

**U.S. Fish and Wildlife Service**

**FINAL ENVIRONMENTAL ASSESSMENT**  
**Definition of “Disturb” as applied under the**  
**Bald and Golden Eagle Protection Act**

**DIVISION OF MIGRATORY BIRD MANAGEMENT**



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**Definition of “Disturb”**  
**as applied under the Bald and Golden Eagle Protection Act**

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## ABSTRACT

- The U.S. Fish and Wildlife Service has proposed to remove the bald eagle (*Haliaeetus leucocephalus*) from the list of threatened and endangered species under the Federal Endangered Species Act. If this action is taken, the Bald and Golden Eagle Protection Act (Eagle Act) will become the primary law protecting bald eagles.
- When Congress enacted and amended the Eagle Act, it provided a broad prohibition in its definition of “take,” by defining it to include pursue, shoot, shoot at, wound, kill, capture, trap, collect, molest or disturb. However, “disturb” has not been defined under the Eagle Act.
- A regulatory definition of “disturb” is needed to clarify what constitutes disturbance under the Eagle Act in order to guide human activities in the vicinity of bald and golden eagles after delisting of the bald eagle.
- In this Environmental Assessment we considered four alternatives for a regulatory definition of the term “disturb” under the Bald and Golden Eagle Protection Act.
- The preferred alternative is to define “disturb” to require an effect on individual birds that is likely to have a biologically significant impact.
- This alternative is expected to provide an accurate interpretation of the statutory term consistent with the language of the statute and its intent, thereby recognizing the protection of eagles provided by Congress, and giving clear notice to the regulated community of the requirements of the Eagle Act.
- This alternative is expected to have the least effect on the human environment and negligible effects on the physical environment.

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## INTRODUCTION

The U.S. Fish and Wildlife Service (Service) has proposed to remove (delist) the bald eagle (*Haliaeetus leucocephalus*) from the list of threatened and endangered species under the Federal Endangered Species Act (ESA) (71 FR 8238, February 16, 2006). If the bald eagle is delisted, the Bald and Golden Eagle Protection Act (Eagle Act) will become the primary law protecting bald eagles. The Eagle Act prohibits take of bald and golden eagles and provides a statutory definition of “take” that includes “disturb.”

Although disturbing eagles has been prohibited by the Eagle Act since the statute’s enactment, “disturb” has never been explicitly defined in regulation. Although most of the Eagle Act’s prohibitions have relatively straightforward meanings, the plain meaning of “disturb” can vary more widely. The term has been used extensively in numerous bald eagle management guidelines used during the past three decades and in scientific literature. In the context of eagle management, “disturb” has been applied informally to as small a reaction as temporarily flushing an eagle from a nest or perch, to causing eagles to permanently avoid a geographical area.

To provide a consistent framework in which to implement the Eagle Act after bald eagle delisting, the Service proposed a regulatory definition of “disturb” (71 FR 8265, February 16, 2006). In addition, the Service introduced draft National Bald Eagle Management Guidelines to provide guidance to help people avoid disturbing bald eagles. Because the Eagle Act prohibition against disturbance applies to both bald and golden eagles, the definition of “disturb” will also apply to golden eagles (*Aquila chrysaetos*).

On December 12, 2006, the Service reopened the comment period on the proposed definition of disturb in conjunction with making a DEA available (71 FR 74483, December 12, 2006). This final environmental assessment and the final definition of disturb have been revised based on public comment.

## PURPOSE

The Service is promulgating a definition of “disturb” within regulations at 50 CFR 22.3. The selected definition must be in accordance with the goals that Congress intended to further in 1940 when it included the prohibition against disturbing eagles in the definition of prohibited “take” under the Eagle Act. In preparing this environmental assessment, we consider how state and federal agencies and the general public have applied the term “disturb” in implementing bald eagle management under the Eagle Act during the 66 years since it was enacted. The selected alternative should be consistent with Congress’s intent to protect eagles, consistent with the text of the Eagle Act, and unambiguous and enforceable.

## NEED FOR ACTION

When Congress enacted and amended the Eagle Act, it intended the Act to be the primary vehicle by which eagles would be protected from extinction, and as such it provided a broad prohibition in its definition of “take,” by defining it to include pursue,

shoot, shoot at, wound, kill, capture, trap, collect, molest or disturb. Congress added “poison” to the definition in 1972 (P.L. 92–535 [86 Stat. 1064]), October 23, 1972).

Even after the bald eagle was added to the list of threatened and endangered species under the ESA, the Eagle Act’s prohibition against disturbance continued to be the predominant legal framework protecting eagles from human interference. Various states, localities, and federal agencies developed guidelines to help people avoid harmful impacts to eagles, and those guidelines had as their primary focus, the prevention of disturbance of eagles. The Service began issuing ESA incidental take permits covering bald eagles in 1996, having authorized bald eagle incidental take through ESA section 7 through a number of incidental take statements during the prior several years. Thus, authorizations for incidental take of bald eagles have been granted through the ESA for more than a decade. However, the Service has continued to rely on pre-existing bald eagle management guidelines when providing technical assistance to the public, and those guidelines address the Eagle Act prohibition of disturbance.

Upon delisting, all prohibitions and potential future authorizations provided under the ESA will no longer apply to bald eagles.<sup>1</sup> The ESA prohibitions against “harming” and “harassing” eagles will cease to be of legal concern. The potential for human activities to violate Federal law by incidentally taking eagles will be limited chiefly to take as defined by the Eagle Act, primarily “disturbance.”

A regulatory definition of “disturb” is needed in order to provide a consistent, predictable framework to guide human activities in the vicinity of eagles. This action will minimize inadvertent violations of the Eagle Act and promote the protection of bald and golden eagles.

## SCOPE OF ANALYSIS

In this assessment, we evaluate the effects of various alternatives for defining “disturb” under the Eagle Act. Different definitions have potentially different effects on bald eagles, other wildlife and natural resources, and the human environment. The potentially affected human environment includes the economy, cultural values, Native American religious and cultural practices, recreation, and aesthetic and symbolic values.

We note that the Eagle Act does not include a private right of action, meaning a third party cannot bring legal action to enforce the statute. Therefore, the effects of the various alternatives discussed below would occur largely through government enforcement of the prohibitions of the Eagle Act. That enforcement can take the form of both criminal and civil penalties. The criminal penalties apply only if the violator “knowingly, or with

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<sup>1</sup> If the bald eagle is delisted, the Service will honor existing ESA authorizations. During the interim period until the Service completes a rulemaking for permits under the Bald and Golden Eagle Protection Act, we do not intend to refer for prosecution the incidental take of any bald eagle under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668d), if such take is in full compliance with the terms and conditions of an incidental take statement issued to the action agency or applicant under the authority of section 7(b)(4) of the ESA or a permit issued under the authority of section 10(a)(1)(B) of the ESA. The Service intends to propose a rulemaking to establish criteria for issuance of a permit to authorize activities that would “take” bald eagles under the Eagle Act. The Service will address the existing ESA authorizations in that rulemaking which, if finalized, might extend comparable authorizations under the Eagle Act.

wanton disregard for the consequences of his act” violates the prohibitions. In other words, actors who neither know that their actions will “disturb” (and therefore “take”) eagles, nor wantonly disregard that possibility, are not subject to criminal penalties under the Eagle Act. This level of intent is a statutory requirement that cannot be modified by regulation, and must apply to any potential criminal prosecution under the Eagle Act, regardless of which alternative definition of “disturb” is implemented.

The regulations that will be codified following this NEPA decision-making process will remain in effect indefinitely, or until a future rulemaking is undertaken to revise them. The Eagle Act is applicable throughout the U.S., so the definition of “disturb” will apply wherever bald and golden eagles occur in the country.

## **AUTHORITIES**

The principal Federal authority for the actions analyzed in this EA is the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). The Service is the Federal agency with primary statutory authority for the management of bald and golden eagles in the United States. Regulations implementing the Eagle Act are found in Subpart D of Part 22 of Title 50 of the Code of Federal Regulations.

## **SCOPING AND PUBLIC PARTICIPATION**

The draft EA was made available to the public on December 12, 2006, for a 30-day comment period (71 FR 74483, December 12, 2006). We received 1,977 comments on the EA and proposed regulation. The majority of comments addressing the Service’s preferred alternative definition are addressed in the preamble to final regulation codifying “disturb.” (See 72 FR 31132, June 5, 2007.) We address the remainder of the comments here.

Generally, commenters agreed that Alternative 1 (no action) was the least preferable alternative. Most commenters agreed with the Service’s assessment that Alternative 1 would result in unacceptable levels of public confusion and economic uncertainty.

Alternative 2 was preferred by approximately 1,900 commenters, approximately 1,875 of whom appeared to be writing in response to a letter-writing campaign encouraged by a non-governmental organization. These commenters were concerned that Alternative 3 would not adequately protect eagles, and preferred Alternative 2 because it would not require death or injury, but only that eagles be significantly disrupted. One state agency felt that the Alternative 3 was not broad enough, and that although Alternative 2 was probably too broad, it would “allow enforcement of the Act when an officer believes that activities are reasonably likely to affect a bird’s breeding, feeding, or sheltering habits.” We agree that Alternative 2 would provide ample opportunity for discretion in enforcement, but do not agree such a high degree of individual discretion would be desirable because the public needs a predictable standard for differentiating between lawful and unlawful conduct.

Several commenters supported Alternative 2 because it “has the advantage that anyone can immediately know at the time of his action, whether that action has disturbed an eagle.” These commenters did not agree with our determination that the definition would

make too wide a range of activities illegal, stating, for example, that “[n]ot every technical violation of the law is prosecuted... the fact that one can hypothesize a technical violation that no sane enforcement officer would ever choose to prosecute is hardly reason to reject the underlying prohibition.” We might agree with this last statement if applied to a prohibition that is already codified, but we will not promulgate an overly broad definition of a statutory prohibition that would make violations commonplace in order to make them easy to perceive.

Many commenters supported adoption of Alternative 3 over the other Alternatives, although many state wildlife agencies advocated it be modified to improve enforceability and predictability for the regulated public. We agree, and have modified Alternative 3 to address those concerns. We revised the definition to include the phrase “or is more likely than not to cause” injury, including loss of productivity, or nest abandonment. This definition no longer restricts enforcement to situations where death, injury, or nest abandonment has already occurred, and will be easier to comply with and better protect eagles.

We address the majority of the comments we received on Alternative 3 in the preamble to the final regulation codifying “disturb.” (See 72 FR 31132, June 5, 2007.) In this FEA, we address only those comments that pertain to language found in the EA but not in the rulemaking itself, and comments that would otherwise not be addressed in the rulemaking. Several commenters objected to the DEA’s inclusion of the terms “psychological” and “physiological” to describe the state of being “agitated” or “bothered” (p. 10). We also do not wish to anthropomorphize eagles. However, references to “alarm calls,” “stress,” “distress,” and “agitation” and “annoyance” are common in the scientific literature on eagle disturbance. These commonly accepted terms are allusions to “psychological” or “physiological” reactions of an eagle.

One commenter, concurred with Alternative 3, but only if the 330-660 foot buffers recommended in National Bald Eagle Management Guidelines buffers would apply to the commenter’s activities. It is important to keep in mind that the guidelines are not regulations. Rather, they are guidance of general applicability. As explained throughout the guidelines, the recommendations contained therein should be adjusted based on various factors, including (but not limited to) the relative sensitivity or tolerance of eagles in the area and the visibility of the activity. In some cases, activities can be conducted closer than the distances recommended in the guidelines without disturbing eagles. However, in some situations the distances may need to be greater. The guidelines advise that the “size and shape of effective buffers vary depending on the topography and other ecological characteristics surrounding the nest site. In open areas where there are little or no forested or topographical buffers, such as in many western states, the distance alone must serve as the buffer. Consequently, in open areas, the distance between the activity and the nest may need to be larger than the distances recommended under Categories A and B of these guidelines if no landscape buffers are present.”

A number of commenters favored Alternative 4, supporting the idea that “disturb” should apply only to intentional acts directed at eagles that result in injury or death. State transportation agencies and airport authorities were prevalent in this category. The former preferred Alternative 4 because under it, disruption of eagles that is incidental to the purpose of an activity would be outside of the definition, enabling transportation projects to proceed without concerns about violating the Eagle Act. However, we believe that this definition deviates too far from the plain meaning of “disturb,” and think it very unlikely

that Congress would have included “disturb” in the Act only to refer to purposeful interference with eagles. We discussed our reasoning in more detail in our final rule defining “disturb” (see 72 FR 31132, June 5, 2007).

Airport authorities expressed concern that Alternative 3 would jeopardize airport safety. They interpreted Alternative 4 to mean that they would no longer need permits to haze eagles out of the range of collisions with aircraft. Under Alternative 4, this sort of disruption would not be a prohibited disturbance since it would not (typically) result in injury or death, at least in relation to non-breeding eagles. We understand that the threat of bird strikes is real and serious, and that eagles are among the more common species to be struck by planes. Alternative 4 differs from Alternative 3 in two primary ways. First, it requires the action that causes the eagle’s reaction to be intentional. This is of no help in addressing the airports’ concerns, since the hazing techniques they employ are certainly intentional. In this respect, Alternative 4 does not provide any advantage to airports. We assume that the advantage they infer is based on the fact that nest abandonment is not included. We cannot agree that nest abandonment is not the exact sort of result that Congress intended to prevent when it included “disturb” in the Eagle Act. We discuss the basis for our position in more detail in our final rule promulgating a modified version of Alternative 3. For purposes of addressing airports’ concerns, we note that permits will continue to be available to conduct eagle hazing activities (or even to physically remove or lethally take eagles, if necessary) under 50 CFR 22.23. We are currently developing proposed incidental take regulations under the Eagle Act that may provide for a streamlined process for authorizing eagle disturbance at airports.

Some commenters supported Alternative 4 because it most closely resembles the other prohibitions of the Eagle Act by being analogous to murder, battery, and assault. We agree that a number of the Eagle Act’s prohibitions imply a more harmful intent (i.e., “shoot,” “wound,” and “kill”). However, the Act also prohibits the actions “shoot at” and “pursue,” both of which may not result in immediate harm or death, but which are likely to result in harm as the result of a significant disruption of normal behaviors. Further, “disturb” has never been limited to situations of harmful intent, neither during the decades in which the term has been used in wildlife management, nor through its common use in public discourse. Several commenters noted that Alternative 4 would be the easiest for the public to comply with because a person would always know whether he or she engaged in an action purposefully directed at eagles. We agree that Alternative 4 would simplify compliance, but at the same time it provides too little protection for eagles and so is contrary to Congressional intent. We have modified preferred Alternative 3 to improve the public’s ability to predict when activities would constitute a violation of the Eagle Act; the definition now includes substantial interference with eagles that causes, *or is likely to cause*, a loss of productivity or nest abandonment (italics added here). This change facilitates law enforcement, adds predictability for the regulated public by treating similar actions the same way, and ensures better protection for eagles.

Many commenters agreed with our assessment that Alternative 4 would not provide for the continued recovery of the species.

## AFFECTED ENVIRONMENT

### **Bald eagle**

Bald eagles are a North American species that historically occurred throughout the contiguous United States and Alaska. The largest North American breeding populations are in Alaska and Canada, but there are also significant bald eagle populations in Florida, the Pacific Northwest, the Greater Yellowstone area, the Great Lakes states, and the Chesapeake Bay region. Bald eagle distribution varies seasonally. Bald eagles that nest in southern latitudes frequently move northward in late spring and early summer, often summering as far north as Canada. Most eagles that breed at northern latitudes migrate southward during winter, or to coastal areas where waters remain unfrozen. Migrants frequently concentrate in large numbers at sites where food is abundant and they often roost together communally. In some cases, concentration areas are used year-round: in summer by southern eagles and in winter by northern eagles.

Breeding bald eagles occupy territories, some of which have been used continuously for many years. Bald eagles generally nest near coastlines, rivers, large lakes, and streams proximate to an adequate food supply. They often nest in mature or old-growth trees, snags (dead trees), sometimes on cliffs or rock promontories, and rarely nest on the ground. They also nest with increasing frequency on human-made structures such as power poles and communication towers. The breeding season ranges from October in Florida, to late April or even early May in the northern United States.

The first declines in bald eagle populations in the past 250 years occurred due to habitat loss as early European immigrants settled on shorelines in the Chesapeake Bay and elsewhere on the East Coast. More significant declines began in the late 19<sup>th</sup> century due to hunting for feathers, trophies, and bounty. In addition, eagles were killed by ingesting poisons used to bait and kill livestock predators. In 1940, Congress enacted the Bald Eagle Protection Act (amended in 1962 to protect golden eagles, and now called the Bald and Golden Eagle Protection Act). In the late 1940s, organochlorine pesticide compounds such as DDT (dichloro-diphenyl-trichloroethane) began to be used in large quantities. DDT metabolites accumulated in the fatty tissues of breeding bald eagles, resulting in production of eggs with abnormally thin eggshells, which cracked or failed to fully develop, causing a severe decline in bald eagle numbers. By 1963, a survey conducted by the National Audubon Society estimated the number of breeding bald eagles in the lower 48 states to be 417 breeding pairs.

Since DDT use in the U.S. was banned in 1972 and the bald eagle gained the protection of the ESA,<sup>2</sup> bald eagle numbers have rebounded.<sup>3</sup> In 1999, the Service proposed to remove the bald eagle from the list of threatened and endangered species, prompting some states to stop conducting annual surveys for bald eagles. The most recent national census in 2000 counted 6,471 breeding pairs in the lower 48 states. On February 16, 2006, the Service re-opened the comment period on its 1999 proposal to delist the bald eagle (Federal Register 71:8238, 16 February 2006), conservatively estimating at least

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<sup>2</sup> The bald eagle was first protected south of 40° north latitude by the Endangered Species Preservation Act in 1967, then listed as endangered in 43 contiguous states and threatened in the other five under the ESA in 1978, then reclassified to threatened in the lower 48 states in 1995.

<sup>3</sup> Alaskan bald eagles were largely unaffected by DDT and were never protected under the ESA. Today, there are perhaps 50,000 to 70,000 bald eagles in Alaska.

7,066 breeding pairs in the contiguous U.S. As of February 2007, we estimate that number to exceed 9,700.

Numerous studies have sought to measure the sensitivity of bald eagles to a variety of human activities (see Buehler 2000), and have shown that bald eagle pairs may react to human activities very differently. Some pairs nest successfully just dozens of yards from human activity, while others abandon nest sites in response to activities much farther away. This variability may be related to a number of factors, including visibility, duration, noise levels, extent of the area affected by the activity, prior experiences with humans, and tolerance of the individual nesting pair.

Human activities that cause prolonged absences of breeding adults from their nests can jeopardize eggs or young. Depending on weather conditions, eggs may overheat or cool too much and fail to hatch. Unattended eggs and nestlings are subject to predation. Irregular feeding due to human disruption can harm young and adults. Adults startled while incubating or brooding young may damage eggs or injure their young as they abruptly leave the nest. Older nestlings may be startled by loud or intrusive human activities and prematurely jump from the nest before they are able to fly. Human activities near or within foraging areas and communal roost sites may prevent eagles from feeding or taking shelter, especially if no other adequate feeding or roosting sites are available.

### **Golden eagle**

Worldwide, the golden eagle is widely distributed, with five or six golden subspecies found throughout the northern hemisphere in Europe, Asia, and N. Africa and occasionally in the southern hemisphere (Kochert *et al.* 2002). In North America, golden eagles occur mainly in the west and in eastern Canada, nesting and wintering from Alaska south to central Mexico. Historically, the breeding range of the golden eagle included most of North America (Bent 1937). Today, the golden eagle is primarily a winter resident in the eastern U.S., but a few pairs nest in Maine, Georgia, and Tennessee (Kochert *et al.* 2002).

In North America, northern breeding golden eagles migrate longer distances to wintering areas than do southern eagles, sometimes up to thousands of kilometers. Golden eagles south of 55° north latitude migrate smaller distances or not at all. More research is needed to establish migration routes, but they appear to be concentrated along the Rocky Mountains and Appalachians (Kochert *et al.* 2002).

Golden eagles usually occupy open areas (canyon land, open desert, grassland, and shrub habitat) where their preferred prey can be found. Golden eagles feed primarily on small mammals, most commonly rabbits, hares, ground squirrels, marmots, and prairie dogs. They also eat carrion, birds, and reptiles, and less often fish and larger mammals. Millsap and Vana (1984), however, reported on the importance of waterfowl to wintering golden eagles in the eastern U.S.

Nest sites are often in cliffs or bluffs, less often in trees, and occasionally on the ground. Pairs establish and defend breeding territories that may contain multiple nests built and/or maintained by the pair, which are often re-used or attended in subsequent nesting seasons.

Braun *et al.* (1975) estimated a North American population of perhaps 100,000 individuals in the early 1970s. U.S. Breeding Bird surveys show no trend for this species (Significance Level [ $P$ ]=0.39, Sauer *et al.* 2005). The current PIF-based U.S. and Canada

population estimate is 40,000, with a “fair” accuracy rating and a “very high” precision rating. Good *et al.* (2004) estimated that there were just over 27,000 golden eagles in the four Bird Conservation Regions in which the species is of conservation concern (which comprise much of the western U.S. and most of the golden eagle population) in late summer and early fall in 2003. Breeding bird surveys and migration counts are inconclusive but suggest lowered reproduction rates in the western U.S., possibly due to habitat alteration and loss, with concomitant declines in prey (Kochert *et al.* 2002). The golden eagle is a Species of Conservation Concern in the Great Basin, Northern Rockies, Southern Rockies/Colorado Plateau, and Badlands and Prairies Bird Conservation Regions (numbers 9, 10, 16, and 17, USFWS 2002).

Golden eagles appear to be moderately sensitive to human activity. They commonly avoid urban and agricultural areas, but this is likely due at least in part to low prey availability in those locations. Breeding adults are sometimes flushed from the nest by recreational climbers and researchers, sometimes resulting in death to the eggs or young due to nest abandonment, exposure of young or eggs to the elements, collapse of the nest, eggs being knocked from the nest by startled adults, or young fledging prematurely. However, golden eagles rarely flushed from the nest during close approaches by fixed-wing aircraft and helicopters during various surveys in Montana, Idaho, and Alaska (Kochert *et al.* 2002).

### **Biological and physical environment**

As described above, bald eagles typically occupy coastal areas and shorelines of rivers and lakes, while golden eagles favor the open, more arid habitat of the western states. However, in reality, both species use a variety of habitats and geographical areas. The breeding and wintering habitats of bald and golden eagles together comprise a large portion of the United States. A detailed description of the biological and physical components of this large area is beyond the scope of this EA.

### **Human environment**

#### Socioeconomic

The potentially affected human environment includes the economy, cultural values and norms, religious practices, recreation, and aesthetic and symbolic values.

The degree to which businesses and industry in the vicinity of bald and golden eagle habitat will be affected will depend in part on the application of the Eagle Act. Industries most likely to be affected may include residential developers, timber managers, resource development and recovery operations, utilities, shipping companies, commercial fishing operations, and businesses that depend on tourism and recreation. The economic value of private land shared by eagles may also be affected.

Numerous facets of the American lifestyle could be affected beyond pure economics. Among the many societal “norms” that could be affected are: transportation, urban planning, energy development and consumption, recreation, location of schools and hospitals, and waste management. The magnitude of the lifestyle impacts resulting from the definition of “disturb” depends in part on the degree to which the prohibition is recognized, accepted, and enforced.

### Religious and Cultural

Bald and golden eagles are sacred to many Native Americans, and are central to the religious practices of some tribal cultures. Some Native American religious ceremonies call for the harvest of eagles from the wild. Under the provisions of the Eagle Act, permits are available for this purpose in certain circumstances. The definition of “disturb” does not affect the availability of such permits.

### Symbolic and Aesthetic

Eagles have served as powerful symbols in numerous cultures throughout history. In the United States, Congress chose the bald eagle to be depicted on the official seal of the United States, selecting it over the golden eagle (Lawrence, 1990), and more famously, the wild turkey. As the nation’s symbol, the bald eagle represents Americans’ sense of autonomy, courage, and power. Today, bald eagle imagery is ubiquitous in American culture, attesting to the widespread symbolic importance the bald eagle holds in American society.

Apart from American cultural symbology, eagles are valued as wildlife by a society with a strong conservationist philosophy. The aesthetic value people derive from wildlife is sometimes called “existence value” because it stems from the very knowledge that wildlife exists (USFWS, 2003). From this perspective, biodiversity has value irregardless any economic or material benefits. Among wildlife, birds are particularly valued by society, as evidenced by the number of Americans who consider themselves bird watchers, and also by the degree of legal protection accorded to birds. Raptors evoke special admiration, and bald and golden eagles generate particular awe and respect.

In recent decades, the bald eagle has come to symbolize America’s growing environmental awareness of society’s impact on the environment. The fluctuation of its population reflects the ecological footprint of people on this continent: being abundant prior to colonialism, declining during the expansion of the frontier and late 19<sup>th</sup> century industrialism; then nearly becoming extinct due to expansive use of chemical pesticides during the booming post World War II years; only to recover as the nation’s growing ecological awareness led to increased regulation of pesticides and the passage of environmental laws such as the National Environmental Policy Act and the ESA. Because of this history, for many people, the bald eagle symbolizes American ecological consciousness and the health of our environment.

## **ALTERNATIVES**

In the absence of extensive legislative history clarifying Congress’s intentions when it included a prohibition against disturbing eagles in the Eagle Act, we believe it necessary to consider a broad range of reasonable interpretations of the term “disturb.” Not defining “disturb” is also an option.

### **Alternative 1: No action**

Under this alternative, the Service would not define “disturb.” Disturbance would remain a prohibited act under the Eagle Act, but no regulatory interpretation would be provided.

### **Alternative 2: Define “disturb” based on immediate effects on individual birds**

The Service would define “disturb” as having a direct effect on one or more eagles as evinced by an immediate behavioral response from an eagle, without consideration for secondary, biologically significant events. The definition would be “To agitate or bother a bald or golden eagle to the degree that disrupts the normal behavior of the eagle.” Indications that an eagle has been disturbed would include, but would not necessarily be limited to: flushing from the nest, perch, or foraging area; vocalizations (alarm calls); disrupted flight patterns in the vicinity of the nest, roost tree, or foraging area; or any physiological reactions indicating alarm. We selected this alternative for consideration because it was suggested by numerous commenters responding to the proposed regulation defining “disturb” (71 FR 8265, February 16, 2006).

### **Alternative 3: Define “disturb” to require an effect on individual birds that results or is likely to result in an adverse biological impact (preferred alternative)**

Under this alternative, “disturb” would require there be some psychological or physiological effect to an eagle in order for disturbance to have occurred, and the disturbing action must also have a negative biological effect on eagles, or be likely to. This approach is most similar to how “disturb” has been interpreted in the past by the Service and other federal and state wildlife and land management agencies. The definition the Service proposed in its February 2006 action read: “to agitate or bother a bald or golden eagle to the degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, causing injury, death, or nest abandonment.” Based on public comments received on that definition and for purposes of clarification, the Service modified the definition and added a definition of “injury,” one of its terms. The revised definition read “*Disturb* means to agitate or bother a bald or golden eagle to the degree that causes (i) injury or death to an eagle (including chicks and eggs) due to interference with breeding, feeding, or sheltering behavior, or (ii) nest abandonment.” Injury was proposed to be defined as “a wound or other physical harm, including a loss of biological fitness significant enough to pose a discernible risk to an eagle’s survival or productivity.”

To address concerns regarding enforceability and predictability, we further modified Alternative 3, and an essential element of the proposed definition of “injury” (loss of productivity) into the definition of “disturb” to read:

"Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition encompasses impacts that result from human-caused alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle’s return, such alterations agitate or bother an eagle to a degree that interferes with normal breeding, feeding, or sheltering behavior, and causes or is likely to cause, injury or nest abandonment.

#### **Alternative 4: Define “disturb” to require an action directed at one or more eagles that results in death or injury of the eagle(s)**

This alternative would require that the act that causes the disturbance be intentionally directed at the eagle(s), and must result in an actual death or injury to one or more eagles or eggs. The definition would read: “To purposefully interfere with normal breeding, feeding, or sheltering habits of a bald or golden eagle, causing injury or death to the eagle or its young or eggs.” As with Alternative 2, we selected Alternative 4 for consideration because variations of this definition were suggested by several commenters responding to the proposed regulation defining “disturb” (71 FR 8265, February 16, 2006).

### **ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES**

#### **Alternative 1: No action**

##### Effects on bald and golden eagle populations

The potential impacts to eagles of leaving disturb undefined are difficult to predict. If the bald eagle is delisted without defining “disturb” under the Eagle Act, the public may have difficulty anticipating which activities would be likely to result in a violation of the law. The usefulness of National Management Guidelines for avoiding disturbance would be reduced without a clear definition of “disturb.” Uncertainty as to the meaning might constrain people from undertaking some activities out of fear that their impacts would be considered a violation of the Eagle Act, leading to fewer disruptive effects on eagles. On the other hand, the Service would be less able to effectively enforce the Eagle Act prohibition against disturbance without an established definition. Diminished enforcement capability could lead people to undertake more activities that negatively affect eagles.

##### Effects on Other Wildlife and the Biological and Physical Environment

The effects of this alternative on the biological and physical environment are difficult to predict. In general, activities (or lack of activities) that benefit eagles and their habitat will usually benefit other wildlife, water quality, soil stability and other ecological components.<sup>4</sup>

Because enforcement of this alternative could be problematic, more activities that interfere with eagles’ use of nesting, foraging, and roosting areas might go forward, leading to a degradation or loss of habitat of other wildlife species, or disruption of normal behaviors essential to their survival. Impacts would likely be greatest in riparian areas where bald eagles nest, roost, and forage. The habitat degradation and/or loss could have a significant effect on populations. Alternatively, people may refrain from a variety of activities due to concern about violating the Eagle Act, and a decrease in human activities

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<sup>4</sup> Less often, expanding eagle populations can complicate beneficial management of other species, particularly where eagles occupy areas from which they may have been historically absent. For example, along some areas of the Platte River in Nebraska, due to fire suppression and reduced river flow, cottonwood stands have grown up in what used to be open river, slough, and wet meadow habitat for piping plover (threatened), least tern (endangered), whooping crane (endangered), sandhill crane, and many grassland species. The cottonwood stands now serve as roost sites for wintering bald eagles, creating a challenge for grassland restoration efforts.

in eagle habitat would likely provide benefits to other wildlife, and the physical environment.

### Effects on the Human Environment

Leaving “disturb” undefined would likely result in public confusion and economic uncertainty. Without knowing whether the effects of an action constitute a violation of the law, project proponents and lenders could be leery of taking any action that might be viewed as disturbing to eagles. This could result in delay or cancellation of residential and commercial development projects, timber operations, natural resource extraction, and other activities that occur in habitat used by bald eagles, even where the activity may not have a significant effect on eagles. In addition, some routine activities, including some types of outdoor recreation, could be suspended while clarity is sought regarding how eagles will be affected. The result could be inadvertent and unnecessary restrictions on land use, and ensuing economic losses. However, as the public comes to recognize the difficulty of enforcing a prohibition that is undefined, people may engage in an increasing number of activities that negatively impact eagles.

Aesthetic values could be altered as a result of leaving “disturb” undefined. If more eagles and other wildlife are preserved because fewer human activities are conducted in important eagle areas, people who appreciate the existence of eagles and other wildlife may find their aesthetic values enhanced. Conversely, loss of eagles or eagle habitat due to leaving “disturb” undefined could lead to negative effects on those aesthetic values.

Because the likely effects of not defining “disturb” include substantial public uncertainty and a potential decrease in protection for bald and golden eagles, this alternative does not meet the purpose of our action.

### **Alternative 2: Define “disturb” based on immediate effects to individual birds**

#### Effects on Bald and Golden Eagle Populations

The initial result of this alternative would probably be consternation on the part of the public, resulting in fewer activities being conducted in the vicinity of eagles. The effect on eagles could be beneficial - less noise and disruption and fewer impacts to eagle habitat.

Enforcement of this definition could be difficult, however, because it may appear unreasonable to curtail a large number of human activities that have no meaningful, long-term effect on eagles. Every activity that caused an eagle to alter its normal routine in any way could be deemed a disturbance. For example, a particularly boisterous crowd at a suburban Florida Little League baseball game might cause an eagle to detour when returning to the nest site with additional nesting material prior to egg-laying. Unless the eagle is repeatedly interrupted and abandons the nesting attempt, there is no meaningful impact to eagles, but the situation would meet the threshold for disturbance. Further complicating enforcement, would be the difficulty in demonstrating that the threshold has been met because the outcomes of these types of situations are transient; the eagles soon return to their normal behaviors.

The public’s inability to predict when its actions amount to violations of the law would make it difficult to enforce against actions that have genuine adverse effects on eagles. Public recognition that enforcement of “disturbance” is compromised could eventually lead to an increase in human activities that actually would have negative impacts to eagles (e.g., consistent disruption of an important winter foraging area caused

by expanded freight operations in a nearby port, leading to mortality of eagles due to starvation).

#### Effects on Other Wildlife and the Biological and Physical Environment

Effects on the broader biological and physical environment would largely parallel effects on bald and golden eagles.

#### Effects on the Human Environment

If strictly enforced, many routine societal functions could be disrupted by the application of an unnecessarily restrictive interpretation of “disturb.” Development and maintenance of infrastructure, transportation of commodities, border security, and many recreational activities could be restricted in order to avoid very minor, temporary effects to eagles. Such hypothetical impacts would not be consistent with a reasonable construction of the term “disturb.”

Conversely, if enforcement was compromised because of the difficulty in consistently applying the definition, the public would have no way to predict when its actions might be deemed a violation of the Eagle Act. The final definition needs to provide a higher level of predictability to the public than does Alternative 2.

This alternative does not meet the purposes of our action. It is not a reasonable interpretation of the term “disturb.” It is also inconsistent with the text of the Eagle Act because it encompasses effects on eagles that are irrelevant to the preservation of the species and by doing so creates an undue burden on the public. Furthermore, it is inconsistent with current usage of the term as applied to eagles, which attributes “disturb” as having a biologically relevant component.

### **Alternative 3: Define “disturb” to require an effect on individual birds that results or is likely to result in an adverse biological impact (preferred alternative)**

#### Effects on Bald and Golden Eagle Populations

Under this alternative, bald and golden eagles would be protected from many types of interference that would have caused injury to eagles, decreased productivity, or nest abandonment. By including impacts that are “likely to cause” the significant biological impact (e.g., loss of productivity, nest abandonment), people will be better able to predict the potential of various activities for disturbing eagles, particularly with the assistance of National Bald Eagle Management Guidelines. This approach will help people avoid disturbing eagles and will also be enforceable. Therefore, this alternative should reasonably safeguard bald and golden eagle populations. Because this alternative accurately describes the regulatory scope of the Eagle Act, and is consistent with the way “disturb” has been applied for several decades under state and regional management guidelines and in scientific literature, there would be no change in the protection of eagles afforded by this definition.

#### Effects on Other Wildlife and the Biological and Physical Environment

Other wildlife that occurs in areas used by eagles would, for the most part, benefit from the protections afforded to breeding, feeding, and sheltering eagles. This definition would bring more benefits to wildlife and the biological and physical environment than would alternatives 1, 2, and 4.

### Effects on the Human Environment

Because this alternative requires a specific effect on at least one individual bird (that it be agitated or bothered), it would not extend to other impacts that degrade habitat without such effect. Consequently, human activity would not be unduly burdened by restrictions on land use activities that do not actually agitate or bother at least one eagle. This threshold requirement is consistent with the current use of “disturb.” Energy production and distribution, manufacturing, transportation, real estate development, recreation, and other human activities can continue with more predictability because the definition of “disturb” will be set out in a binding rule that provides a discernible threshold with which the public can comply.

This alternative meets the purposes of the action. It is consistent with Congress’s intent to protect bald and golden eagles, consistent with the text of the Eagle Act, consistent with current usage of the term, feasible to implement, predictable for compliance purposes, unambiguous, and enforceable.

### **Alternative 4: Define “disturb” to require an action directed at one or more eagles that results in death or injury of the eagle(s)**

#### Effects on Bald and Golden Eagle Populations

Under this definition, disturbance must be the result of an action intentionally directed at one or more eagles which actually kills or injures the eagle(s) or eggs. Many activities such as construction, resource extraction, and recreation, could proceed in the vicinity of eagles, since none of these activities would be intended to affect eagles. Activities that cause adults to abandon a nest with nestlings or eggs (which die) would meet the threshold for disturbance only if the actions were intentionally directed at eagles. Under this alternative, numerous nests, foraging areas, and concentration areas are likely to be abandoned by eagles, resulting in a rise in eagle mortalities and a decline in eagle populations.

Furthermore, because the threshold is actual injury or death, this alternative would be difficult to enforce, since those outcomes are often removed in time and/or location. This lack of enforceability would likely increase negative impacts to eagles.

#### Effects on other Wildlife and the Biological and Physical Environment

Increased human activities in areas used by eagles would likely negatively affect other wildlife due to habitat loss and degradation. Air and water quality could also decline depending on the nature and extent of the human activities.

### Effects on the Human Environment

This alternative would be easiest for the public to comply with because it excludes incidental effects on eagles. It would also provide benefits to landowners and others who would be economically burdened or otherwise constrained by a definition that encompasses incidental impacts to eagles. People who enjoy recreational activities that do not depend on preservation of natural areas could benefit, since more land would be available for stadiums, amusement parks, golf courses, and other recreational facilities. However, increased human activity within eagle habitat could degrade areas used by naturalists and hikers, diminishing their recreational opportunities. And, people who value the current healthy status of eagles could find their values eroded if increased human activity causes eagle populations to decline. This alternative does not overly

hinder human activity and it is unambiguous and enforceable. However, it does not meet the purposes of this action because it is inconsistent with Congress's intent to protect bald and golden eagles. It is also inconsistent with the text of the Eagle Act: Congress would not have included the term "disturb" in the definition of "take" if it simply meant "wound" or "kill," since it already included those two terms in the take definition. Additionally, this alternative is inconsistent with the general interpretation of "disturb" in current bald eagle management; "disturb" has not been limited to acts that are directed at eagles; nor has the death or wounding of an eagle been a necessary outcome.

## **CUMULATIVE IMPACTS**

We predict that cumulative impacts from Alternatives 1, 2, and 4 would be detrimental to bald and golden eagle populations, as described in the "Effects of the Alternatives" sections for each alternative. We do not foresee negative cumulative impacts resulting from Alternative 3 (proposed action) because the definition of "disturb" under that alternative is similar to the current accepted use of the term. Cumulative impacts have been addressed in more detail in the "Effects of the Alternatives" section of this document.

## **TRANS-BOUNDARY EFFECTS OF THE ALTERNATIVES**

There are no foreseeable effects of Alternative 1 on bald or golden eagles in Canada or in Mexico. Alternative 4 has the potential to result in a long-term population decline of either or both species in the U.S. A reduced reservoir of young produced in the U.S. to buffer changes in the population in either Canada or Mexico could lead to declining eagle populations in either or both those countries. The preferred alternative (proposed action) is expected to protect the current populations of both species in the United States and is not likely to affect bald eagles or golden eagles in Canada or Mexico.

## **NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE**

We reviewed this issue to determine whether the proposed action met any of the general criteria for preparation of an Environmental Impact Statement. We concluded that under the guidance in the Fish and Wildlife Service Manual (550 FW3) and the Council on Environmental Quality regulations (40 CFR Part 1501), defining "disturb" for the purposes of the Bald and Golden Eagle Protection Act does not comprise a major federal action, and does not warrant preparation of an EIS.

## REFERENCES

- Bent, A.C. 1961. Life histories of North American birds of prey: Part 1. Dover Publications, Inc., New York.
- Buehler, D. A. 2000. Bald Eagle (*Haliaeetus leucocephalus*). Number 506 in The Birds of North America, A. Poole and F. Gill, editors. The Birds of North America, Inc., Philadelphia, Pennsylvania.
- Braun, C. E., F. Hamerstrom, T. Ray and C. M. White. 1975. Conservation committee report on status of eagles. Wilson Bulletin 87: 140-143.
- Good, R. E., R. M. Nielson, H. Hall Sawyer, and L. L. McDonald. 2004. Population Level Survey of Golden Eagles (*Aquila chrysaetos*) in the Western United States. Final Report submitted to the Division of Migratory Bird Management, U.S. Fish and Wildlife Service. Western Ecosystems Technology, Incorporated; Cheyenne, Wyoming.
- Kochert, M. N., K. Steenhof, C. L. McIntyre, and E. H. Craig. 2002. Golden Eagle (*Aquila chrysaetos*). Number 684 in The Birds of North America, A. Poole and G. Gill, editors. The Birds of North America, Inc., Philadelphia, Pennsylvania.
- Lawrence, E.A. 1990. Symbol of a nation: the bald eagle in American culture. Journal of American Culture 13(1): 63-69.
- Millsap, B.A. and S.L. Vana. 1984. Distribution of wintering golden eagles in the eastern United States. Wilson Bulletin 96:692-701.
- Sauer, J. R., J. E. Hines, and J. Fallon. 2005. The North American Breeding Bird Survey, Results and Analysis 1966 - 2004. Version 2005.2. USGS Patuxent Wildlife Research Center, Laurel, Maryland. <http://www.mbr-pwrc.usgs.gov/bbs/bbs.html>.
- U.S. Fish and Wildlife Service. 2002. Birds of Conservation Concern 2002. U.S. Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia.
- U.S. Fish and Wildlife Service. 2003. Final Environmental impact Statement: Double-crested Cormorant Management in the United States. U.S. Fish and Wildlife Service, Arlington, Virginia.

**DIVISION OF MIGRATORY BIRD MANAGEMENT**

