DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition To List the Yellowstone National Park Bison Herd as Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 90-day petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 90-day finding on a petition to list the Yellowstone National Park (YNP) bison herd as endangered under the Endangered Species Act of 1973, as amended (Act). On the basis of our review of the petition and information readily available in our files, we have determined that there is substantial information indicating that the YNP bison herd may meet the criteria of discreteness and significance as defined by our policy on distinct vertebrate population segments (DPS). However, we have also determined that there is not substantial information indicating that listing the YNP bison herd under the Act may be warranted throughout all or a significant part of its range. We will not initiate a status review in response to this petition. We ask the public to submit to us any new information that becomes available concerning the status of the YNP bison herd or threats to it or its habitat at any time. This information will help us monitor and encourage the conservation of the species.

DATES: The finding announced in this document was made on August 15, 2007. New information concerning this species may be submitted for our consideration at any time.

ADDRESSES: Data, information, comments, or questions concerning this petition finding should be submitted to the Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, 134 Union Boulevard, Suite 645, Lakewood, Colorado 80228. The petition finding and supporting information will be available for public inspection, by appointment, during normal business hours at the above address. The petition and finding are available on our Web site at *http://r6.fws.gov/mammals/bison*.

FOR FURTHER INFORMATION CONTACT: Michael Stempel, Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service (see **ADDRESSES** section) (telephone 303–236–4253; facsimile 303–236–0027).

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(A) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information to indicate that the petitioned action may be warranted. We are to base this finding on information provided in the petition, supporting information submitted with the petition, and information otherwise available in our files at the time we make the determination. To the maximum extent practicable, we are to make this finding within 90 days of our receipt of the petition, and publish our notice of this finding promptly in the **Federal Register**.

Our standard for substantial information within the Code of Federal Regulations (CFR) with regard to a 90-day petition finding is ''that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted'' (50 CFR 424.14(b)). If we find that substantial information was presented, we are required to promptly commence a review of the status of the species.

In making this finding, we relied on information provided by the petitioners and information otherwise available in our files, and evaluated that information in accordance with 50 CFR 424.14(b). Our process of coming to a 90-day finding under section 4(b)(3)(A) of the Act and section 424.14(b) of our regulations is limited to a determination of whether the information in the petition meets the ''substantial information'' threshold.

Mr. James Horsley of Moorhead, Minnesota, filed a petition dated January 5, 1999, with the Secretary of the Interior to list the ''herd of buffalo at the Yellowstone National Park'' ''because it is endangered in a significant portion of its range.'' Mr. Horsley requested that the Service list the herd as a subspecies or ''distinct population group,'' and to designate critical habitat in and adjacent to YNP. The Service received the petition on February 11, 1999. Action on this petition has been precluded until now because of higher priority listing actions. This finding does not consider critical habitat, which would only arise with a positive 12-month finding.

Biology and Distribution

The bison (also referred to as the American buffalo) is a member of the family Bovidae, which includes domestic cattle. Two subspecies of bison are currently recognized in North America—the plains bison (*Bison bison bison*) and the wood bison (*Bison bison athabascae*) (Boyd 2003, pp. 28–31). The species once ranged across central and western North America, but market hunting nearly extirpated the herds by the 1880s.

Numerous Federal, State, and private bison herds currently exist in the United States, but YNP is the only area in the United States where bison have existed in the wild state since prehistoric times (Gates *et al.* 2005, p. 92). Boyd (2003, p. 38) estimated the plains bison population in North America at 500,000, and identified 50 herds (containing approximately 19,200 head) currently being managed with clear conservation objectives.

Many of the numerous bison herds currently extant in the United States and Canada were reconstituted from stock that was used to develop bison-cattle hybrids (Boyd 2003, p. 23). Research on 11 Federal herds revealed that the bison herd in YNP was 1 of 3 that showed no evidence of genetic introgression with cattle (Halbert 2003, pp. 86–87) based on the alleles examined. (Introgression occurs when the genes of one species infiltrate the genes of another through repeated crossings.) The other two herds were Wind Cave National Park in South Dakota and Grand Teton National Park in Wyoming (Halbert 2003, p. 87), although the Grand Teton sample size was small so confidence in the results is lower than that for Wind Cave. More recently, the bison herd at Sully's Hill National Game Preserve in North Dakota has been sampled and is not known to be introgressed, although the sample size was small (Roffe 2005).

Halbert (2003, pp. 44–45) found only four of the Federal herds made positive contributions to overall bison genetic diversity (measured in terms of allelic richness and gene diversity). Those herds were: YNP, National Bison Range (Montana), Wichita Mountains National Wildlife Refuge (Oklahoma), and Wind Cave.

The winter 2005–2006 count of the YNP bison herd estimated the herd size at 3,546 bison (Geremia and Wallen 2006), and the most recent summer count estimated the herd size at 4,500 bison (Wallen 2007).

Subspecies

The bison in Yellowstone National Park are considered to be plains bison

(*Bison bison bison*). As mentioned previously, Boyd (2003, p. 38) estimated the plains bison population in North America at 500,000, and identified 50 herds (containing approximately 19,200 head) currently being managed with clear conservation objectives. Given the abundance and management status of the subspecies, we have concluded that the petition has not presented substantial information indicating that its listing under the Act may be warranted.

Distinct Vertebrate Population Segment

The petitioner asked us to list the YNP bison herd as a ''distinct population group.'' We assume that the petitioner meant a Distinct Vertebrate Population Segment (DPS) for purposes of listing under the Act. Under section 3(15) of the Act, we may consider for listing any species, subspecies, or, for vertebrates, any DPS of these taxa. In determining whether an entity constitutes a DPS, and is therefore listable under the Act, we follow the Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act (DPS Policy) (61 FR 4722; February 7, 1996). Under our DPS Policy, we must address three analytical steps prior to listing a possible DPS: (1) The discreteness of the population segment in relation to the remainder of the taxon; (2) the significance of the population segment to the taxon to which it belongs; and (3) the population segment's conservation status in relation to the Act's standards for listing (*i.e.*, is the population segment, when treated as if it were a species, endangered or threatened) (61 FR 4722, February 7, 1996). This finding considers whether the petition states a reasonable case that the petitioned population may be a DPS.

Discreteness

Under the DPS Policy, a population segment of a vertebrate species may be considered discrete if it satisfies either one of the following two conditions: (1) It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation; or (2) it is delimited by international governmental boundaries within which significant differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist (61 FR 4722, February 7, 1996).

Information Provided in the Petition on Discreteness

The petitioner asserts that the YNP bison ''herd is the only wild, unfenced buffalo herd in the nation,'' but no specific citations are provided to support this conclusion. Information in our files support the conclusion that the YNP bison population is the only herd in the United States that has remained in a wild state since prehistoric times (Gates *et al.* 2005, p. 93). All other bison in the United States are reconstituted herds and are confined with fencing, or otherwise range restricted. Individuals from the Jackson bison herd in Grand Teton National Park and the National Elk Refuge have been known to migrate north into YNP, but this is a rare occurrence (Gates *et al.* 2005, p. 109). Therefore, we find that the YNP bison herd may be discrete from other members of the taxon *Bison bison* because of physical distance and barriers.

Significance

Under our DPS Policy, in addition to our consideration that a population segment is discrete, we consider its biological and ecological significance to the taxon to which it belongs. This consideration may include, but is not limited to: (1) Evidence of the persistence of the discrete population segment in an ecological setting that is unique or unusual for the taxon; (2) evidence that loss of the population segment would result in a significant gap in the range of the taxon; (3) evidence that the population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historical range; and (4) evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics (61 FR 4721; February 7, 1996).

Information Provided in the Petition on Significance

The petitioner asserts that the YNP bison herd is significant within the meaning of our DPS policy because it is the last wild, unfenced herd in the United States, and exhibits quasi-migratory behavior when members of the herd leave YNP during the winter in search of food. The petition also asserts that the herd may be a unique hybrid of the wood and plains bison, and the herd has historical and cultural significance to Native Americans. No citations are provided to substantiate these statements.

(1) *Evidence of the persistence of the discrete population segment in an ecological setting that is unique for the taxon.* The petitioner asserts that YNP is the only area in the lower 48 States where bison have existed in the wild state since prehistoric times. This statement is consistent with Gates *et al.* (2005, p. 245), and indicates that the YNP bison herd may exist in a unique ecological setting within the meaning of our DPS Policy.

The petitioner's assertion that the YNP bison were important to Native Americans also is supported by Gates *et al.* (2005, p. 77) (e.g., ''The Lamar Valley and the Yellowstone River Valley north to Livingstone was an important area for bison and Native peoples throughout the Holocene.''). We agree with the petitioner that the YNP bison herd has substantial cultural and historical value. However, the significance criteria in our DPS Policy are based on biological factors identified in the Act that show that the population is significant to the taxon, and not on human cultural or historical significance. Therefore, we did not evaluate cultural and historical significance in our DPS analysis, but rather relied solely on the scientific criteria in the DPS Policy.

The petitioner asserts that the YNP is significant because of its ''quasi-migratory behavior.'' Gates *et al.* (2005, p. 160) concludes that YNP is a forage-limited system, and that, ''Bison move beyond park boundaries in winter in response to forage limitation caused by interactions between population density, variable forage production (driven by spring/early summer precipitation), snow conditions, and herbage removal primarily by bison and elk.'' Winter movement of large herbivores, such as bison and elk, in search of forage is normal behavior. The fact that bison and elk range outside the Park is not unusual. Based on this information, we would not consider the YNP bison herd movements to winter range outside the Park boundary as a unique behavior within the meaning of our DPS Policy.

(2) *Evidence that loss of the population segment would result in a significant gap in the range of the taxon.* The petition alleges that the YNP bison herd is the only remaining wild, unfenced bison herd. As discussed under ''Biology and Distribution,'' there are 3 other Federal bison herds that show no evidence of introgression with domestic cattle, based on sampling done to date. Because of the limited number and extent of bison herds that show no evidence of introgression with domestic cattle, we find that loss of the YNP

bison herd might result in a significant gap in the current range of the taxon.

(3) *Evidence that the population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historical range.* The petition provides no specific information to indicate that the YNP bison herd would meet this criterion. As noted above, Gates *et al.* (2005, p. 245) indicate that YNP is the only area in the lower 48 States where bison have existed in a wild state since prehistoric times. Bison originally ranged across western North America; because numerous herds have been reintroduced in the historic range, we have determined that the YNP herd is not the only surviving natural occurrence within its range. Additionally, the species is not more abundant elsewhere outside its historic range.

(4) *Evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.* The petition alleges that the YNP bison herd may be a unique hybrid of the wood and plains bison. No citations are provided, but this conclusion was stated in Meagher (1973, pp. 14–16), who considered the ''mountain'' bison a separate species. This controversy has since been resolved, and YNP staff now considers the remnant population, as well as the introduced bison, as being of plains bison origin (Boyd 2003, pp. 182–183; Wallen 2006).

Additional information in our files compiled after this petition was submitted indicates that the YNP bison herd is one of three Federal herds that do not display genetic introgression with cattle. Maintenance of genetic diversity is an important long-term goal for management of species populations. Halbert (2003, p. 94), concluded her study by stating: ''In conclusion, this study has assessed levels of domestic cattle introgression in 10 federal bison populations and identified at least 2 populations, Wind Cave and YNP, which at this time do not have any evidence of domestic cattle introgression and also have high levels of unique genetic variation in relation to other federal populations. As such, these populations should be given conservation priority * * *'' Thus, we conclude that the YNP bison herd satisfies this genetic criterion of significance under the DPS Policy.

DPS Determination

The Grand Teton National Park/National Elk Refuge bison herd is separate from the YNP herd (Gates *et al.* 2005, p. 93), and there are less than a dozen other unconfined bison herds in the entire lower 48 States (Gates *et al.* 2005, p. 2). Therefore, the YNP herd is discrete from other members of the taxon. Recent genetic research confirms that the YNP bison herd is significant because of a lack of nuclear domestic cattle introgression. Although 3 other Federal herds exhibit this characteristic, the YNP bison are the only remnant population that has remained in a wild state since prehistoric times and, therefore, is important to the management of bison genetic diversity. Halbert (2003, pp. 44–45) found only four Federal herds that were sufficiently unique to contribute significantly to overall bison genetic diversity.

On the basis of the preceding discussion, we believe that there is substantial information to conclude that the YNP bison herd may be discrete and significant within the meaning of our DPS Policy, and therefore may constitute a DPS.

According to our DPS Policy, if a population of a species is found to be both discrete and significant, we then evaluate the conservation status of the population in relation to the listing factors found in section 4(a)(1) of the Act. Our assessment of the conservation status of the YNP bison herd, based on the information provided in the petition and our files, is provided in the ''Conservation Status'' section below.

Conservation Status

Pursuant to section 4(a) of the Act, we may list a species of a taxon on the basis of any one of the following factors: (A) Present or threatened destruction, modification, or curtailment of habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) inadequacy of existing regulatory mechanisms; or (E) other manmade or natural factors affecting its continued existence.

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

The petition asserts that the natural range of the YNP bison herd is being curtailed by the interruptions of its members' attempts to move out of the Park. The petitioner alleges that in 1996 the herd numbered approximately 3,000 head, and that over 1,000 of these bison were ''slaughtered'' outside YNP in the winter of 1996–1997, which threatened the ''quasi-migratory'' behavior of the herd.

The petitioner is correct concerning the culling of YNP bison outside the Park in the winter of 1997. Since the 1920s, bison that venture out of YNP into Montana have been subject to various lethal and non-lethal measures to control brucellosis (Gates *et al.* 2005, p. 83), which is a contagious, costly disease of ruminant (cud-chewing) animals, such as bison, cattle, and swine. Since 1934, there has been a national Cooperative State-Federal Brucellosis Eradication Program, because the disease causes decreased milk production, weight loss in livestock, loss of young, infertility, and lameness (*http://www.aphis.usda.gov/vs/nahps/brucellosis/*). Culling of bison in interior YNP for population and brucellosis control ceased in 1968 (Gates *et al.* 2005, p. 87).

However, the population data for the YNP bison herd do not support the petitioner's assertion that the 1997 bison mortality in Montana threatens the herd or its range. Since the winterkill and lethal brucellosis control actions in Montana during 1997, the YNP bison herd has continued to grow despite culling for population and brucellosis control, and currently numbers approximately 4,500 head (Wallen 2007). Additional information on culling is provided under Factor B.

The petitioner's assertion that hazing and killing of bison outside the Park will affect the ''quasi-migratory'' behavior of the herd, and will result in a restriction of the range is not supported by information available in our files. Bison in YNP attempt to compensate for declining per capita food resources by range expansion (Gates *et al.* 2005, p. 131). In other words, bison move out of the Park in the winter in search of food, and this pattern has continued since implementation of the Joint Bison Management Plan (discussed in greater detail under Factor D) in 2000 (Clarke *et al.* 2005, p. 29). Therefore, the available information indicates that control actions have not affected the ''quasi-migratory'' ranging behavior of the YNP herd.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

As mentioned under Factor A, the petitioner alleges that in 1996 the herd numbered approximately 3,000 head, and that over 1,000 of these bison were ''slaughtered'' outside YNP in the winter of 1996–1997. The petition claims that ''Half the herd is now gone due to their slaughter.''

However, as stated under Factor A, the population data for the YNP bison herd do no support the contention that half the herd is now gone due to lethal

control. In fact, since the winterkill and lethal brucellosis control actions in Montana during 1996–97, the YNP bison herd has continued to grow, and currently numbers approximately 4,500 head (Wallen 2006). Breeding success has been steady for at least 100 years, in spite of culling for population and brucellosis control (Fuller 2003, pp. 21–28). As part of the Joint Bison Management Plan, variable numbers of bison may be removed from the herd to maintain optimal population size and for brucellosis control. In addition, the Joint Bison Management Plan establishes that when the population drops to 2,300 bison, measures to protect bison will be increased. Management mortality would cease if the herd drops to 2,100 head. The herd may stabilize at about 3,500 to 3,800 head, but could fluctuate over time based on the severity of winter weather (USDI and USDA 2000, pp. 51–52).

Factor C. Disease or Predation

The petitioner provides no information on this factor, and we have no information in our files to indicate that the current conservation status of the YNP bison herd is affected by disease or predation. Although brucellosis is endemic to the herd, the disease does not appear to be a threat because the population continues to grow at a rate of between 5 and 8 percent (Fuller 2006, pp. 21–24). The Joint Bison Management Plan provides a detailed set of procedures for managing the YNP bison herd in conjunction with the brucellosis control program in Montana.

Gates *et al.* (2005, p. 51) concluded that predation may become increasingly important as reintroduced wolves learn how to kill bison, but there is no information in our files to indicate that predation is a threat at this time.

Factor D. The Inadequacy of Existing Regulatory Mechanisms

The petitioner implies that existing regulatory mechanisms are inadequate to ensure protection of the YNP bison herd because some animals are killed outside the Park. We are assuming that, based on the information in our files, the petitioner is referring to lethal control of bison in conjunction with Montana's brucellosis control program.

During the 1990s, a Bison Management Plan for the State of Montana and YNP (Joint Bison Management Plan) was developed. A Final Environmental Impact Statement and Record of Decision on the plan was issued by the Department of the Interior and the Department of Agriculture on December 20, 2000 (available at *http://www.planning.nps.gov/document/yellbisonrod%2Epdf*). The Joint Bison Management Plan provides a detailed set of procedures for managing the YNP bison herd in conjunction with the brucellosis control program in Montana.

The Joint Bison Management Plan has a population target of greater than 2,100 bison (USDI and USDA 2000, pp. 51–52). The plan contains contingency measures to assure that the conservation status of the herd remains secure. If exigent circumstances arise during severe winters, the agencies agree to temporarily modify elements of the plan to mitigate total removal of bison. If the bison population declines to 2,300 within a single winter, the agencies will meet to evaluate modifications to the prevailing management prescriptions that could reduce the total management removal of bison from the population (USDI and USDA 2000, p. 52). If the bison population declines below 2,100 within a single winter, the agencies will, on a temporary basis for that winter, increase implementation of non-lethal management measures. One of the primary goals of the Joint Bison Management Plan is to provide for a ''free-ranging bison herd'' (USDI and USDA 2000, p. 6). The herd may stabilize at about 3,500 to 3,800 head, but could fluctuate over time based on the severity of winter weather (USDI and USDA 2000, pp. 51–52). This size range was identified by YNP staff as sufficient to protect the long-term status of the herd. The latest conservation genetics information indicates that a population in this range should be able to sustain the current level of genetic diversity indefinitely without the need for introducing immigrants from other populations (Wallen 2006).

The Joint Bison Management Plan Status Review Team recently completed an analysis of the adaptive management elements of the plan (Clarke *et al.* 2005, pp. 28–29). With regard to YNP bison population abundance, the team found that the abundance of bison has grown steadily since the implementation of the Joint Bison Management Plan (see Figure 1). The population reached almost 4,900 head in the summer of 2005, and now numbers around 4,500. Winter weather conditions have been mild to average during the first 5 years, and the population has not dropped below 2,300 bison. The late winter population has been above the population target and management decision threshold of 3,000 head in 4 of the 5 years of implementation (Clarke *et al.* 2005, p. 28). Management-related mortality has resulted in greater than 200 bison removed during 3 of the 5 winters, but the population continues to expand (Clarke *et al.* 2005, p. 28). Based on this information we concur with the Status Review Team that the Joint Bison Management Plan is working with regard to successful management of the YNP bison herd.

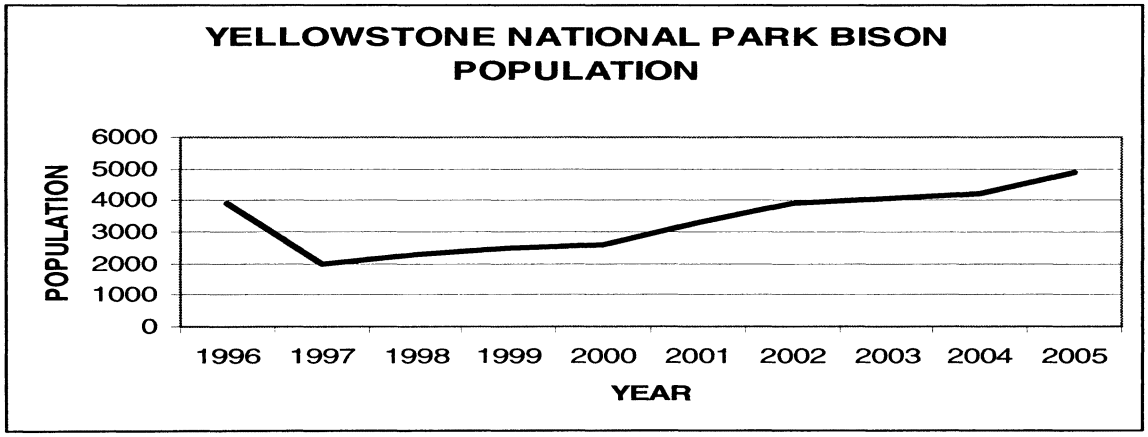

Figure 1. Population numbers from Gates et al. (2005) and Clarke et al. (2005).

Factor E. Other Manmade or Natural Factors Affecting Its Continued Existence

The petitioner provided no information on this factor, and we have no information in our files to indicate that possible circumstances in this category affect the YNP bison herd.

Conclusion of the 5-Factor Analysis

As required by the Act, we considered the five potential threat factors to assess whether there is substantial information to indicate that the potential Yellowstone National Park (YNP) bison herd DPS may be threatened or endangered throughout all or a significant portion of its range. The first step in this assessment is to determine whether there is substantial information that the DPS may be threatened or endangered throughout all of its range. If this is the case, then we make a positive 90-day finding for the DPS in its entirety. If it is not the case, we must next consider whether there is substantial information that there may be any significant portions of its range that are in threatened or endangered.

On the basis of our review of the petition and other information readily available in our files, we have concluded that the petition does not present substantial information that listing the potential YNP bison herd DPS as threatened or endangered throughout all of its range may be warranted. The petition is based primarily on the threat of excessive killing of bison that venture outside YNP in order to prevent the spread of brucellosis to domestic livestock. However, we found no information to indicate that brucellosis control efforts, either previous or ongoing, threaten the continued existence of the potential YNP bison herd DPS. A large number of bison did die during the severe winter of 1996–97 due to the combined effects of natural causes and human control efforts, but the herd itself was not threatened by this mortality. A Joint Bison Management Plan for the YNP bison herd (USDI and USDA 2000), completed and implemented approximately one year after the petition was provided to the Service, provides mechanisms to address the impacts of brucellosis control actions on the herd while maintaining a self-sustaining bison herd in and adjacent to YNP. In addition, the population data for the YNP bison herd indicate that, since the winterkill and lethal brucellosis control actions in Montana during 1996–97, the YNP bison herd has continued to grow despite culling for population and brucellosis control, and currently numbers approximately 4,500 head.

Having determined that the potential YNP bison herd DPS does not meet the definition of threatened or endangered, we must next consider whether there are any significant portions of its range that where the herd is danger of extinction or is likely to become endangered in the foreseeable future. On March 16, 2007, a formal opinion was issued by the Solicitor of the Department of the Interior, ''The Meaning of 'In Danger of Extinction Throughout All or a Significant Portion of Its Range' '' (USDI 2007). We have summarized our interpretation of that opinion and the underlying statutory language below. A portion of a species' range (in this case, ''species'' refers to the potential YNP bison herd DPS) is significant if it is part of the current range of the species and is important to the conservation of the species because it contributes meaningfully to the representation, resiliency, or redundancy of the species. The contribution must be at a level such that its loss would result in a decrease in the ability to conserve the species.

The first step in determining whether a species is threatened or endangered in a significant portion of its range is to identify any portions of the range of the species that warrant further consideration. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that are not reasonably likely to be significant and threatened or endangered. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that (i) the portions may be significant and (ii) the species may be in danger of extinction there or likely to become so within the foreseeable future. In practice, a key part of this analysis is whether the threats are geographically concentrated in some way. If the threats to the species are essentially uniform throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats applies only to portions of the range that are unimportant to the conservation of the species, such portions will not warrant further consideration.

If we identify any portions that warrant further consideration, we then determine whether in fact the species is threatened or endangered in any significant portion of its range. Depending on the biology of the species, its range, and the threats it faces, it may be more efficient for the Service to address the significance question first, or the status question first. Thus, if the Service determines that a portion of the range is not significant, the Service need not determine whether the species is threatened or endangered there; if the Service determines that the species is not threatened or endangered in a portion of its range, the Service need not determine if that portion is significant.

The terms ''resiliency,'' ''redundancy,'' and ''representation'' are intended to be indicators of the conservation value of portions of the range. Resiliency of a species allows the species to recover from periodic disturbance. A species will likely be more resilient if large populations exist in high-quality habitat that is distributed throughout the range of the species in such a way as to capture the environmental variability found within the range of the species. In addition, the portion may contribute to resiliency for other reasons—for instance, it may contain an important concentration of certain types of habitat that are necessary for the species to carry out its life-history functions, such as breeding, feeding, migration, dispersal, or wintering. Redundancy of populations may be needed to provide a margin of safety for the species to withstand catastrophic events. This does not mean that any portion that provides redundancy is a significant portion of the range of a species. The idea is to conserve enough areas of the range such that random perturbations in the system act on only a few populations. Therefore, each area must be examined based on whether that area provides an increment of redundancy is important to the conservation of the species. Adequate representation ensures that the species' adaptive capabilities are conserved. Specifically, the portion should be evaluated to see how it contributes to the genetic diversity of the species. The loss of genetically based diversity may substantially reduce the ability of the species to respond and adapt to future environmental changes. A peripheral population may contribute meaningfully to representation if there is evidence that it provides genetic diversity due to its location on the margin of the species' habitat requirements.

Applying the process described above for determining whether a species is threatened in a significant portion of its range, we next addressed whether any portions of the range of the potential YNP bison herd DPS warranted further consideration. According to Gates *et al.* (2005), most bison in the YNP herd are confined within Yellowstone National Park for all or most of the year. Rut takes

place within YNP from around mid-July to mid-August (Meagher, 1973) in one of three rutting areas—the largest rutting aggregation is in the Hayden Valley, the second largest in the eastern Lamar Valley, and a small aggregation occurs in small high elevation grasslands on the Mirror Plateau and Cache/Calfee Ridge (Gates *et al.* 2005). Most bison remain in YNP during winter, especially in the geothermally-influenced central portion of the Park. Calves are born in April–May on the winter range (Meagher 1973). For these reasons we have determined that there is substantial information that Yellowstone National Park may constitute a significant portion of the range for the potential YNP bison herd DPS.

In late winter/early spring, varying numbers of bison may move outside the Park's boundaries into Montana near West Yellowstone and Gardiner looking for forage. Bison that move outside YNP usually return by late spring (YNP, 2007). The proportion of Yellowstone bison that move to winter ranges outside YNP varies from 3 to 30 percent per year, depending on conditions (YNP, 2007). Bison move beyond Park boundaries in late winter in response to forage limitation caused by interactions between population density, variable forage production, snow conditions, and grazing competition (Gates *et al.* 2005). The Gardiner basin has been considered important winter range for bison since at least the 1940s and is an important component of the Northern winter range; in contrast, the West Yellowstone area does not have unique ecological value as winter range according to Gates *et al.* (2005). For these reasons we believe there is substantial information that the Gardiner basin provides resiliency to the herd during harsh winters, and, therefore, may constitute a significant portion of the range for the potential YNP bison herd DPS.

On the basis of our review of the petition and other information readily available in our files, we have concluded that the petition does not present substantial information that the Yellowstone bison herd may be threatened or endangered in either of the potentially significant portions of the range as outlined in the two previous paragraphs. Management of the Yellowstone bison herd is guided by a Joint Bison Management Plan for the YNP bison herd (USDI and USDA 2000). Management of bison within the Park is the responsibility of the National Park Service. Culling of bison in interior YNP for population and brucellosis management stopped in 1968 (Gates *et al.* 2005). Population data for the YNP bison herd indicate that, since the winterkill and lethal brucellosis control actions in Montana during 1996–97, the YNP bison herd has continued to grow despite culling for population and brucellosis control, and currently numbers approximately 4,500 animals. We therefore conclude that the petition does not present substantial information indicating that listing the Yellowstone bison herd within YNP may be warranted.

Outside YNP, management of bison is primarily the responsibility of the State of Montana (USDI and USDA 2000). Bison that leave YNP are subject to hazing and lethal control as a part of the brucellosis control program, but the Joint Bison Management Plan provides conservation measures that eliminate the control program as a threat to the continued existence of the herd. We therefore conclude that the petition does not present substantial information indicating that listing the Yellowstone bison herd on the winter range outside YNP may be warranted.

In summary, we have determined that the petition has not presented substantial information indicating that the potential YNP bison herd DPS may warrant listing as threatened or endangered throughout all or any significant portion of its range. Although we will not be initiating a status review in response to this petition, we ask the public to submit to us any new information that becomes available concerning the status of the YNP bison herd or threats to it or its habitat at any time. This information will help us monitor and encourage the conservation of the species.

References

A complete list of all references cited herein is available on request from the Region 6 Endangered Species Program, U.S. Fish and Wildlife Service (see **ADDRESSES** section).

Author

The primary author of this document is Chuck Davis, Region 6 Endangered Species Program, U.S. Fish and Wildlife Service (see **ADDRESSES** section).

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: August 6, 2007.

H. Dale Hall,

Director, U.S. Fish and Wildlife Service.

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