus on natural communities and ecological processes that are rare, declining, or unique. We often choose to maintain non-climax communities pursuant to refuge purposes or to contribute to ecological integrity at the regional, national, or international landscape scale. We favor techniques such as fire or flooding that mimic or result in natural processes to maintain these non-climax communities. However, where not precluded by refuge purposes, we allow or, if necessary, encourage natural successional processes.

If there is evidence that certain successional stages naturally were precluded, we do not attempt to manage for those stages. For example, if a volcanic eruption in the 12th century impounded water that flooded a forest, creating a lake in the process, we would not drain the lake to reproduce the forest. Reproducing conditions that naturally ceased to exist compromises ecological integrity.

3.15 *How Do We Manage Populations To Maintain and Restore Ecological Integrity?*

We maintain, or contribute to the maintenance of, viable populations of native species. We design our wildlife population management strategies to support accomplishing refuge purposes while maintaining or restoring ecological integrity. We formulate refuge goals and objectives for population management to maintain natural densities, social structures, and population dynamics at the local level, except where precluded by refuge purposes or by population objectives set by national plans and programs—such

as the North American Waterfowl Management Plan—in which the System is a partner.

Natural densities are relatively stable for some species and variable for others. We manage populations for natural densities and levels of variation, while assuring that densities of endangered or otherwise rare species are sufficient for maintaining viable populations.

On some refuges, including many of those having the purpose of migratory bird conservation, we establish goals and objectives to maintain densities higher than those that would naturally occur at the refuge level because of the loss of surrounding habitats. By maintaining higher densities at the refuge level, we more closely approximate natural levels at larger landscape scales such as flyways. We try to prevent, however, densities at excessive levels that result in adverse effects on wildlife and habitat. The effects of producing densities that are too high may include disease, excessive nutrient accumulation and the competitive exclusion of other species. We use sound professional judgment to determine prudent limits to densities.

We consider population parameters such as sex ratios and age class distributions when managing populations to maintain and restore ecological integrity. Within the constraints of refuge purposes, we set our goals and objectives for these parameters within the range of values occurring under natural conditions, especially for resident populations. For example, ungulate populations with natural social structures are characterized by a high percentage of males with significant horns or antlers that are attractive to hunters and the viewing public alike. Population management plans, goals, and objectives for migratory populations generally are set at ecological scales broader than the refuge level, although refuges may play important roles in these efforts.

We encourage cooperation and coordination with State fish and wildlife management agencies in setting refuge population management goals and objectives. Regulations permitting hunting and fishing within the System will be, to the extent consistent with this policy, in keeping with State fish and wildlife laws, regulations, and management plans.

We support the reintroduction of extirpated native species. We consider such reintroduction in the context of surrounding landscapes. We do not introduce species on refuges outside their historic range or introduce species if we determine that they were naturally extirpated, unless such introduction is essential for the survival of a species

and prescribed in an endangered species recovery plan, or is essential for the control of an invasive species and prescribed in an integrated pest management plan.

3.16 How Do We Manage Habitats To Maintain and Restore Ecological Integrity?

We maintain existing levels of ecological integrity at all landscape scales. In addition, we will restore lost elements of ecological integrity at all landscape scales where it is consistent with refuge purposes. Maintaining and restoring ecological integrity helps to minimize the effects of further losses of natural conditions at all landscape scales.

Our habitat management plans call for the appropriate management strategies that mimic natural conditions and accomplish refuge objectives. For example, prescribed burning to maintain natural fire regimes or water level management to mimic natural hydrological cycles are often necessary to maintain natural plant and animal communities in fragmented landscapes. Farming, haying, logging, livestock grazing, and other extractive activities are permissible habitat management practices only when prescribed in plans to meet wildlife or habitat management objectives, and only when more natural methods, such as fire or grazing by native herbivores, are not feasible.

We do not allow refuge uses or management practices that result in the maintenance of non-native plant communities unless we determine that there is no other feasible alternative for accomplishing refuge purposes. For example, where we do not require farming to accomplish refuge purposes, we cease farming and strive to restore natural habitats. Generally, farming must be identified as an important contribution to ecological integrity at larger ecosystem, regional, or national scales. Where past land uses and management practices have modified habitats, and where restoration is feasible, we restore natural habitats in the pursuit of ecological integrity. We use native seed sources in ecological restoration. We do not use genetically modified organisms in refuge management unless we determine their use essential to accomplishing refuge purposes and the Director approves the use.

3.17 How Do We Manage Non-Native Species To Maintain and Restore Ecological Integrity?

We prevent the introduction of invasive species, detect and control populations of invasive species, and provide for restoration of native species

and habitat conditions in invaded ecosystems. We develop integrated pest management strategies that incorporate the most effective combination of mechanical, chemical, biological, and cultural controls while considering the effects on environmental health.

We require no action to reduce or eradicate self-sustaining populations of non-native, non-invasive species (e.g., pheasants) unless those species interfere with accomplishing refuge purposes. We do not, however, manage habitats to increase populations of these species unless such habitat management supports accomplishing refuge purposes.

3.18 How Does This Policy Affect The Acquisition Of Lands For The System?

We consider the mission, goals, and objectives of the System in planning for its strategic growth. We will take a proactive approach to identifying lands, from national and regional perspectives, that are critical for maintaining or restoring the ecological integrity of the System. We will integrate this approach into all Service strategies and initiatives related to the strategic growth of the System. We incorporate the guidance in this chapter when we evaluate the potential of an area to contribute to the conservation of the ecosystems of the United States. When evaluating potential new refuges, we consider how such refuges will contribute to maintaining the ecological integrity of the System.

We use the Land Acquisition Priority System to rank potential acquisitions once the Director approves significant expansions or new refuges. Our Land Acquisition Priority System includes components that gauge the contributions of refuges to maintaining and restoring ecological integrity.

3.19 What Is The Relationship Between Ecological Integrity And Compatibility?

When completing compatibility determinations, refuge managers use sound professional judgment to determine if a refuge use will materially interfere with or detract from the fulfillment of the System mission or the refuge purposes. Inherent in fulfilling the System mission is not degrading the ecological integrity of the refuge and the System. Refuge uses that we reasonably may anticipate to conflict with maintaining the ecological integrity of the refuge or the System are contrary to fulfilling the System mission and are therefore not compatible. Specific policy for compatibility is found in 603 FW 2.

3.20 What Is The Relationship Between Ecological Integrity and Comprehensive Conservation Planning?

We integrate the principles of this policy into all aspects of comprehensive conservation planning as we write plans to direct long range refuge management and identify desired future conditions for planned refuges (602 FW 1.7 D).

3.21 How Do We Protect Ecological Integrity From Actions Outside Of Refuges?

When actions of others that occur off refuge lands or waters that injure or destroy the natural resources of a refuge, refuge managers should address those problems as soon as possible to protect the property of the United States and to protect the biological integrity, biological diversity, and environmental health of the refuge and the System. The refuge manager should first inform the person or entity responsible and request cooperation. Our first effort to avoid and rectify injury should always be partnerships or voluntary cooperation with adjacent landowners and others. If these efforts fail to protect the refuge, refuge managers should request the Office of the Solicitor for assistance in pursuing civil remedies, such as an injunction or damages, just as any other landowner would.

Primary Author: Brian Czech, Conservation Biologist, Branch of Wildlife Resources, National Wildlife Refuge System, U.S. Fish and Wildlife Service, is the primary author of this notice.

Dated: September 24, 2000.

Jamie Rappaport Clark,

Director, U.S. Fish and Wildlife Service.

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BILLING CODE 4310-55-U

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[MT-921-01-1320-EL-P; MTM 88405]

Notice of Competitive Coal Lease Offering by Sealed Bid

AGENCY: Bureau of Land Management, Montana State Office

ACTION: Notice of competitive coal lease offering by sealed bid MTM 88405.

SUMMARY: Notice is hereby given that the coal resources in the lands described below in Big Horn County, Montana, will be offered for competitive lease by sealed bid. This offering is being made as a result of an application filed by Spring Creek Coal Company, in accordance with the provisions of the Mineral Leasing Act of 1920, as

amended (41 Stat. 437; 30 U.S.C. 181 *et seq.*).

The lease sale will be held at 11:00 a.m., Monday, November 27, 2000, in the main conference room, side B, at the Bureau of Land Management, 5001 Southgate Drive, Billings, Montana 59102. Bids for the tract will be in the form of sealed bids. Sealed bids clearly marked "Sealed Bid for MTM 88405 Coal Sale—Not to be opened before 11:00 a.m., Monday, November 27, 2000" must be submitted on or before 10:00 a.m., November 27, 2000, to the cashier, Bureau of Land Management, Montana State Office, 5001 Southgate Drive, Post Office Box 36800, Billings, Montana 59107-6800.

An Environmental Assessment of the proposed coal development and related requirements for consultation, public involvement, and hearings have been completed in accordance with 43 CFR 3425. The results of these activities were a finding of no significant environmental impact.

The coal resource to be offered consists of all recoverable reserves in the following-described lands:

T. 8 S., R. 39 E., P.M.M.

Sec. 13: SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$,

SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$

Sec. 14: S $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$,

S $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$,

NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$,

NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$

Sec. 23: NE $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$,

N $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$

Sec. 24: NW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$,

N $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$

Containing 150.00 acres, Big Horn County, Montana.

The tract in this lease offering contains split estate lands. The surface is not held by a qualified surface owner as defined in the regulations, 43 CFR 3400.0-5.

SUPPLEMENTARY INFORMATION: The tract will be leased to the qualified bidder of the highest cash amount provided that the high bid meets the fair market value of the coal resource. The minimum bid for the tract is \$100 per acre or fraction thereof. No bid that is less than \$100 per acre, or fraction thereof, will be considered. The bids should be sent by certified mail, return receipt requested, or be hand-delivered. The cashier will issue a receipt for each hand-delivered bid. *Bids received after 10:00 a.m., Monday, November 27, 2000, will not be considered.* The minimum bid is not intended to represent fair market value. The fair market value will be determined by the authorized officer after the sale.

If identical high bids are received, the tying high bidders will be requested to submit follow-up sealed bids until a high bid is received. All tie-breaking

sealed bids must be submitted within 15 minutes following the Sale Official's announcement at the sale that identical high bids have been received.

A lease issued as a result of this offering will provide for payment of an annual rental of \$3 per acre, or fraction thereof; and a royalty payable to the United States of 12.5 percent of the value of coal mined by surface methods and 8.0 percent of the value of coal mined by underground methods. The value of the coal shall be determined in accordance with 30 CFR 206.250.

Bidding instructions for the tract offered and the terms and conditions of the proposed coal lease are included in the Detailed Statement of Lease Sale. Copies of the statement and the proposed coal lease are available at the Montana State Office. Casefile MTM 88405 is also available for public inspection at the Montana State Office.

FOR FURTHER INFORMATION CONTACT:

Bettie Schaff, Land Law Examiner or Rebecca Good, Coal Coordinator at (406) 896-5063 or 896-5080, respectively.

Dated: October 11, 2000.

Randy D. Heuscher,

Chief, Branch of Solid Minerals.

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BILLING CODE 4310-55-P

DEPARTMENT OF THE INTERIOR

National Park Service

Lower St. Croix National Scenic Riverway; Environmental Impact Statement

AGENCY: National Park Service, Minnesota Department of Natural Resources, Wisconsin Department of Natural Resources.

ACTION: Notice of availability of the final cooperative management plan/final environmental impact statement for the Lower St. Croix National Scenic Riverway, Minnesota and Wisconsin.

SUMMARY: Pursuant to section 102(2) of the National Environmental Policy Act of 1969, the National Park Service, Minnesota Department of Natural Resources, and Wisconsin Department of Natural Resources announce the availability of the final cooperative management plan/final environmental impact statement (FCMP/FEIS) for the Lower St. Croix National Scenic Riverway.

The purpose of the cooperative management plan is to set forth the basic management philosophy for the riverway and to provide the strategies for addressing issues and achieving