Policy Analysis Group — College of Natural Resources

Report No. 25 **October 2005**

Delisting Endangered Species: Process Analysis and Idaho Case Studies

by

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The College of Natural Resources Policy Analysis Group (PAG) was established by the Idaho Legislature in 1989 to provide objective analysis of the impacts of natural resource proposals (see Idaho Code § 38-714). The PAG is administered by Steven B. Daley Laursen, Dean, College of Natural Resources.

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About the Policy Analysis Group (PAG)

Role and Mission. The Idaho Legislature created the Policy Analysis Group (or "PAG") in 1989 as a way for the University of Idaho to provide timely, scientific and objective data and analysis, and analytical and information services, on resource and land use questions of general interest to the people of Idaho. The PAG is a unit of the College of Natural Resources Experiment Station, administered by Steven Daley Laursen, Director, and Dean, College of Natural Resources.

PAG Reports. This is the twenty-fifth report of the Policy Analysis Group (see inside cover). The PAG is required by law to report the findings of all its work, whether tentative or conclusive, and make them freely available. PAG reports are primarily policy education documents, as one would expect from a state university program funded by legislative appropriation. The PAG identifies and analyzes scientific and institutional problems associated with natural resource policy issues. In keeping with the PAG's mandate, several alternative policy options are developed and their potential benefits and detrimental effects are analyzed. As an operational policy the PAG does not recommend an alternative.

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ACKNOWLEDGMENTS — TECHNICAL ADVISORY COMMITTEE

The following individuals provided technical advice during the design and preparation stages of this report.

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Kathy Hollar, U.S. Fish and Wildlife Service
Dr. Lloyd Kiff, Peregrine Fund

ACKNOWLEDGMENTS — TECHNICAL REVIEW

The following individuals provided comments on a review draft of this report.

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Executive Summary

The Endangered Species Act (ESA) protects species at risk of extinction and the habitats they need to survive. The U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are responsible for administering the ESA—including determining which species need to be listed as threatened or endangered, designating the "critical habitat" they need, ensuring implementation of the protections provided by the ESA while species are on the list, developing and implementing plans for the recovery of listed species, determining when species are recovered and no longer in need of the ESA's protections, and then removing them from the lists of threatened and endangered species.

This report focuses on delisting—the process by which the protections provided by the ESA are removed after a threatened or endangered species has met the objective and measurable criteria in the recovery plan. We describe listing and delisting and examine the roles the public plays in those processes. State and federal agencies have roles in the management of wildlife and plants, and we examine those in relation to delisting. We also analyze the prospects for threatened and endangered species recovery and delisting in Idaho, and conclude by providing some alternative ideas about recovering species and managing them after delisting. In this summary we omit the references provided in the report's seven chapters. Each chapter is summarized as follows.

1. The Listing Process. The process of listing a species as prescribed in the ESA usually begins with a petition from an interested party, or the Service (FWS or NMFS) can begin the process on its own. The Service has 90 days from receipt of a petition to determine whether it presents substantial information that listing may be warranted. If so, the Service then must review the status of the species within 12 months of having received the petition. After the status review, the Service must find that listing is either not warranted, warranted, or "warranted but precluded" because the resources needed to proceed with the listing are not available. Within one year of finding that listing is warranted, the Service must either finalize a rule to list a species as threatened or endangered, withdraw the proposed listing, or seek a 6-month extension before making a final decision.

The decision to list a species is supposed to be based "solely on the best scientific and commercial data available." Assessing the risk of extinction for a species commonly involves estimating of the number of organisms comprising the species and a prognosis of how organism numbers and habitat conditions might change in the future. The ESA requires identification of the factors putting the species at risk. This five-factor analysis includes assessment of [1] the present or threatened destruction, modification, or curtailment of a species' habitat or range, [2] overutilization for commercial, recreational, scientific or educational purposes, [3] disease or predation, [4] the inadequacy of existing regulatory mechanisms, and [5] other natural or manmade factors affecting a species' existence.

At the time of listing, the Service is required to designate critical habitat, or the habitat that is essential for species recovery. FWS has been reluctant to do so, and argues that critical habitat designation largely duplicates other ESA protections and diverts resources from other activities that promote species recovery.

2. The Delisting Process. The delisting process can be described as the mirror image of the listing process. Similar statutory and regulatory mechanisms govern both processes. As with listing, the Services are responsible for determining whether or not a species warrants delisting. Species can be delisted because they are recovered, were listed in error, or have gone extinct. In order to delist a species because it is recovered, the Service must determine that populations comprising the species no longer face an imminent risk of extinction and that the factors originally threatening their existence have been removed or controlled.

3. Public Involvement in the Listing and Delisting Processes. The ESA provides several mechanisms for public involvement in the listing and delisting processes—petitions, a public comment period and the opportunity for public hearings on proposed regulations, and lawsuits. Most species currently on the lists got there as a result of a petition or lawsuit. The Services use their limited resources to respond to petitions and lawsuits and this may divert resources from other ESA activities. Making the listing and delisting processes more transparent to the public may increase public trust in the processes and reduce the number of petitions and lawsuits to which the Service must respond.

4. State and Federal Agency Roles and Funding for Species Management. The funding of species management and monitoring following delisting is related to the role of federal agencies after a species has recovered. Several federal

wildlife management laws mandate continuing federal involvement in the management of some species. Following delisting, the ESA requires a monitoring plan overseen by the Service for a minimum of five years. Each state has a fish and wildlife agency—e.g., the Idaho Department of Fish and Game—that will bear most of the responsibility for species management and monitoring after delisting. In Idaho, the Governor's Office of Species Conservation also plays a key role in coordinating management among state agencies for listed species and efforts to improve conditions for species that are candidates for listing.

5. Federal Laws and Implications for Federal Involvement in Species Management After Delisting. Wildlife are generally considered to be the management responsibility of the states, unless a federal law says otherwise. For example, various laws require federal agencies to manage eagles, migratory birds, and marine mammals, even if these animals are not protected by the ESA. In addition, managers of National Forest System lands, which in Idaho comprise 38.6% of all the land in the state, must plan and manage those lands to provide a diversity of plants and animals, including species-of-interest and species-of-concern as well as species-at-risk.

6. Prospects for Recovery and Delisting of Species in Idaho. Recovery and delisting of threatened and endangered species is the ultimate goal of the ESA. We used the Services' species status reports to Congress, recovery plans, other federal and state documents, and research literature, to make educated guesses about the potential for recovery and delisting the 22 listed species in Idaho. In sum, we believe seven species are potentially delistable in the near future. Recovery goals have been attained or soon will for the bald eagle, gray wolf, northern Idaho ground squirrel, MacFarlane's four-o'clock, Ute ladies'-tresses, and water howellia. The Idaho springsnail may not be a listable taxonomic unit and a petition for its delisting is being evaluated. The other 15 species listed in Idaho will probably continue to need the ESA's protections for the foreseeable future.

7. Alternative Approaches to Recovering Species and Managing Them After Delisting. Numerous alternatives for improving species' recovery and management after delisting are suggested in the professional literature, and we review several in this concluding chapter. One strategy is to avoid the dilemmas of the ESA and recovery entirely by protecting species and their habitats before they become threatened or endangered. The Comprehensive Wildlife Conservation Strategy being prepared by the Idaho Department of Fish and Game is an example of such a proactive approach.

Another approach is to redefine recovery success by recognizing that species vary in the amount of regulatory protection and special habitat management they will need once they reach the population goals identified in their recovery plans. Other regulatory and habitat protection mechanisms, besides the ESA, need to be available to protect these "conservation reliant species" after delisting.

A variety of ideas for improving the recovery planning process exist in the literature. These include:

- more quantitative objective and measurable criteria to indicate successful recovery,
- a sharper focus in recovery plans on the mitigation of threats or endangerment factors,
- a focus on implementation of recovery plans, not merely their development, and
- engaging nonfederal parties, including private landowners, in recovery planning and implementation.

A key goal of managing species after delisting is maintaining adequate populations so as to avoid relisting. State wildlife agencies can assure the Services they are prepared for this responsibility by creating management plans focused on effective management, monitoring, and enforcement.

Habitat protection is also critical to maintaining adequate populations of species. Determining what habitat is needed for a species' survival is difficult, but must be done in order to provide adequate regulatory mechanisms and incentives for its protection on both federal and nonfederal lands. Recovery management agreements—enforceable contracts between the Service and other governmental entities with the power to take the necessary conservation management actions and the financial ability to do so for the foreseeable future—may provide a regulatory mechanism that meets habitat protection needs as well as those posed by other endangerment factors.

Trust in the Services and the agencies that will be responsible for species after delisting is also necessary. Transparent processes for using scientific information, risk assessments, and professional judgment can help promote more trustworthy approaches to recovering species and managing them after delisting.

Chapter 1. Listing Threatened and Endangered Species

Because it constrains the actions of both private parties and federal agencies, the Endangered Species Act of 1973 (ESA) has been called the "broadest and most powerful law" in the world for protecting imperiled species (NRC 1995). The strict, substantive provisions of the Act affect the use of both federal and nonfederal lands, and thus the Act is politically controversial (Buck et al. 2002).

Before a species can receive ESA protection, the federal agencies responsible for implementing the Act must determine that the species faces risk of extinction and then place it on the federal Lists of Endangered or Threatened Wildlife or Plants.[1*] Once species are on these lists, the ESA is designed to protect them and the ecosystems upon which they depend. The goal of the ESA is the recovery of listed species to levels where protections of the ESA are no longer necessary (USFWS 2002a, 2004b). Once a species is recovered, it can be removed from the list, or delisted. The ESA indicates that delisting a species should satisfy the same procedural and substantive requirements as listing. To better understand delisting, we first review the listing process by addressing the following questions:

The goal of the ESA is the recovery of listed species to levels where protections of the ESA are no longer necessary.

1.1. Who is responsible for listing species?
1.2. What is a "species"?
1.3. Why are species listed?
1.4. How and when are species listed?
1.5. Where are listed species protected?

We use the same questions in Chapter 2 to review the delisting process.

1.1. Who is responsible for listing species?

The Act mandates that "the Secretary ... shall ... determine whether any species is an endangered species or a threatened species."[2] "Secretary" means the Secretary of the Interior or the Secretary of Commerce.[3] The Secretaries have charged agencies within their respective departments with administering the ESA. These agencies are generally referred to as the "Services"—the U.S. Fish and Wildlife Service (USFWS or FWS) in the U.S. Department of the Interior, and in the U.S. Department of Commerce's National Oceanic and Atmospheric Administration, the National Marine Fisheries Service (NMFS), an agency that is also known as NOAA Fisheries.

The ESA grants comparable at-risk determination authority to the FWS and NMFS through their respective secretaries, and also grants comparable management responsibilities to the Services for the species listed under their respective jurisdictions. Since 1970, NMFS has been responsible for determining the at-risk status of anadromous fish (e.g., salmon and steelhead, *Oncorhynchus* spp.) and some marine mammals, and FWS for all other animals as well as plants. The FWS is responsible for maintaining the lists of threatened and endangered animal and plant species.[4]

1.2. What is a "species"?

For ESA purposes, the term "species" includes "any subspecies of fish or wildlife or plants, and any distinct population segment [DPS] of any species of vertebrate fish or wildlife which interbreeds when mature."[5] "Fish and wildlife" refers collectively to all organisms classified within the animal kingdom,[6] and "plants" include all organisms classified within the plant kingdom.[7] All plants and animals are potentially eligible for the ESA's protections except "pest" insects, defined as "a species of the Class Insecta determined by the Secretary to constitute a pest whose protection ... would present an overwhelming and overriding risk to man."[8]

Full species and subspecies of vertebrates, invertebrates, and plants may be listed. Only vertebrate DPSs can be listed.[9] Identifying and differentiating subspecies and DPSs is sometimes controversial because these designations influence the ESA listing decision, listing priority, and define the geographical regions associated with protection and recovery actions. Service guidance for recognizing DPSs focuses on the discreteness (physical, physiological, ecological, or behavioral) of the population segment in relation to the remainder of the species, and the significance of the population segment to the species.[10] The NMFS uses the term "evolutionarily significant unit" (ESU) to describe some stocks (i.e., DPSs) of Pacific salmon.[11] For example, the spring/summer run of Snake River chinook salmon (*Oncorhynchus tshawytscha)* in Idaho is one ESU, and the fall chinook run is another ESU.

[*] See **Endnotes** (References to statutes, regulations, etc.)

We follow the usual ESA convention for "species" nomenclature. When we use the term "species," we also are referring to subspecies, DPSs, and ESUs.

1.3. Why are species listed?

The very first statement in the ESA identifies the problem the law intends to address: "Various species ... have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation."[12] Extinction is to be avoided because fish, wildlife, and plant species have "esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people."[13] Thus, the goal of the ESA is to temper the impacts of economic growth and development on species with adequate concern by providing the means to "conserve" them. To achieve this goal, the ESA requires identifying species at risk of extinction, protecting them, and recovering them so their continued existence is no longer in doubt (Tobin 1990). Or, in the exact words of the Act, "conservation [or conserve] means to use ... all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which [such] measures ... are no longer necessary."[14]

To avoid confusion in discussions about species "conservation," we try to use "conservation" and other ESA definitions precisely and consistently (O'Laughlin 1997). Unless quoting language from the ESA, we use the term "species recovery" instead of species "conservation." When we do use the term conservation, which is sometimes unavoidable, it has a broader meaning than just species recovery.

1.4. How and when are species listed?

The listing decision is made through the regulatory process[15] which requires the promulgation of a rule under the Administrative Procedures Act.[16] Figure 1-1 illustrates the 4-step listing process of petition, status review, notification and public comment, and issuance of a final rule.

1.4.1. Petition and 90-day Finding. The listing process may be triggered by a petition from "an interested person" or it may be initiated by the Service.[17] Petitions, or court orders in response to action denying a petitioned listing, have initiated most listings to date (Matsumoto et al. 2003). Within 90 days after receiving a petition, the Service must determine whether it presents "substantial scientific or commercial information" that the listing "may be warranted."[18]

1.4.2. Status Review and 12-month Finding. If the petition has substantial information, to find whether a listing is warranted the Service must "promptly commence" a status review[19] and complete it within 12 months of receiving the petition. This can be extended to 18 months if there is disagreement about the sufficiency and accuracy of information.[20] The review process consists of an extinction risk assessment and an assessment of "threats" to the species. These two judgments are to be based "solely on the best scientific and commercial data available,"[21] a requirement that is often problematic because scientific information is always incomplete uncertain (NRC 1995; see section 7.8.1). The status review also must consider beneficial or detrimental effects of state programs before a listing decision is made. Discussion of these points follows.

1.4.2.1. Extinction Risk Assessment. The first part of the status review requires the Service to assess whether a species is indeed at risk of extinction. To be endangered, a species must be "in danger of extinction throughout all or a significant portion of its range."[22] To be threatened, a species is "likely to become endangered within the foreseeable future."[23] Under the threatened or endangered definitions, the extinction risk assessment involves estimating the number of individuals comprising a species (or an index to their numbers) and a prediction of how numbers and habitat conditions might change in the future, including the positive and negative human impacts that could affect a species or its habitat.[24] The Service must evaluate whether anticipated decisions to develop property, harvest timber, or otherwise alter habitat will be beneficial or detrimental to a species.

Determining whether a species is endangered or threatened depends on a judgment about the likelihood or risk of extinction.

Determining whether a species is endangered or threatened depends on a judgment about the likelihood or risk of extinction (Doremus 2000). This makes risk assessment a central concern of ESA implementation (NRC 1995).

1.4.2.2. Endangerment Factors. If a species is deemed threatened or endangered, the second part of a status review involves identification of the factors putting the species at risk, which are often referred to as "threats" to the species. The ESA lumps these threats into several categories, and specifically refers to them as the five endangerment factors:

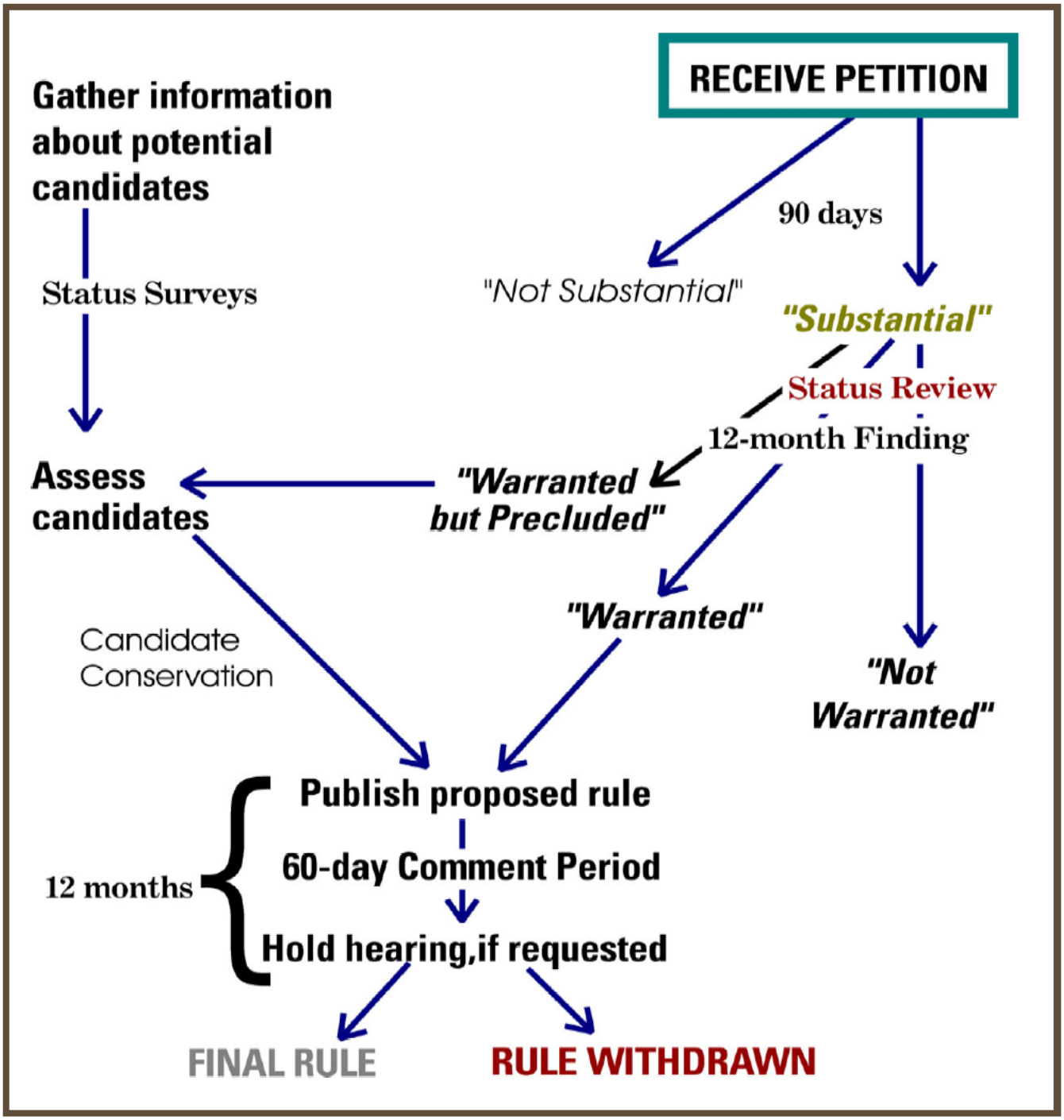

Figure 1-1. Listing process.

Source: USFWS 2004a.

(A) the present or threatened destruction, modification, or curtailment of a species' habitat or range,

(B) overutilization for commercial, recreational, scientific or educational purposes,

(C) disease or predation,

(D) the inadequacy of existing regulatory mechanisms, and

(E) other natural or manmade factors affecting a species existence.[25]

1.4.2.3. Conservation Agreements with States. The Service must evaluate how state laws or programs might reduce or exacerbate threats to a species. If such efforts are beneficial, the Service must assess the degree to which state efforts will improve the status of species before a formal listing

decision is proposed.[26] When coordinated with the Service, these efforts are officially referred to as conservation agreements. Such agreements allow a state or nonfederal entity to show that species' protection and recovery efforts are underway or planned. These efforts may mean listing will not be pursued, even if population trends or current habitat conditions indicate that a species faces extinction risk. In 2003, the Services adopted a formal policy for evaluating the conservation efforts of other federal and nonfederal entities when making listing decisions.[27]

1.4.3. Notification of 12-month Finding. The end of the 12-month status review process results in one of three findings: "not warranted," "warranted," or "warranted but precluded" (Figure 1-1). If the Service cannot justify a listing, the "not warranted" finding appears in the *Federal Register*. If a listing is justified, the Service may find that listing is "warranted" or that it is "warranted but precluded." This latter designation is used when resources needed to proceed with the listing are not available because other ESA-related activities are considered higher priority. "Warranted but precluded" species are recycled back to the beginning of a new 12-month status review.[28] This recycling process is repeated indefinitely until the listing is deemed either "warranted" or "unwarranted." The 12-month finding includes a listing priority and is published in the *Federal Register* as a proposed APA rulemaking,[29] which initiates a public comment period.

The public comment period and the public hearing are mechanisms that allow for nonfederal participation in the listing process and are the only opportunities that the general public has to offer information that substantiates or refutes the merits of the proposed listing.

1.4.3.1. Listing Priority. In 1983 the FWS finalized development of a somewhat complex process to support the "warranted" and "warranted but precluded" findings with a listing priority assigned to the species. Three sequential criteria are considered: magnitude of threat, immediacy of threat, and taxonomy.[30] The NMFS uses a listing priority system similar to the one the FWS uses,[31] but does not include taxonomy as a criterion in its system. The taxonomy criterion identifies the taxon (i.e., a group of organisms sharing common characteristics) as a species, subspecies, or DPS. The magnitude and immediacy of threat are judgments based on an extinction risk assessment.

If the ranking resulting from the listing priority process does not surpass a certain cutoff level, then the "warranted but precluded" finding is assigned. The cutoff level is determined by the FWS regional field offices that would oversee protection and recovery efforts if the species were listed. Each field office has its own workload and resources that change over time. These variables thus influence whether a species will be "warranted" for listing at the end of its status review. Therefore, a species that is "warranted but precluded" one year may be "warranted" the following year simply because the cutoff level for the affected regional office has changed.

1.4.3.2. 60-day Public Comment Period. The comment period allows interested persons, groups, or government agencies to question the validity of the listing proposal, or to make suggestions that would modify it. The Service is required to inform appropriate governmental and professional scientific organizations and to publish a summary of the proposed regulation in newspapers of general circulation in each area of the U.S. where the species is believed to occur.[32] Comments must include peer review from at least three appropriate and independent experts on the species.[33] When the Service gives notice in the *Federal Register* that a listing is warranted and a regulation has been proposed, the agency must notify each county and the appropriate state wildlife agency in the area where the species is believed to occur and invite their comments.[34]

1.4.3.3. Public Hearing. Within the first 45 days of the 60-day comment period, any person from the public can request a hearing.[35] This is an informal process that gives the public an opportunity to give comments and allows for the exchange of information and opinions with the Service.[36]

The public comment period and the public hearing are mechanisms that allow for nonfederal participation in the listing process and are the only opportunities that the general public has to offer information that substantiates or refutes the merits of the proposed listing. If there is substantial conflict during the hearing, the Service will usually extend the public comment period so that interested individuals or groups can submit formal criticisms and suggestions. The Service may extend or reopen a public comment period for any reason.

1.4.3.4. Withdrawal or Extension Period. Within one year of a "warranted" decision, the Service must either impose a final rule to list a species as threatened or endangered, withdraw the proposed

listing, or seek a 6-month extension before making a final decision.[37] Withdrawal of the proposed listing occurs if additional information, including that gleaned during the public comment period, indicates that there is not a sufficient biological basis for the listing.

1.4.4. Final Decision Rule. Listing a species as threatened or endangered usually becomes effective 30 days after the final rule is published in the *Federal Register*. The proposed rule is to be finalized "[w]ithin the one-year period" beginning with the publication of the proposed rule.[38] If during the comment period on the proposed rule a state agency submits comments disagreeing in whole or in part with the proposed rule, and the Service issues a final rule in conflict with the state's comments, the Service must provide the state agency with a written justification for the failure to adopt a rule consistent with the agency's comments.[39]

1.5. Where and how are listed species protected?

Listed species are protected against trade or commerce, "jeopardy" by federal agency actions, and "take" by any person in whatever geographic areas are defined in the final rules to list them. The types of protections they receive depend on whether the species is an animal or plant, but regardless, habitat is a focal point of the protections. The ESA considers habitat protection to be an integral part of the effort to recover species because the vast majority of protected species reached that status, more or less indirectly, due to habitat loss (Wilcove et al. 1998, Buck et al. 2002). Habitat is absolutely crucial for species survival, and the ESA recognizes that strong provisions for habitat protection are necessary for species recovery (NRC 1995).

Habitat is absolutely crucial for species survival, and the ESA recognizes that strong provisions for habitat protection are necessary for species recovery.

1.5.1. Prohibition of Commerce or Trade. The ESA makes it illegal for any individual to import, sell, or otherwise engage in commerce of a threatened or endangered species.[40]

1.5.2. "Jeopardy" Prohibition and "Critical Habitat" Protection. All threatened or endangered species receive protection from federal agencies authorizing, funding, or carrying out actions that are likely to "jeopardize the continued existence of the species" or "result in the destruction or adverse modification of" their critical habitat. The Act defines "critical habitat" as that which is essential for species recovery:

> (i) the specific areas within the geographical area occupied by the species, at the time it is listed ... on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection, and (ii) specific areas outside the geographical occupied by the species at the time it is listed ... that ... are essential for the conservation of the species.[41]

Designation of critical habitat follows the same regulatory process as listing, which requires the promulgation of a rule under the Administrative Procedures Act.[42] The Service is supposed to designate critical habitat within 12 months of the listing. However, the FWS has been reluctant to designate critical habitat because such designation diverts resources from other activities that promote species recovery; the FWS believes critical habitat duplicates other ESA protections.[43] Specifically, the "take" protection has been construed to protect species habitat, whether designated as critical or not.

1.5.3. "Take" Prohibition. All persons are also prevented from "taking" threatened or endangered fish or wildlife species.[44] "Take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such activity."[45] "Harm" in the definition of "take" is defined by FWS regulation to include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."[46] Threatened or endangered plants are not protected against "take" but instead are protected against removal, damage, and destruction on federal lands or in violation of state law.[47]

Because habitat protection is the most pervasive and perhaps the most difficult ESA implementation issue affecting recovery and delisting, additional discussion of the problematic nature of habitat protection is provided in Appendix A.

Chapter 2. Delisting Threatened and Endangered Species

The term "delist" does not appear in the ESA statute, but the phrase "remove"—as in remove a species from the lists of threatened and endangered wildlife and plants—is mentioned seven times. As the Services and others do, we refer to such action as delisting. According to the FWS (2002a),

> To delist or downlist a species [from endangered to threatened status], the Service follows a process similar to when we consider a species for listing under the ESA: we assess the population and its recovery achievements; we assess the existing threats [based on five factors]; and we seek advice from species experts inside and outside of the Service.

Figure 2-1 illustrates the steps in the delisting process.

Like listing, delisting may be initiated by the Service or by petition. Delisting should satisfy the same procedural and substantive requirements as listing,[48] and in this way can be thought of as the mirror image of listing. Listing puts species on the list, delisting takes them off.

Delisting should satisfy the same procedural and substantive requirements as listing, and in this way can be thought of as the mirror image of listing. Listing puts species on the list, delisting takes them off.

Analysis of the delisting process is illustrated in this Chapter with brief case examples relevant in Idaho. Among them are the successful recovery and potential delisting of the gray wolf (*Canis lupus*) in the northern Rocky Mountains, the successful delisting in 1999 of the peregrine falcon (*Falco peregrinus*), and the proposed delisting in 1999 of the bald eagle (*Haliaeetus leucocephalus*). We address a similar set of questions as in Chapter 1:

2.1. Who is responsible for delisting species?
2.2. What species qualify for delisting?
2.3. Why are species delisted?
2.4. How and when are species delisted?
2.5. How is designated critical habitat for delisted species un-designated?

Because the mirror image analogy does not recognize that there are a few differences between listing and delisting, —importantly, monitoring—we identify these differences in the concluding section.

2.1. Who is responsible for delisting species?

The authority to delist species is not apportioned equally between the FWS and NMFS, as is the case for listing:

> In any case in which the Secretary of Commerce determines that such species should be removed from [the] list ... or be changed in status from an endangered species to a threatened species, he shall recommend such action to the Secretary of the Interior, and the Secretary of the Interior, if he concurs in the recommendation, shall implement such action.[49]

The Act thus authorizes the FWS to delist species it is responsible for. The NMFS can only recommend delisting a species for which the agency is responsible (i.e., anadromous fish and most marine species), and then the FWS can agree or disagree to proceed with the delisting proposed by the NMFS.

2.2. What species qualify for delisting?

Any species, subspecies, or distinct population segment (DPS) that is listed as threatened or endangered can be delisted. Sidebar 2-1 summarizes the history of gray wolf listing and illustrates how the FWS has shifted the listing among species, subspecies, and DPS classifications. These shifts have implications for delisting.

2.3. Why are species delisted?

A species can be delisted for three reasons: extinction, error in listing, or recovery.[50] A species cannot be delisted because the Service does not have adequate resources to recover it. Table 2-1 identifies the 40 species that have been delisted and the reasons for delisting each one. Note that 9 delisted species of mammals and birds do not inhabit the U.S. Three of these are Australian kangaroos. The other six are birds that inhabit Pacific islands that were affected by U.S. military activity during World War II.

Seventeen species have been delisted because they have recovered; 7 of these are not U.S. species. A species may be delisted on the basis of recovery only if the best scientific and commercial data available indicate that it is no longer endangered or threatened.[51] Unless the Service determines that it would not promote the conservation of the species, the Service is required to develop a recovery plan for the species that incorporates "objective measurable criteria which, when met, would result in a determination ... that the species be removed from the list."[52] Recovery plans, developed by the Service and stakeholders for listed species, identify actions that will reduce threats to the species and population goals that indicate the species is no longer

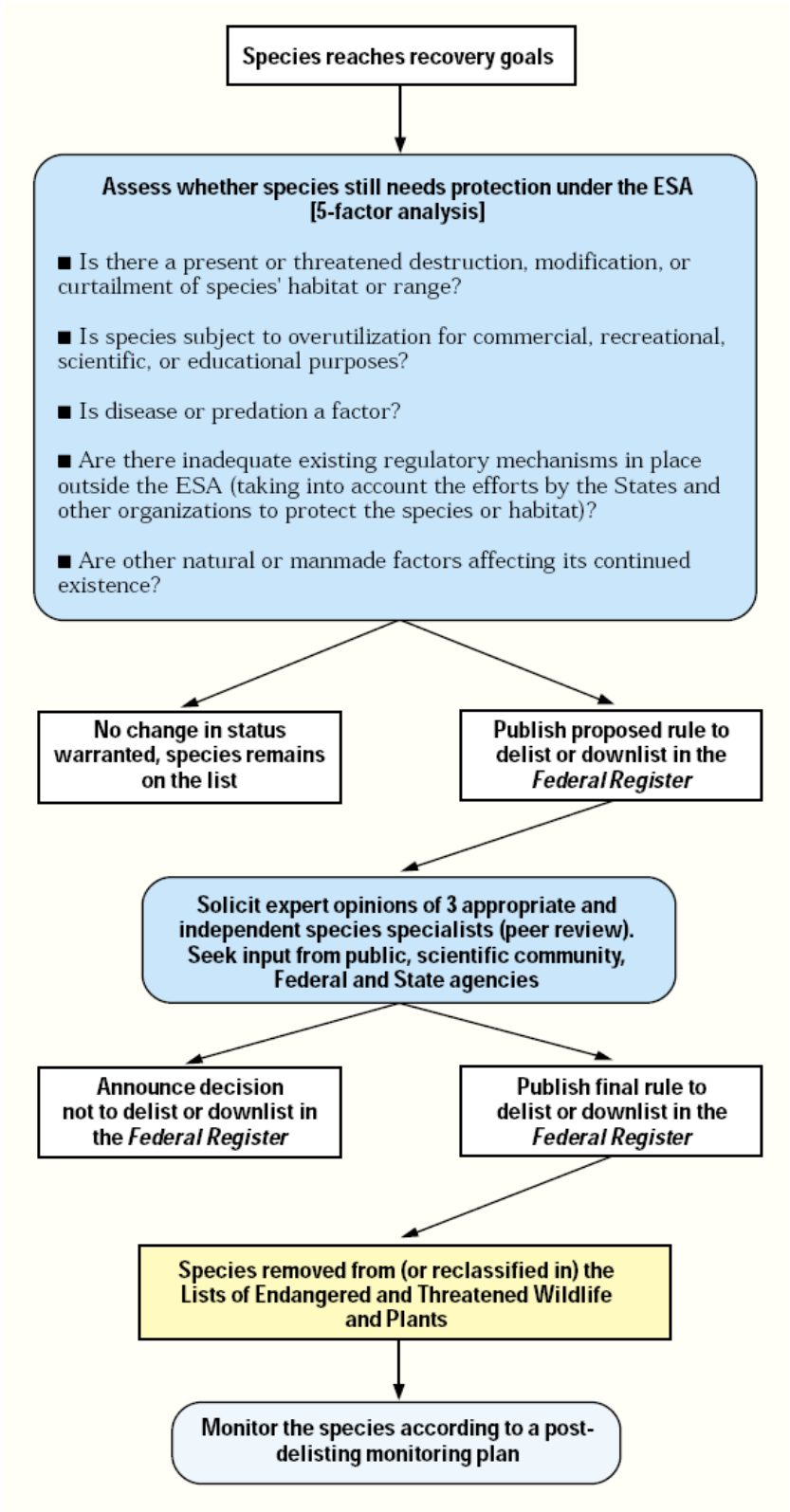

Figure 2-1. Steps in the delisting and downlisting processes.

Source: USFWS 2002a.

Sidebar 2-1. Gray Wolf "Species" Treatment Under the Endangered Species Act

The gray wolf (*Canis lupus*) was first listed in 1967 under the Endangered Species Conservation Act, a precursor to the Endangered Species Act of 1973. In 1974 the U.S. Fish and Wildlife Service listed two subspecies as endangered: the Eastern timber wolf subspecies (*C.l. lycaon*) in Michigan and Minnesota, and the northern Rocky Mountain subspecies (*C.l. irremotus*) in Montana and Wyoming. A third, the Mexican wolf subspecies (*C.l. baileyi*) in Arizona, New Mexico, and Texas, was listed as endangered in 1976. In 1978 a fourth "gray wolf" subspecies (*C.l. monstrabilis*) was listed as endangered in New Mexico and Texas (68 FR 15804).

In 1978, the Service sought to eliminate the problems of identifying the geographic boundaries circumscribing various wolf subspecies. To do so, the Service relisted the gray wolf as a single species endangered throughout the conterminous U.S., except for Minnesota, where it was reclassified or downlisted to threatened status. In 1994, to expedite wolf recovery, the Service designated all of Wyoming and parts of Idaho and Montana as areas where nonessential experimental populations (NEP) of wolves could be reintroduced. Shortly thereafter, wolves were translocated from Canada into central Idaho's wilderness area and Yellowstone National Park. In 1998, the Service established another NEP area in parts of Arizona, New Mexico, and Texas.

In 2000, the Service published a proposal to downlist some of the wolf populations from endangered to threatened, and established four distinct population segments (DPS) in the conterminous U.S.: the Western DPS, including Idaho, Montana, and Wyoming, including the NEP; the Western Great Lakes DPS; the Northeastern DPS; and the Southwestern DPS, including the NEP in Arizona, New Mexico, and Texas.

In April 2003, the Service published the final downlisting rule, indicating that only three DPSs existed: the Western DPS, still including the NEP in Idaho, Montana, and Wyoming; the Eastern DPS; and the Southwestern DPS, still including the NEP in Arizona, New Mexico, and Texas. With this rule, the Western DPS, excluding the NEP contained within it, and the Eastern DPS were downlisted from endangered to threatened status. Furthermore, the Eastern DPS was reduced in size by delisting the gray wolf in Delaware, West Virginia, Virginia, Maryland, District of Columbia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, parts of Oklahoma and Texas east of Interstate Highway 35; delisting of all other lower 48 states or portions of lower 48 states not otherwise included in the 3 DPSs. The rationale for delisting was "improved understanding" that the gray wolf historically did not occur in these areas (USFWS 2005b).

In September, 2003, several citizen conservation groups filed a lawsuit challenging the downlisting rule (*Defenders of Wildlife, et al. v. Secretary, U.S. Department of Interior, et al.*,Civil No. 03-1348-JO). In January, 2005, a federal court in Oregon ruled that the downlisting rule violated the ESA because the Service had improperly applied its own definition of "distinct population segment."

These actions illustrate how the categorization of a given taxon can change between listing and downlisting. If and when some groups of wolves are delisted due to recovery, these different categories might change again.

endangered or threatened. When the Service determines that the population of a listed species is adequate and the threats that led to endangerment have been sufficiently reduced, then the agency may consider delisting the species (USFWS 2002a).

Nine species have been delisted because they have gone extinct; two of these are not U.S. species. Extinction is difficult to prove. The Service must show that no individuals of the species can be found throughout the species' range and that no captive individuals exist. In addition, the Service requires that "a sufficient period of time must be allowed before delisting to indicate clearly that the species is extinct."[53]

Fourteen species have been delisted because the original listing was in error. Of these, nine were delisted because new taxonomic evidence showed that the species was incorrectly classified, or did not otherwise meet the ESA "species" definitions. The other five species were delisted based on new information that indicated members of the species are more widespread than previously estimated. These data errors suggest that either the taxonomic approaches used to classify species in the past were ambiguous, reproductive or genetic isolation were incorrectly determined, or the whereabouts of all individuals comprising the species were unknown when the Service conducted the status review.

Table 2-1. Species removed from ESA threatened and endangered lists, and reason for delisting.

Group Common Name	Species Category	Date Listed	Date Delisted	Reason for Delisting
Mammals (N =6)				
Deer, Columbian white-tailed, Douglas County, Oregon*	DPS	03/11/1967	07/24/2003	Recovered
Kangaroos (N=3)**	Species	12/30/1974	03/09/1995	Recovered
Shrew, Dismal Swamp, southeastern U.S.	Subspecies	09/26/1986	02/22/2000	New info. discovered†
Whale, gray, eastern north Pacific*	DPS	06/02/1970	06/16/1994	Recovered
Birds (N=13)				
Broadbill, Guam**	Species	08/27/1984	02/23/2004	Extinct
Dove, Palau ground**	Species	06/02/1970	09/12/1985	Recovered
Duck, Mexican, U.S.A. only	††	03/11/1967	07/25/1978	Taxonomic revision†
Falcon, American peregrine	Subspecies	06/02/1970	08/25/1999	Recovered
Falcon, Arctic peregrine	Subspecies	06/02/1970	10/05/1994	Recovered
Flycatcher, Palau fantail**	Species	06/02/1970	09/12/1985	Recovered
Goose, Aleutian Canada	Subspecies	03/11/1967	03/20/2001	Recovered
Mallard, Mariana**	Subspecies	06/02/1977	02/23/2004	Extinct
Monarch, Tinian**	Species	06/02/1970	09/21/2004	Recovered
Owl, Palau**	Species	06/02/1970	09/12/1985	Recovered
Pelican, brown, southeastern U.S.*	DPS	06/02/1970	02/04/1985	Recovered
Sparrow, dusky seaside	Subspecies	03/11/1967	12/12/1990	Extinct
Sparrow, Santa Barbara song	Subspecies	06/04/1973	10/12/1983	Extinct
Reptiles & Amphibians (N=3)				
Alligator, American	Species	03/11/1967	06/04/1987	Recovered
Treefrog, pine barrens, Florida**	DPS	11/11/1977	11/22/1983	New info. discovered†
Turtle, Indian flap-shelled	Species	06/14/1976	02/29/1984	Erroneous data†
Fish (N=5)				
Cisco, longjaw	Species	03/11/1967	09/02/1983	Extinct
Gambusia, Amistad	Species	04/30/1980	12/04/1987	Extinct
Pike, blue	Subspecies	03/11/1967	09/02/1993	Extinct
Pupfish, Tecopa	Subspecies	10/13/1970	01/15/1982	Extinct
Trout, coastal cutthroat, Umpqua River	††	9/13/1996	04/26/2000	Taxonomic revision†
Invertebrates (N=2)				
Butterfly, Bahama swallowtail	††	04/28/1976	08/31/1984	Act amendment†
Pearlymussel, Sampson's	Species	6/14/1976	01/09/1984	Extinct
Plants (N=10)				
Barberry, Truckee	††	11/06/1979	10/01/2003	Taxonomic revision†
Bidens, cuneate	††	02/17/1984	02/06/1996	Taxonomic revision†
Cactus, Lloyd's hedgehog	††	10/26/1979	06/24/1999	Taxonomic revision†
Cactus, purple-spined hedgehog	††	10/11/1979	11/27/1989	Taxonomic revision†
Cactus, spineless hedgehog	††	11/07/1979	09/22/1993	Not a listable entity†
Cinquefoil, Robbins'	Species	09/17/1980	08/27/2002	Recovered
Globeberry, Tumamoc	Species	04/29/1986	06/18/1993	New info. discovered†
Milk-vetch, Rydberg	Species	04/26/1978	09/14/1989	New info. discovered†
Pennyroyal, Mckittrick	Species	07/13/1982	09/22/1993	New info. discovered†
Sunflower, Eggert's	Species	05/22/1997	08/18/2005	Recovered
Woolly-star, Hoover's	Species	07/19/1990	10/07/2003	Recovered & new info.†

* Other distinct population segments (DPS) remain listed as threatened or endangered.

** Not found within the U.S.

*** Other distinct population segments (DPS) exist and are not listed as threatened or endangered.

† Original data in error.

†† Does not meet ESA definition of species, subspecies, or distinct population segment.

Source: USFWS 2005a.

2.4. How and when are species delisted?

The Service can consider delisting a protected species after the objective criteria identified in the recovery plan are reached (Figure 2-1). In addition to reaching the population target, the endangerment factors that led to the listing must also be reduced or controlled to levels that no longer imperil the species. If, as a result of the "5-factor analysis," any factor is deemed to pose a threat to a species, it will remain on the list. Otherwise a proposed rule to delist it is published in the *Federal Register*. This initiates a public comment period (see section 3.2 below) that must include peer review from at least three appropriate and independent experts on the species, as well as public and agency comments. Comments received and responses to them are addressed in the final rule (USFWS 2002a).

2.5. How is designated critical habitat for delisted species undesignated?

Species are delisted in the geographic regions defined in the final rules to delist them, and the protections they are afforded while listed are no longer in effect. What happens to designated critical habitat when species have met population recovery goals? The mirror image analogy would have critical habitat undesignated once the final rule to delist the species has been published in the *Federal Register*. This is what happened when the peregrine falcon was delisted.[54] Debate regarding whether the undesignation of critical habitat will require an economic analysis has yet to materialize, but perhaps can be expected. The designation of critical habitat requires such an analysis, and the mirror image analogy would hold that undesignation may have an economic impact that should be analyzed.

Species are delisted in the geographic regions defined in the final rules to delist them, and the protections they are afforded while listed are no longer in effect.

2.6. Monitoring.

The delisting process includes a post-delisting monitoring plan (Figure 2-1). After the final rule to delist a species has become effective, the Service

> shall implement a system in cooperation with the States to monitor effectively for not less than five years the status of all species which have recovered to the point at which the measures provided pursuant to this Act are no longer necessary [and] which ... have been removed from either of the lists.[55]

The purpose of monitoring is to assess a species' ability to sustain itself without the ESA's protective measures (USFWS 2002a). If monitoring results indicate that the well being of a recovered species is at significant risk, then the Service can use the emergency listing provisions of the ESA to re-list the species.[56]

Although the ESA requires a monitoring system "in cooperation with States," its design is not specified in the ESA. After a species is delisted, individual states may resume primary responsibility for its management and conservation, assuming that other federal laws do not reserve this responsibility to the federal government (see Chapter 5). Given that there have been few delistings based on species recovery, the state and federal responsibilities associated with these monitoring plans have yet to be fleshed out. The division of monitoring responsibilities will likely vary from species to species.

2.7. Differences in the Delisting and Listing Processes

Although the mirror image analogy for the listing and delisting processes holds for the most part, a few differences between the delisting and listing processes exist.

- *Agency authority*. Although NMFS can recommend delisting, only FWS has authority to do so.
- *Critical habitat.* The delisting process does not specifically include a provision for undesignating critical habitat.
- *Time limit*. The approval of a final rule to delist is not subject to the 12-month limit, with a possible 6-month extension, of the listing process.
- *Monitoring.* After delisting monitoring is required for a minimum of five years. In the listing process, only a "warranted but precluded" finding specifically requires monitoring.

Chapter 3. Public Involvement in the Listing and Delisting Decision Processes

The ESA includes three mechanisms for public involvement in the listing and delisting processes: (1) petitions to list or delist, (2) public comments and, if requested, a hearing on proposed rules, and (3) lawsuits followed by judicial review. These opportunities arise at various junctures in the listing and delisting processed described in Chapters 1 and 2 (see Figures 1-1 and 2-1) and are summarized in this Chapter.

3.1. Citizen Petitions

Any interested person may submit a written petition to the Service requesting that a species be listed or delisted. The petition must clearly identify itself as such, be dated, and contain the name, signature, address, telephone number, if any, and the association, institution, or business affiliation, if any, of the petitioner.[57] The Service must notify the petitioner within 30 days that the petition was received. Within 90 days the Service must make a finding whether the information in the petition may warrant the requested action.[58] The Service must publish the 90-day finding in the *Federal Register* and notify the petitioner.

Any interested person may submit a written petition to the Service requesting that a species be listed or delisted.

If the action may be warranted, a status review commences. It must be completed within 12 months of receipt of the petition.[59] The Service then makes a finding that the petitioned action is "not warranted," "warranted but precluded" because of other pending ESA responsibilities, or "warranted."

3.2. Public Comments and Hearings on Proposed Regulations

After the Service finds that a listing or delisting is warranted, the agency must propose a rule for taking such action and publish it in the *Federal Register*. The Service is required to give notice of the proposed rule, including the complete text, and invite comment from the appropriate state resource management agency in each state in which the species is believed to occur. The Service also must give notice to any federal agency, local authority, or private individual or organization known to be affected by the rule, and to professional scientific organizations the Service deems appropriate. The Service also must publish a summary of the proposed regulation in a newspaper of general circulation in each area of the U.S. where the species is believed to occur.[60] The Service then must allow at least 60 days after the publication date for public comment.[61] The public comment period may be extended, with such notice published in the *Federal Register* specifying the basis for so doing.

Public comment on the delisting proposal for the peregrine falcon illustrates what might be anticipated in other cases. The delisting proposal was reviewed by three scientists with expertise in peregrine falcon biology. In addition, the FWS received 29 oral comments at public hearings, as well as 893 comment letters from 49 states, the District of Columbia, Canada, Germany, Mexico, Bali, four federal agencies, 27 state natural resource agencies, 305 falconry associations or individual falconers, and 40 conservation organizations.[62] Of these comments, 633 supported the delisting action, 266 opposed it, and 11 supported downlisting to a threatened status instead of delisting. After these comments were considered, the FWS revised the proposed rule and published it as the final rule to delist the peregrine falcon.

If any person requests a public hearing within 45 days of the publication of the proposed rule, the Service must hold one.[63] Notice of the location and time of the hearing must be published in the *Federal Register* not less than 15 days before the hearing is held.

State agencies are given a prominent role in the comment process. If a state agency submits comments disagreeing in whole or in part with a proposed rule, and the Service issues a final rule that is in conflict with such comments, or if the Service fails to adopt a regulation for which a state agency has made a petition, the Service must provide the agency with a written justification for the failure to adopt a rule consistent with the agency's comments or petition.[64]

3.3. Citizen Suits and Judicial Review

Although the ESA states "any person" may bring a civil suit against any person or governmental agency whom he or she alleges to be in violation of the Act or its regulations,[65] courts have required plaintiffs to demonstrate actual injury as a result of actions they challenge in order to have standing (Bean and Rowland 1997).[66] Citizen suits include those against the Service if a person feels listing or delisting duties were not properly carried out. The person filing a lawsuit must provide 60 days prior notice to the Service that he or she plans to file a suit. Federal courts have jurisdiction in ESA cases

and can enforce any of the Act's provisions or regulations, or order the Service to perform such act or duty. Under the Equal Access to Justice Act of 1980, courts may choose to award costs of litigation to any party, including reasonable attorney and expert witness fees.[67]

3.3.1. Litigation of Listing Findings. Final rules made by the Service to list a species can be challenged in court under the Administrative Procedures Act. The essence of administrative procedure law is to inhibit "arbitrary and capricious" actions by federal agencies. Courts use the arbitrary and capricious standard to judge any challenged regulations, including final listing decisions. Most court cases have focused on procedural irregularities of the listing process rather than a direct challenge to the substantive biological information upon which the listing decision is based (Bean and Rowland 1997). If there is a dispute about the substantive nature of a listing decision, courts will generally defer to the Service, which courts usually regard as the foremost authority in fish and wildlife management matters (SELS 2001). Attempts to overturn listing decisions are not likely to have a high success rate.

Litigation designed to impede a listing generally will not receive judicial review. The ESA implies that affirmative (i.e., "warranted") 90-day and 12-month findings are not subject to judicial review.[68] In addition, administrative procedure law requires that agency actions are "final" before they can be litigated.[69] "Warranted" 90-day and 12-month findings cannot be litigated because they are intermediate steps in the listing process, not final Service actions.

There have been numerous cases where the plaintiff has asked that the Service reconsider a "not warranted" or "warranted but precluded" 12-month finding. For example, in the case of the threatened northern spotted owl subspecies (*Strix occidentalis caurina*), the court ruled that the FWS's "not warranted" decision was arbitrary and capricious because the 12-month finding offered no explanation as to why the owl should not be listed.[70] The court's finding obligated the FWS to reconsider listing the owl, which happened two years later.

3.3.2. Litigation of Delisting Findings. As with listing, final Service actions regarding delisting can be litigated. The ESA indicates that judicial review is appropriate if the 90-day or 12-month findings do not support delisting.[71] In addition, administrative procedure law allows for the litigation of a final rule to delist a species.[72] Given that delistings have been few and infrequent, case law regarding delisting decisions is not abundant.

3.4. Recovery Plans

Although technically not part of the delisting process, the development of recovery plans is an important step in moving species toward delisting. The Act calls for public notice and an opportunity for public review and comment on the plan, and the Service must consider all information presented during the public comment period prior to approval of the plan.[73]

3.5. Effects of Public Involvement

Public involvement has been a primary driver of listing decisions throughout the ESA's history. At least half of all listings have occurred as a result of petitions or lawsuits (Matsumoto et al. 2003). For example, in California between 1992 and 2000, 92% of all new listings were the result of petitions or lawsuits (Defenders of Wildlife et al. 2001). In Idaho, which has 22 listed species (see Chapter 6), the listing process for 20 of them was initiated via a petition or lawsuit.

Public involvement has been a primary driver of listing decisions throughout the ESA's history. At least half of all listings have occurred as a result of petitions or lawsuits.

Petitions also have initiated the delisting process, but to a lesser degree than listing. Of the 39 species that have been delisted since the ESA's inception, only six were initiated by petition. In Idaho, petitions have initiated the current delisting process for the Ute Ladies'-tresses (*Spiranthes diluvialis*)[74] and the Idaho springsnail (*Pyrgulopsis idahoensis*).[75] The Service also has had to address numerous petitions for delisting the gray wolf.[76] Petitions, public comments, and hearing requests have been found to influence the amount of time species spend in each stage of the listing process (Ando 1999). Public opposition or support can substantially slow or hasten, respectively, the progress of a species moving through the listing process. Presumably, the effect will be similar for delisting.

Whether serious or frivolous, the Service must respond to all petitions and lawsuits, which can divert limited resources away from protecting and recovering species that need attention the most (Frazer 2001, GAO 2002). Although petitions and lawsuits have been effective at initiating the listing and delisting processes, they may not be the most effective ways to protect imperiled species.

The governors of many states, through the National Governors' Association and the Western Governors' Association, have suggested that the current provision allowing judicial review of only decisions not to list is unfair and allows unequal access to the legal system (NGA 2004, WGA 2003b). Governors would also like to subject to judicial review 90-day findings that a petition contains information that may warrant listing and a 12-month finding that a listing is warranted. In addition, as an alternative to judicial review, governors believe the ESA should incorporate alternative dispute resolution mechanisms or mediation activities as a means to resolve disputes and ensure the best application of scientific information in listing decisions (NGA 2004, WGA 2003b).

The public participation mechanisms currently in the ESA—citizen petitions, public comments and hearings on rules, and lawsuits—may not be the best ways to involve the public in decisions made by the Service (Ruhl 2002). Some analysts have suggested the need for greater public trust by increasing the transparency of the decision-making process and providing more open access to the information upon which the Services' decisions are based. Making the public a part of the decision-making team, rather than a party to negotiation, may be a more effective means of species management (Ruhl 2002). We revisit the issue of public trust in Chapter 7.

Chapter 4. State and Federal Agency Roles and Funding for Species Management After Delisting

A contentious issue surrounding delisting is who should pay for the management of a species once it has recovered and no longer requires protection under the ESA. In general, states are responsible for species management unless the federal government has assumed management responsibility, as it has with ESA listed species. However, *funding* the management of recovered species is a different question. This question is particularly pertinent for species that will require active management to maintain their recovered status, and for species that will be involved in human-wildlife conflicts as a corollary to their recovery. There is no statutory answer to the funding question. Any answer will be species-specific and political.

There are two opposing viewpoints on the issue of who should finance management and monitoring of species after delisting. One argument is that the federal government should bear the majority of the financial burden for recovered species. Underlying this argument is recognition that the federal government was fundamentally responsible for increasing the abundance and/or distribution of the species, and should therefore be accountable for its actions. The other argument is that if a state desires management authority for a recovered species, the state should also have to assume the costs associated with that responsibility. No court case has yet addressed the issue, and states have only recently challenged how much of the costs they should shoulder.

In general, states are responsible for species management unless the federal government has assumed management responsibility, as it has with ESA listed species.

It is unlikely that either the federal government or states will assume full financial responsibility. Various federal laws (see Chapter 5) require federal agencies to consider recovered, delisted species in policy decisions and land-management plans. In turn, these requirements will keep the federal government at least indirectly connected financially with species management efforts following delisting. And for most species, states will almost certainly be obliged to contribute as well. The ESA mandates the allocation of funds for federal-state cooperative programs designed to conserve species while they are listed (see section 4.2.3.4 below). However, after delisting and the required post-delisting monitoring period, the Services have no statutory authority to continue with the cooperative programs prescribed in the ESA.

The financial responsibilities of states and federal agencies following delisting might best be illuminated by reviewing the relative roles of these agencies during the four stages leading up delisting, i.e., before listing, during listing, after listing, and during delisting. This chapter describes the roles of state and federal agencies and how the flow of money relates to policy administration and implementation. This information can be used as a framework for analyzing the potential funding source for management of delisted species.

4.1. Federal Agencies

There are essentially three mechanisms that will define the federal governments involvement in the management of delisted species: [1] the post-delisting monitoring effort required by the ESA and overseen by the Services, [2] the management plans that the Services may require from states, and [3] other background laws that the Services and other federal agencies can use to affect different species. We review the first two mechanisms below, and the third in Chapter 5.

4.1.1. Federal Land Management Agencies. The federal lands that comprise 29% of the U.S. land area are administered and managed largely by four agencies. The U.S. Forest Service (U.S. Department of Agriculture), and the Bureau of Land Management (U.S. Department of the Interior) administer most of the federal land. In addition, the FWS (U.S. Department of the Interior) has a land management agency role for the National Wildlife Refuge System. The National Park Service, also in the U.S. Department of the Interior, is a land management agency. In Idaho, 63.8% of the land is managed by federal agencies, almost all of it by the U.S. Forest Service and Bureau of Land Management (Figure 4-1). Of the 50 states, only Nevada has a higher percentage of federal land than Idaho (O'Laughlin et al. 1998 [PAG #16]).

4.1.2. Federal Agency Funding. Funding for all four of the federal land management agencies is determined in the annual Department of the Interior and Related Agencies Appropriations bill. Before agencies can spend funds this bill must be passed by Congress. The bill is written after Congress receives the president's annual budget. The actual amount of money used for the management and conservation of plants and animals on federally-administered land is determined within each agency.

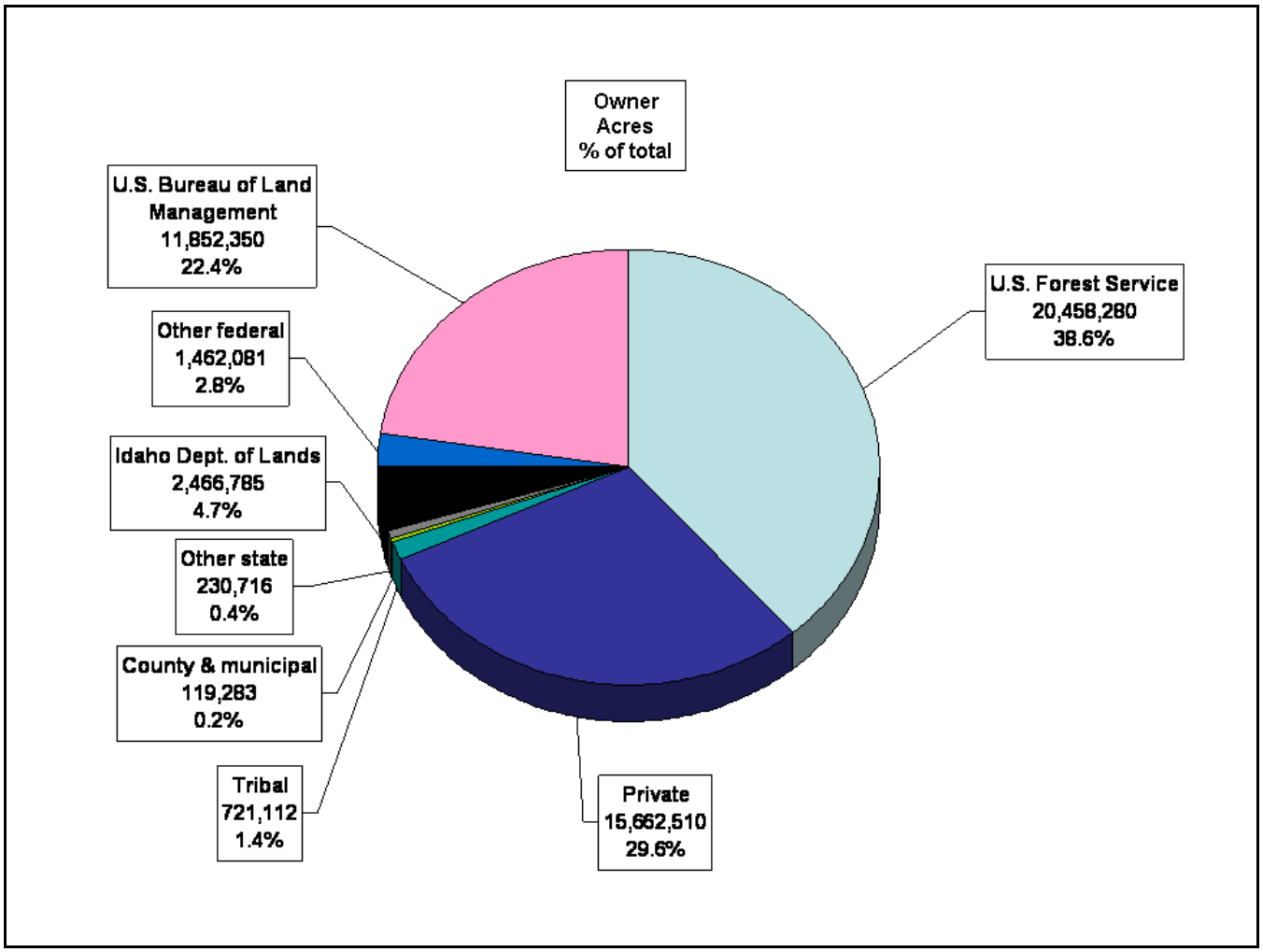

Figure 4-1. Idaho land ownership by category of owner, 1996.

Source: O'Laughlin et al. 1998 (PAG #16).

4.1.3. Monitoring Following Delisting. After a species is delisted the Service is required to develop a monitoring program for it "in cooperation with the States" (see section 2.6).[77] As described in the ESA, this mandate does not contain any requirements regarding the structure of the federal/state collaboration. However, the Act indicates that up to 75% of monitoring costs can be provided by the Services, with the share increasing to a maximum of 90% if two or more states work cooperatively.[78]

As specified in the ESA, the post-delisting monitoring effort is to be implemented for a minimum of five years. The actual time span of this effort, however, may be longer. The actual duration is determined by the Service and the state(s), and is likely to depend on a number of factors, including: [1] life-history characteristics of the species, [2] potential causes of renewed imperilment, [3] predicted changes to the habitat of the species, and [4] distribution of the species. In addition, monitoring activities vary from species to species because some are easier to count than others. The objective in all plans, however, is to determine the abundance and distribution of a species over a time span long enough to determine that the species is not imperiled.

For wide-ranging species and species that reproduce slowly, monitoring plans might be expected to be much greater than five years. For instance, the plan for the peregrine falcon, which was delisted in 1999, indicates that monitoring will be carried out over a 13-year period. The plan designates six geographical areas in 40 states that contain breeding falcons. Selected nests in each area are to be monitored five times at three year intervals. Data from the monitoring are to include counts of falcons returning to nests each year, nesting success, and number of young hatched and fledged at each nest. The FWS, state agencies, and private

organizations will all be involved in the monitoring effort, although the FWS has oversight authority.

4.1.4. Approval of State Management Plans. For most listed species, the primary threat to their continued survival is the availability of suitable and adequate habitat. Habitat management is therefore likely to be the main endangerment threat or factor that must be addressed before delisting can occur.

The adequacy of regulatory mechanisms to protect species from being harmed, harassed, or killed is also an important factor and may require attention to the creation, implementation, and/or enforcement of such mechanisms. The Services may ask affected states to devise management plans describing the mechanisms that will protect a species after delisting. States have no legal obligation to devise these plans, but they may feel compelled to do so if they want delisting to proceed. For example, Idaho, Wyoming, and Montana have written post-delisting management plans for the Yellowstone population of grizzly bears, even though the FWS did not request them to do so (G. Schildwachter, review comments).

The Services may ask affected states to devise management plans describing the mechanisms that will protect a species after delisting. States have no legal obligation to devise these plans, but they may feel compelled to do so if they want delisting to proceed.

State plans allow the Services to remain involved in the management and conservation of a species by obligating states to enact laws and regulations that specifically protect a species from being harmed, harassed, or killed. For example, upon reviewing Wyoming's wolf management plan, the FWS indicated that the state's laws regarding wolves were incongruent with the proposed plan. As noted by Ed Bangs, FWS Wolf Coordinator, "Wyoming state law may not provide WG&F (Wyoming Game and Fish) the authority to implement this plan" (Bangs 2003). The implied recommendation by the FWS, therefore, was that Wyoming change their law, so there would be a mandatory authority to implement and enforce the state wolf plan. From this example, it is apparent that after delisting the Service will leave a lasting footprint through new or amended laws associated with the state management plan.

4.2. State Agencies

States have the authority to manage wildlife and plants, except under circumstances in which the federal government has chosen to intervene, as authorized under the U.S. Constitution. Wildlife and plants are treated differently in law. Wildlife, i.e., wild animals, are not owned by anyone, but can be managed and regulated by states under their broad police powers and public trust responsibilities (Favre 2003). Plants, on the other hand, are considered a part of realty, and therefore subject to private ownership. States can manage and regulate plants based on their powers to regulate private property (McMahan 1980).

Within states, there are typically four institutions that directly affect the administration and implementation of policies concerning wild plants and animals not listed under the ESA. First, the state legislature can write laws decreeing how species are to be managed. Second, state wildlife and natural resource agencies (e.g., Fish and Game, Parks and Recreation) are assigned missions to implement the laws enacted by the legislature, and by so doing, can often shape regulations concerning these laws. Third, state wildlife boards or commissions, whose members are usually appointed by a governor or state legislators, generally have constitutional and statutory authority to set game and sport fish policies, and to make harvest and management recommendations to state wildlife agencies. Such boards or commissions do not typically have authority specifically to manage plants. And fourth, the public, in approximately half of the states, can draft ballot initiatives as a means of making policy and management decisions. In Idaho, all four institutions exist, but the roles of the Department of Fish and Game and the Fish and Game Commission differ somewhat from the typical scenario described above (see next section).

In addition, the Idaho Legislature in 2000 created the Governor's Office of Species Conservation (OSC). Its mandated mission is to coordinate among other institutions, programs related to the conservation of ESA-listed and soon-to-be listed species. There are also numerous other actors within states that indirectly affect the administration and implementation of policies concerning wild plants and animals. For instance, the Idaho Department of Environmental Quality has the responsibility of protecting the media (air, water, soil) in which plants and animals exist, and the Department of Lands is responsible for managing 2.5 million acres of state lands (see O'Laughlin 1990 [PAG #1], O'Laughlin and Cook 2001 [PAG #21]). Focusing on these agencies does little to illuminate

how funds are acquired and spent on the conservation and management of plants and animals, however, and we do not consider them herein.

4.2.1. Idaho Department of Fish and Game (IDFG). As in most states, the Idaho Department of Fish and Game (IDFG) resides within the executive branch of the government.[79] However, the IDFG is placed under the supervision, management and control of the Idaho Fish and Game Commission,[80] rather than being an independent agency under the executive branch as is the situation in most other states. The Commission itself consists of seven members, each representing a particular region of the state. Members are appointed, and subject to removal, by the Governor, who must select them "solely upon consideration of the welfare and best interest of fish and game in the state of Idaho." The role of the Commission is described in Idaho Code:

> Because conditions are changing, and in changing affect the preservation, protection, and perpetuation of Idaho wildlife, the methods and means of administering and carrying out the state's policy must be flexible and dependent on the ascertainment of facts which from time to time exist and fix the needs for regulation and control of fishing, hunting and trapping, and other activity related to wildlife, and because it is inconvenient and impractical for the legislature of the state of Idaho to administer such policy, it shall be the authority, power and duty of the fish and game commission to administer and carry out the policy of the state in accordance with the provisions of the Idaho fish and game code.[81]

Because the Fish and Game Commission has the authority to administer fish and wildlife policies, the commission thus dictates how the IDFG should implement these policies. These polices include such things as [1] investigations that assess the status of fish and wildlife populations and their habitats, [2] the identification of which species, as well as their ages and sexes, that can be hunted or fished, [3] the setting of catch and bag limits, [4] the designation of areas open to hunting and fishing, [5] the adoption of rules regarding the transport and possession of fish and wildlife, [6] the engagement in cooperative agreements with educational institutions, the federal government, and other institutions to promote research and to protect and manage fish and wildlife, [7] the propagation and control of fish and wildlife, and [8] the establishment of cooperative agreements with cities and counties to lease lands for fish and wildlife, and to increase recreational opportunities fishers and hunters.[82]

The Fish and Game Commission also is responsible for appointing the IDFG director.[83] The director has general supervision over all activities and functions within the department, including the budget. Management responsibility for listed plants was transferred from the Department of Parks and Recreation to the IDFG in 2003. By overseeing the IDFG, the Fish and Game Commission, by default, assumes full responsibility for the management of all wild plants and animals in the state, even though commission members are appointed in the interest of only fish and game.

4.2.2. Idaho Governor's Office of Species Conservation (OSC). For species that might be listed or delisted in the near future, the Governor's Office of Species Conservation (OSC) is the Idaho state agency that can directly affect policy administration and implementation. Like the IDFG and the Fish and Game Commission, the OSC is an executive branch agency of the Idaho government.[84] The administrator of the OSC is appointed by, and serves "at the pleasure of " the governor and is subject to confirmation by the Idaho Senate. The OSC was created in the 2000 legislative session and is the only agency of its kind in structure and function among the 50 state governments.

For the most part, the duties of the OSC include activities pertaining to the recovery and delisting of ESA-listed species in the state of Idaho. The OSC also seeks to coordinate with all state agencies to lessen the likelihood that candidate and petitioned species will be formally listed under the ESA.[85] For these species, the OSC assumes supervisory authority over both the Fish and Game Commission and the IDFG. One of the obligations of this authority is to prepare a yearly strategic plan for the Idaho legislature that recommends conservation strategies for rare and declining species in the state. This plan is to be developed through coordination with all state natural resource agencies, as well as with input from the citizens of Idaho (OSC 2004). The recommendations within the plan are subject to legislative approval, amendment, or rejection by concurrent resolution.[86]

4.2.3. State Agency Funding. The state agencies charged with managing and conserving wild animals and plants receive their funding from a variety of sources. These sources usually include money obtained from the sale of hunting and fishing licenses, federal grants for specific projects, and

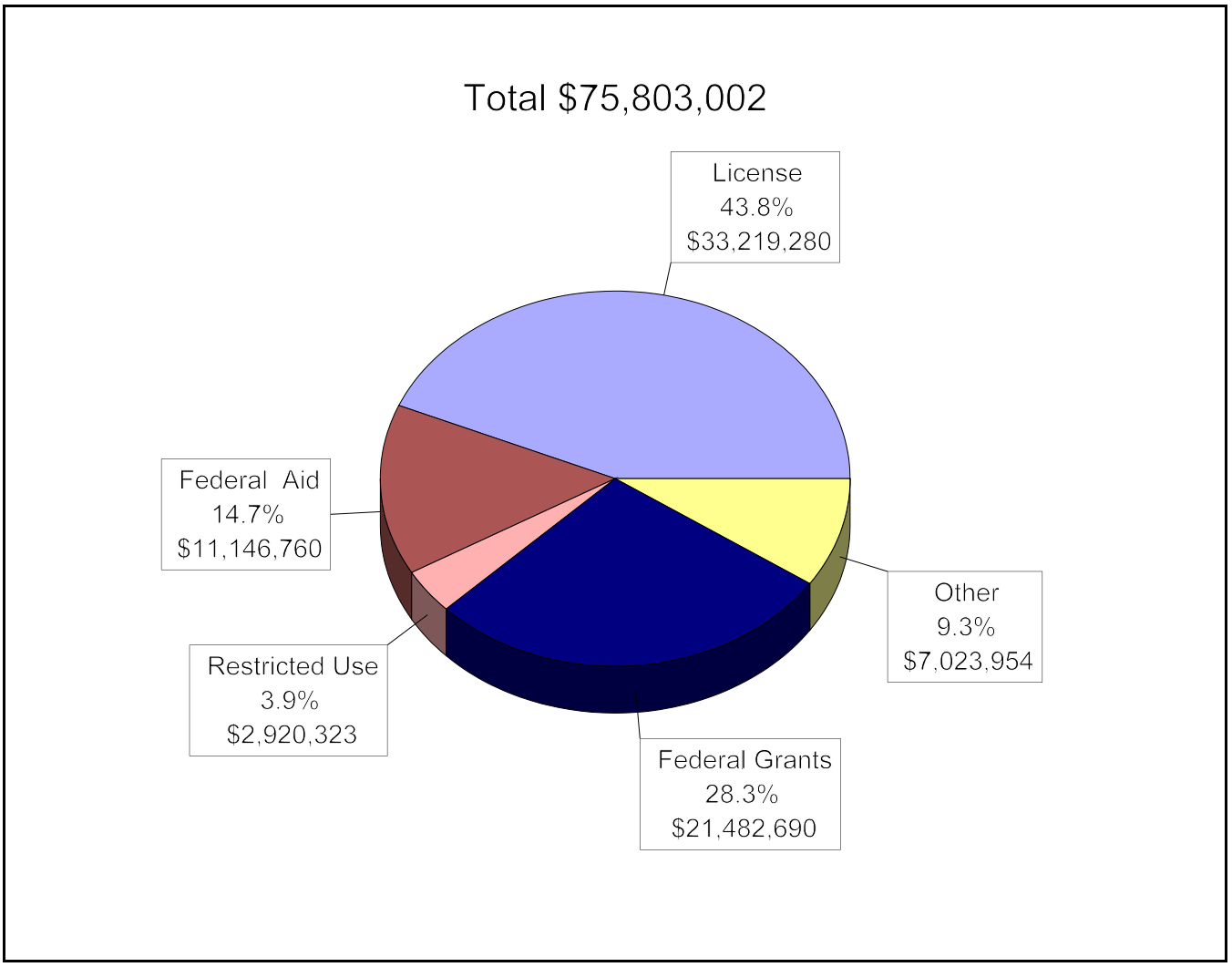

Figure 4-2. Idaho Department of Fish and Game budget by funding source, fiscal year 2005.

Source: IDFG 2005a.

federal aid. State legislators also can appropriate monies from state income and sales taxes (i.e., general funds) and then allocate these monies to wildlife conservation and management programs.

The total budget for the Idaho Department of Fish and Game was $75.8 million in fiscal year 2005 (Legislative Services Office 2005). Of that total, $33.2 million came from licenses and fees, while $32.6 million came from federal sources (Figure 4-2). The following sections provide a list of the major federal grant programs that fund wildlife and fisheries management in Idaho, as well as examples of funding sources used by other states.

4.2.3.1. Federal Aid in Wildlife Restoration Act. In 1937, the U.S. Congress enacted the Federal Aid in Wildlife Restoration Act. Also known as the Pittman-Robertson Act, this legislation essentially diverted money from the federal general fund to a specific fund for state wildlife programs. The original source of funding was from a federal excise tax on guns and ammunition. These funds are given to the FWS, who then allocate them to the states based on a formula that accounts for land area and the number of hunting license holders in each state. States are required to match federal aid dollars based on a 1:3 ratio (i.e., $1 from the state for every $3 from the federal fund).

At the time the act was passed, Congress believed that the influx of federal funds would cause state legislatures to use monies generated from the sale of hunting licenses for purposes other than wildlife conservation and management. Accordingly, they required that states receiving these funds use money raised from all hunting license sales to manage and conserve wildlife and their habitats. Essentially, the Pittman-Robertson Act turned state

wildlife agencies into non-profit organizations, as prior to this act, states often used license fees as a source of revenue to fund other state programs. The act ensured the state wildlife agencies were always funded, and that this funding was inextricably linked to federal regulation. However, the federal connection also made most states averse to appropriating general funds to state wildlife agencies. Some states amended their constitutions to prevent such appropriations. Today, about half the states appropriate some of their general funds for species' management and conservation (IAFWA 1998).

For fiscal year 2005, Pittman-Robertson wildlife restoration funds dispensed to states totaled $235 million (USFWS 2005f). Idaho received $4.5 million.

4.2.3.2. Federal Aid in Sport Fish Restoration Act. This act, passed in 1950, is also known as the Dingell-Johnson Act. Similar to the Pittman-Robertson Act, but for fish instead of wildlife, it provides federal aid to states for the management and restoration of fishery resources. The Dingell-Johnson Act levies an excise tax on fishing tackle, boat fuel, and boating materials and supplies for fishery purposes. The tax collected is apportioned to states by the FWS based on a formula that accounts for land area and the number of fishing license holders in each state. States are required to match federal aid dollars based on a 1:3 ratio (i.e., $1 from the state for every $3 from the federal fund).

SWG grants support projects designed to prevent wildlife populations from declining to the point where they need to be listed (*see 4.2.3.3*).

For fiscal year 2005, funds dispensed to states from the Dingell-Johnson Act were $295 million (USFWS 2005g). Idaho received $5.0 million.

4.2.3.3. State Wildlife Grants Program. In 2001, Congress created the State Wildlife Grants (SWG) program that provides funding to states for the development and implementation of programs that benefit wildlife and their habitats, including nongame species. SWG grants support projects designed to prevent wildlife populations from declining to the point where they need to be listed (IAFWA 2005a).

Funding for the SWG program comes each year through the Department of the Interior and Related Agencies Appropriations Act. Between fiscal years 2001 and 2005, total appropriations to states for SWG program grants have been $306 million and ranged between $48 and $78 million per year (IAFWA 2005b). Funds are apportioned to states on a formula basis that considers land area (weighted 1/3) and population (weighted 2/3). No state is to receive more than 5 percent of the available funds, and each state must receive at least one percent of the funds. Between fiscal years 2001 and 2005, Idaho received a total of $3.6 million through the SWG program. In fiscal year 2005, SWG funding to all 50 states totaled $61 million, with Idaho receiving $719,258 (IAFWA 2005b).

States are required to match SWG grant dollars on a 1:1 ratio. In addition, states must commit to the development and submission of a Comprehensive Wildlife Conservation Strategy (CWCS) by October 1, 2005. In short, a CWCS must include: [1] information on the distribution and abundance of species indicative of the diversity and health of the state's wildlife, [2] locations and relative condition of key habitats essential to these species, [3] descriptions of problems that may adversely affect these species, [4] descriptions of actions necessary to conserve these species, [5] plans for monitoring these species and their habitats, [6] plans for reviewing the strategy at intervals not exceeding 10 years, [7] plans for coordinating conservation efforts with federal, other state, and local agencies, and [8] provisions that to ensure broad public participation in the development and implementation of projects and programs. The Idaho Department of Fish and Game is currently updating the draft version of Idaho's CWCS (IDFG 2005b).

4.2.3.4. Cooperative Endangered Species Conservation Fund. This federal grant program to the states is described in the Endangered Species Act.[87] It authorizes the Services to provide financial assistance to states that have entered into cooperative agreements designed to conserve [1] already listed species, [2] candidate species, and [3] recovered species that are being monitored after delisting (see section 2.6). The fund provides four types of grants: Conservation Grants for conservation project implementation, Recovery Land Acquisition grants to purchase habitat for recovering species, Habitat Conservation Planning Assistance grants to support development of habitat conservation plans, and Habitat Conservation Plan Land Acquisition grants to purchase land associated with habitat conservation plans (USFWS 2005h). To be awarded any of these grants, states must have cooperative agreements with the Service. In theory, these agreements can serve as contracts that bind states to manage delisted species in a way determined by the Service. Agreements are

voluntary, but if states opt out of them, funds can be withheld.

The Idaho Department of Fish and Game receives approximately $250,000 annually through the Conservation Grants program (C. Harris, review comments). In 2003, the Idaho Department of Fish and Game received a Habitat Conservation Planning Assistance grant of $563,000 to help the Idaho Department of Lands develop a multi-species habitat conservation plan for the greater Priest Lake area of northern Idaho (USFWS 2003c). In 2004, the Idaho Department of Fish and Game received a Recovery Land Acquisition grant of $640,000 to purchase riparian areas along the Pahsimeroi River in Lemhi and Custer counties to aid in salmon recovery (USFWS 2004j). For the fiscal year 2005, the FWS will award approximately $78 million to states through Cooperative Endangered Species Conservation Fund grants (USFWS 2005h).

4.2.3.5. Anadromous Fish Conservation Act. This Act[88] authorizes the Secretaries of the Interior and Commerce to enter into cooperative agreements with the states and other nonfederal interests for conservation, development, and enhancement of anadromous fish, including those in the Great Lakes, and to contribute up to 50% as the federal share of the cost of carrying out such agreements. In Idaho, implementation of this Act is the responsibility of NMFS. This Act has provided appropriations authorized at between $4 million and $8 million per year, sometimes with limitations on how much any one state can receive.

4.2.3.6. Creative Funding. In some states lawmakers may be willing to use general tax revenues to manage species. For example, in 1978 voters in Missouri decided to increase state sales taxes by 1/8th % to help fund the Department of Conservation. In Alaska, the Department of Fish and Game receives nearly half of its budget from the general fund. In Wyoming, legislators have authorized the appropriation of approximately $4 million for the Department of Game and Fish from the general fund, beginning in the fiscal year of 2005-2006.

In addition to these sources some states, including Idaho, have income tax checkoffs for non-game wildlife programs. License plate fees for specialty fish and wildlife plates are common in many states, including Idaho. A few state wildlife agencies collect a share of proceeds from state lotteries. Some wildlife agencies get a share of proceeds from state cigarette taxes. And a handful of state wildlife agencies receive tax money from sales of sporting equipment.

4.2.3.7. Governor's Office of Species Conservation. In Idaho, the OSC is not directly responsible for any aspect of the funding used for the management and conservation of wild plants and animals within the state that are not yet listed as endangered or threatened or that are under consideration for listing. The FY2005 budget for the OCS was $2.1 million, with $1.5 million coming from federal funds (Legislative Services Office 2005).

4.2.3.8. Private Groups and Organizations. Several private organizations fund the conservation and management of wild plants and animals at the state level, regardless of whether the species is protected by the ESA. Notably, the National Fish and Wildlife Foundation (NFWF)—a private, non-profit organization established by Congress in 1984—funds projects to conserve and restore fish, wildlife, and native plants through matching grant programs (NFWF 2003). Funds are generated via federal dollars provided by annual congressional appropriations and agreements with federal agencies including the FWS, NOAA, Bureau of Land Management, Bureau of Reclamation, and U.S. Forest Service. Other sources for the funds also include contributions from select foundations, corporations, and individuals. The NFWF is mandated by Congress to ensure that each federal dollar awarded is leveraged with a matching non-federal dollar or equivalent goods and services. To be eligible, matching funds must be [1] non-federal in origin, [2] raised and dedicated for a specific project, [3] voluntary in nature, and [4] applied only to the NFWF grant.

Wildlife Forever offers a matching grant program that is targeted toward habitat restoration, research and management, and education (Wildlife Forever 2004). Like the NFWF, grants are provided on a matching basis, but are generally much smaller in amount. Other private organizations that promote biodiversity conservation, such as the Nature Conservancy and Defenders of Wildlife do so through self-funded programs of the organizations that are funded largely by membership contributions.

4.3. FWS and NMFS Policy Regarding the Role of State Agencies

In 1994 the FWS and NMFS adopted an official policy regarding interagency cooperation between the Services and state fish and wildlife agencies in administering the ESA.[89] The policy statement covers cooperation in five areas of ESA administration: prelisting conservation, listing,

consultation, habitat conservation planning, and recovery.

Before species are considered for listing (prelisting conservation), the Services are to utilize the expertise and solicit the information of state agencies:

- in determining which species should be included on the list of candidate species,
- in conducting population status inventories and geographical distribution surveys to determine which species warrant listing,
- in designing and implementing prelisting stabilization actions so that listing might be prevented, and
- in responding to listing petitions.

During listing activities—including listing, reclassifying, and delisting—the Services are to utilize the expertise and solicit the information of state agencies in preparing proposed and final rules. During recovery, the Services are to utilize the expertise and solicit the information and participation of state agencies:

- in all aspects of the recovery planning process for all species under their jurisdiction,
- in implementing recovery plans for listed species, and
- in designing and implementing monitoring programs for species that have been delisted.[90]

The Services' policy statement calls for much cooperation between the Services and state fish and wildlife agencies. However, if the policy positions of the states' governors and fish and wildlife agencies are an indication of the success of the cooperative efforts (see next section), the policy has not been fulfilled to the satisfaction of the states.

The NGA's policy emphasizes an increased role for states in the administration of the ESA and asks for full partnership with the Services in carrying out the Act.

4.4. Governors' and Agencies' Policy Positions

Through the adoption of policy position statements, state governors and fish and wildlife agencies have made known their concerns about their roles and funding respective to ESA. In this section, we outline some of their suggestions for improving funding and their roles in the administration of the ESA.

4.4.1. National Governors' Association. The National Governors' Association (NGA) is made up of the governors of the 50 states, the territories of American Samoa, Guam, and the Virgin Islands, and the commonwealths of the Northern Mariana Islands and Puerto Rico. The NGA deals with issues of public policy and governance relating to the states. The association's mission is to support the work of the governors by providing a bipartisan forum to help shape and implement national policy and to solve state problems.

The most recent version of the NGA's policy position on the ESA was adopted at the organization's winter 2004 meeting and remains effective for two years (NGA 2004). The NGA's policy emphasizes an increased role for states in the administration of the ESA and asks for full partnership with the Services in carrying out the Act. Specifically, the NGA recommends:

- an increase in multi-species planning and recovery, rather than a single-species approach;
- increased delegation of authority to states and an increased role for them;
- increased public participation;
- peer review of the science used to make decisions;
- timely preparation of recovery plans, and prompt delisting within a state or region once recovery goals are met;
- creation of a task force to explore opportunities for increased funding;
- increased incentives for private landowner participation; and
- protection of private property rights (NGA 2004).

4.4.2. Western Governors' Association. The Western Governors' Association (WGA) is made up of the governors of 18 western U.S. states and 3 Pacific islands under the U.S. flag. The WGA addresses important policy and governance issues in the western U.S. and advances the interests of western states in the U.S. federal system. The WGA develops policy and carries out programs in the areas of natural resources, the environment, human services, economic development, international relations and state governance.

The WGA has adopted five policy resolutions related to the ESA (see WGA 2005). The WGA's policy resolution about delisting of endangered species (WGA 2003a) and its policy resolution about reauthorization and amendment of the ESA (WGA 2003b) are pertinent to ESA issues throughout the West. The WGA's policy position on ESA reauthorization and amendment is similar to that of the National Governor's Association (see previous

section). In addition to the NGA's recommendations, the western governors call for

- a more prominent distinction between threatened status and endangered status, resulting in more flexible management for threatened species;
- authorization for states to initiate conservation agreements with federal, tribal, and local agencies, and private landowners; and
- specific changes to allow states more flexibility in spending funds called for in ESA § 6 (WGA 2003b).

The WGA's policy statement on delisting calls for:

- increased partnerships between federal and state agencies;
- implementation of only cost-effective programs; and
- creation of quantified recovery goals at the time of listing, in consultation with state agencies (WGA 2003a).

4.4.3. International Association of Fish and Wildlife Agencies. The International Association of Fish and Wildlife Agencies (IAFWA) represents the government agencies responsible for North America's fish and wildlife resources. IAFWA's governmental members include the fish and wildlife agencies of the states, provinces, and federal governments of the United States and Canada.

In 2004, the IAFWA adopted its latest policy statement on reauthorization and reform of the ESA (IAFWA 2004). Among its recommendations is increased emphasis on delisting:

- more comprehensive integration of species conservation, land management, and project impact review statutes at all levels of government;
- increased funding for comprehensive species conservation programs at the federal and state levels;
- authorization for states to create legally binding conservation agreements between government agencies and private landowners;
- co-equal roles for state agencies and the Services in rule-making and decision-making under ESA, including listing activities;
- an increased emphasis on delisting, with states authorized to develop monitoring programs for delisted species;
- an increased role for states in recovery planning; and
- increased incentives for private landowners to participate in species conservation (IAFWA 2004).

4.5. Summary

The funding of species management and monitoring following delisting is related to the role of federal agencies after a species has been recovered. Several federal laws are concerned with wildlife management (see Chapter 5) and create continuing roles for direct federal involvement in the management of some species, and indirect roles in protecting species by regulating interstate commerce in species. Following delisting, the ESA requires a monitoring plan by the Service for a minimum of five years. Each state has a fish and wildlife agency that will bear most of the responsibility for species management and monitoring after delisting. Although these agencies, such as the Idaho Department of Fish and Game, are primarily concerned about species values important to anglers and hunters because they are supported largely by fishing and hunting license fees, they also have nongame programs, funded by a variety of creative mechanisms. The Idaho Governor's Office of Species Conservation (OSC) plays a key role in coordinating management among state agencies for listed species and efforts to improve conditions for species that are candidates for listing. Organizations of state governors and fish and wildlife agencies have position statements identifying the need for increased funding for managing listed species and promoting delisting following recovery.

Chapter 5. Federal Involvement in Species Management After Delisting

Unless there is a federal statute asserting regulatory authority over a species, states generally have primary management responsibility (Bean and Rowland 1997, Goble and Freyfogle 2002a). An unresolved ESA issue is the role of the federal government, particularly the Services, in the management of a species following successful recovery and subsequent delisting. Many federal laws in some way or another affect how humans use fish, wildlife, plants, and the environmental media (soil, air, and water) upon which species depend. Many laws thus define a federal government role for involvement in the management and conservation of different species, regardless of whether these species are listed and protected by the ESA. For example, 16 federal statutes impose restrictions on commercial activities and the "take" of species, 18 provide various protections for wildlife habitat, and 19 concern species and habitats (Goble and Freyfogle 2002a, 2002b provide details). These laws fairly well define how species living on federal lands are managed, but are more ambiguous for those inhabiting nonfederal lands.

This chapter focuses on laws relating to the management of animal wildlife rather than wild plants because few federal laws specifically address the management of plants. Plants are treated differently from animals in law (see section 4.2), resulting in slightly different protections for plants under the ESA (see section 1.5).

Laws fairly well define how species living on federal lands are managed, but are more ambiguous for those inhabiting nonfederal lands.

5.1. Federal Authority to Manage Wildlife

The authority for most federal laws affecting species management is generally derived from three clauses in the U.S. Constitution: the Commerce Clause, the Treaty-Making Clause, and the Property Clause. In addition, the Spending Clause gives Congress the authority to encourage states to protect species by using federal funds as a financial incentive. We use these clauses to organize the various statutes.

5.1.1. Commerce Clause. Congress has the authority "to regulate commerce with foreign nations, and among the several states, and with the Indian tribes."[91] Because animals and plants generally have at least some monetary value, the Commerce Clause is often considered a *carte blanche* for the federal government to regulate their use and management (Binder 1999). This is particularly so because species generally do not confine themselves within the boundaries of a single state, and it can be argued that federal oversight is the only way to comprehensively protect them.

The Lacey Act[92] is an example of a wildlife law that gets its authority from the Commerce Clause. The act makes it illegal to:

- import, export, transport, sell, receive, acquire, or purchase any fish or wildlife or protected plant taken, possessed, transported, or sold in violation of any law, treaty, or regulation of the United States or in violation of any Indian tribal law;
- import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce—
  - any fish or wildlife taken, possessed, transported, or sold in violation of any law or regulation of any state or in violation of any foreign law, or
  - any protected plant taken, possessed, transported, or sold in violation of any law or regulation of any state.

The Lacey Act is a criminal statute dealing with trafficking in illegally taken wildlife, and thus would not typically affect the everyday management of delisted species.

5.1.2. Treaty Clause. The President of the United States has the power to make treaties, with the consent of the Senate.[93] The Treaty-Making Clause, when combined with the Supremacy Clause[94] means that federal laws and regulations that result from treaties will overrule state laws and regulations. The U.S. is a party to numerous treaties that call for the protection of wildlife and their habitats.

The treaty with the most direct ties to the ESA is the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). In fact, the ESA implements many of our nation's obligations under CITES. The treaty prohibits commerce of imperiled plant and animal species, as well as products derived from these species. The aim of CITES is to ensure that international trade does not contribute to the extinction of species identified and listed under the convention.

The United States is also a party to the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. This treaty's objective is to:

> protect and preserve in their natural habitat representatives of all species and genera of their native flora and fauna, including migratory birds, in sufficient numbers and over areas extensive enough to assure them from becoming extinct through any agency within man's control (CIESIN 2005).

Eighteen other countries in the western hemisphere are participants in this treaty.

Another prominent wildlife law that gets it authority from the Treaty Clause is the Migratory Bird Treaty Act of 1918[95] and its subsequent amendments. The MBTA came about as a result of a 1916 convention between the United States and Great Britain with the aim of protecting birds that migrate between the U.S. and Canada. Similar conventions with Mexico (1936), Japan (1972) and the Union of Soviet Socialists Republics (1976) have further expanded the scope of the Act. Currently, 836 bird species are protected by the MBTA, 44 of which are also listed as threatened or endangered under the ESA. If one of these bird species were delisted, the MBTA provides the federal government with authority to protect it.

5.1.3. Property Clause. The U.S. Congress "shall have power to dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States."[96] The Property Clause allows the federal government to make laws and regulations for the protection of wildlife and plants living on federally-owned lands (see section 5.2).

The "diversity" mandate of the Act states that the NFMA plan and implementing regulations shall specify guidelines which "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives."

5.1.4. Spending Clause. The Spending Clause grants Congress the authority "to lay and collect taxes" and to use this money to "provide for the ... general welfare of the United States."[97] The Spending Clause can be used to encourage wildlife and plant management or protection at the state level by authorizing the federal government to use tax dollars as an enticement for states to enter into management or protection agreements. We described several federal programs that will provide funding to states for delisted species management in section 4.2.3.

5.2. Federal Wildlife Management on Federal Lands

Almost 64% of Idaho is federal land (O'Laughlin et al. 1998 [PAG #16]). This has a profound impact on how species are managed in the state. Under the Property Clause of the U.S. Constitution, the federal government has the power to manage wildlife and plant species on federal lands, although in many cases it defers to state regulation. However, three laws tend to place federal authority above state authority for species not protected by the ESA on federal lands.

5.2.1. National Environmental Policy Act (NEPA). This law[98] was enacted in 1969 for the purpose of ensuring that environmental issues receive consideration in federal agency decisions that take place on federal lands, and on nonfederal lands where a federal permit is needed to implement such decisions. The fundamental mandate of NEPA is that all federal agencies are to analyze the potential impacts of proposed federal actions that may significantly affect historical, cultural, or natural aspects of the environment. ESA listing and delisting decisions are categorically excluded from the NEPA process.

5.2.2. National Forest Management Act (NFMA). This statute[99] was passed by Congress in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act of 1974. The NFMA was designed to establish comprehensive planning for the 191.6 million acres in the National Forest System. The Act requires the Secretary of Agriculture to assess forest lands, develop long-range, multiple-use management plans based on these assessments, and the U.S. Forest Service, an agency of the U.S. Department of Agriculture, is to implement resource management actions based on these plans. Currently, NFMA is the primary statute governing the administration of U.S. National Forest System lands. This is of considerable significance in Idaho, which has 20.4 million acres of national forests in the state. These lands represent almost 39% of the state, a percentage much higher than any other state (Oregon is a distant second at 25%). In essence, this Act helps ensure that non-timber values and uses of the national forests are considered in the required NFMA land and resource management plans.

The "diversity" mandate of the Act states that the NFMA plan and implementing regulations shall specify guidelines which "provide for diversity of plant and animal communities based on the

suitability and capability of the specific land area in order to meet overall multiple-use objectives."[100] The NFMA plan for each administrative unit is to provide an assessment of resources that includes an evaluation of the diversity of plant and animal communities. In the land and resource management plan, guidelines must describe how these communities will be maintained.

In implementing regulations adopted in 1982, the Forest Service interpreted the "diversity" mandate by indicating that management actions should "maintain viable populations of existing native and non-native vertebrate species."[101] After almost two decades of implementation experience, this interpretation was revised by new regulations in 2000 and again in 2005. The new 2005 final NFMA planning rule[102] is based on the following concepts related to diversity:

> First, maintenance of the diversity of plant and animal communities starts with an ecosystem approach ... [that] will provide a framework for maintaining and restoring ecosystem conditions necessary to conserve most species.
>
> Second, ... [if] the ecosystem approach does not provide an adequate framework for maintaining and restoring conditions to support specific federally listed threatened or endangered species [i.e., species-at-risk], species-of-concern, and species-of-interest, then the plan must include additional provisions for these species.
>
> Third, agency managers should concentrate their efforts on contributing to the persistence of species where Forest Service management activities may affect species rather than on species management where the cause of species decline is outside the limits of agency authority or the capability of the plan area.
>
> Fourth, the presence of all native and desired non-native species in a plan area is important. However, the Responsible Official should have the flexibility to determine the degree of conservation to be provided for the species that are not in danger of ESA listing, to better balance the various multiple uses, including the often competing needs of different species themselves.
>
> Fifth, the planning framework should provide measures for accounting for progress toward ecosystem and species diversity goals. ... Progress toward desired conditions and objectives will be monitored and the results made available to the public. The adaptive monitoring and feedback process will help maintain and improve diversity.[103]

The new 2005 final NFMA planning rule is based on the following concepts related to diversity: "First, maintenance of the diversity of plant and animal communities starts with an ecosystem approach ..."

The new NFMA planning rule includes two noteworthy changes from the previous rule. One is the requirement for each planning unit to develop and implement an environmental management system (see first bullet below). The other is categorically excluding the NFMA plan from the requirement to prepare an environmental impact statement under NEPA (see second bullet below):

- In response to comments and recommendations for a greater emphasis on and commitment to adaptive management, the Department has chosen to include environmental management systems (EMS) in the land management framework. Each administrative unit is required to develop and implement an EMS based on the international consensus standard published by the International Organization for Standardization as "ISO 14001: Environmental Management Systems—Specification With Guidance For Use" (ISO 14001). Each unit's EMS should be designed and implemented to more efficiently meet legal obligations, including supporting the creation of effective land management plans, ensuring public participation in the process, and providing a framework for adaptive management.[104]
- This final rule clarifies that plans will be strategic rather than prescriptive in nature absent extraordinary circumstances. Plans will describe the desired social, economic, and ecological conditions for a national forest, grassland, prairie, or other comparable administrative unit. Plan objectives, guidelines, suitable uses, and special area identifications will be designed to help achieve the desired conditions. ... While plans will identify the general suitability of lands for various uses, they typically will not approve projects or activities with accompanying environmental effects. ... Decisions approving projects or activities with environmental effects that can be meaningfully evaluated will typically be made subsequent to the plan. In essence, a plan simply is a description of a vision for the future that coupled, with evaluation, provides a starting

> point for project and activity NEPA analysis. Therefore, under this rule approval of a plan, plan amendment, or plan revision typically will not have environmental effects.[105]

The USDA Forest Service is responsible for NFMA implementation. Because recovered species represent a component of the plant and animal communities that the NFMA requires the agency to maintain, it must manage for these species after they have been delisted. For instance, the conservation strategy for grizzly bears in the Yellowstone Ecosystem (Interagency Conservation Strategy Team 2003) states that the Forest Service will classify grizzlies in this area as a "sensitive" species should delisting occur. This classification ensures that the Forest Service will manage a species and its habitat in a way that perpetuates the species.

The Services have influenced forest management plans to protect delisted species on national forests by implementing their "Interagency Cooperative Policy for the Ecosystem Approach to the ESA."[106] In this policy, the Services state that "species will be conserved best not by a species-by-species approach but an ecosystem strategy that transcends individual species." NFMA land and resource management plans serve as guidelines for subsequent site-specific projects within national forest units. Protection of species after delisting depends on how the NFMA diversity mandate is implemented, and that situation is currently in flux as new regulations are being implemented on an optional basis for plans under development in 2005. The first plan in Idaho that will use the new planning rule is the Idaho Panhandle National Forest plan currently undergoing revision, with a draft plan and EIS scheduled for release in February 2006.

5.2.3. Federal Land Policy and Management Act (FLPMA). This 1976 statute[107] requires that land and resource management on the 264 million acres of federal property administered by the Bureau of Land Management (an agency within the U.S. Department of Interior) follow multiple-use and sustained-yield principles. With respect to these principles, FLPMA is similar to the NFMA (described above) in that it requires comprehensive resource planning to guide on-the-ground management actions. Because of the multiple-use and sustained-yield directive, plans must consider all species and ensure their perpetuation, regardless of whether these species are protected by the ESA. For example, since 1994 the BLM has managed a 6,400 acre land area in Oregon specifically to conserve and recover the Douglas County DPS of Columbian white-tailed deer. Although this DPS was delisted in 2003 because recovery had been achieved, the FWS has stated that the BLM would continue to manage this land for deer after delisting.[108]

Implementation of FLPMA is shouldered largely by the BLM, which has the authority to write and enforce implementation regulations. Because FLPMA encourages coordination and consistency of BLM plans with uses of neighboring lands, it can be a planning vehicle using ecosystem rather than administrative boundaries (Loomis 2002). In addition, the Services could potentially influence FLPMA implementation in the same way they could with the NFMA implementation through ESA section 7 consultations based on the "Interagency Cooperative Policy for the Ecosystem Approach to the ESA."[109]

5.3. Other Federal Laws

Several additional laws will keep the federal government involved in the management of a species after delisting. We describe them separately because they cannot be categorized neatly under the commerce, treaty-making, property, or spending clauses of the U.S. Constitution.

5.3.1. Bald and Golden Eagle Protection Act (BGEPA). This law,[110] first enacted in 1940 and amended in 1962, affords protection to bald and golden eagles, and will continue to protect the bald eagle after it is delisted. The Act prohibits, without specific authorization, the possession, take, sale, purchase, barter, or offer to sell, purchase, transport, or barter, transport, export or import, of any individual from these species, alive or dead, as well as any part, nest, or egg thereof.[111] In this Act, the word "take" includes the activities of pursuing, shooting, shooting at, poisoning, wounding, killing, capturing, trapping, collecting, molesting and disturbing.[112] Unlike the ESA, the BGEPA does not include a prohibition against "harm." In the ESA regulations, harm can include actions that cause significant habitat modification that injures members of a protected species.

Implementation of the BGEPA is the responsibility of the FWS. Any authorized Department of the Interior employee who witnesses a violation against eagles or suspect that a violation has been committed may enforce this Act. In addition, FWS may delegate authority for enforcing this Act to state wildlife agencies or other appropriate law enforcement agencies as needed.

5.3.2. Fish and Wildlife Coordination Act. This Act of 1934[113] requires that fish and wildlife receive equal consideration when projects are undertaken to develop water resources in the U.S. This mandate is accomplished by requiring federal and state agencies, as well as private development companies, to consult with the Services whenever any body of water is proposed to be modified in any way. The consultation determines the possible harm to fish and wildlife resources, and the measures that are needed to prevent the damage to and loss of these resources, and to develop and improve the resources. The Services submit comments and recommendations to federal licensing and permitting agencies and to federal agencies conducting construction projects on the potential harm to living marine resources caused by the proposed water development project, and submits recommendations to prevent harm.

The Services are responsible for submitting comments to agencies that propose to undertake water development projects. These comments must receive full consideration by the development agencies. Various federal licensing agencies review these comments to ensure that they have been considered.

5.3.3. Fish and Wildlife Improvement Act. This law was enacted in 1978, and authorizes the Services to enter into law enforcement cooperative agreements with state and other federal agencies. In so doing, this Act strengthens the law enforcement operational capability of the Services by enabling them to disburse and use funds to facilitate various types of investigative efforts. The Act also authorizes funding for research and development of new methods to support fish and wildlife law enforcement.

The Services are responsible for initiating cooperative agreements under this Act. They also enforce these agreements by apportioning appropriated funds to other state and federal agencies.

5.3.4. Airborne Hunting Act. The Airborne Hunting Act (AHA) of 1971 is imbedded within the amended Fish and Wildlife Act of 1956. Among other things, this law directs the Secretary of the Interior to develop and carry out policies, procedures, and laws that ensure fish and wildlife resources will continue to contribute to the national economy, as well as the food supply, health, recreation, and well-being of U.S. citizens. Considered independently, the AHA prohibits harassing, capturing, and killing animals from aircraft regardless of whether these animals are protected by the ESA, and regardless of where the animals reside. In addition, regulations for implementing the AHA prohibit a person, while on the ground, from taking or attempting to take wildlife by aid of an aircraft. As such, this law clearly recognizes that the federal government has the authority to regulate the way states can harass and kill any wild animal.

The prohibitions of the AHA do not apply to state or federal employees, or persons acting under a permit, who are authorized to administer or protect land, water, wildlife, livestock, domesticated animals, human life or crops by the FWS. But each state that issues permits must file an annual report to the FWS. Among other things, the report must include a listing of permit holders, animals authorized to be taken, the animals actually taken, and the reason for issuing the permits.

FWS is responsible for implementing the AHA and issuing regulations associated with it. Authorized FWS employees who witness a violation of the Act may arrest the violator without a warrant, take the person to an officer or court, execute warrants to enforce the Act, and conduct searches. In addition, FWS may delegate enforcement authority to state law enforcement personnel.

5.3.5. Clean Water Act. This statute is designed to protect the physical, chemical, and biological integrity of all U.S. waterbodies.[114] It is implemented through cooperative federalism mechanisms (Craig 2004). It is relevant for post-delisting species management because water quality is, in essence, defined by its ability to support fishes. For water emanating from point sources of pollution, such as a manufacturing facility, a permit must be obtained from the U.S. Environmental Protection Agency that specifies how pollution will be controlled. For "nonpoint" sources such as overland water flow, pollution is controlled by implementing best management practices (BMPs). In Idaho, BMPs are mandatory for waterbodies affected by nonpoint source water pollution from forestry and mining activities, and voluntary for agricultural and grazing practices (see O'Laughlin 1996 [PAG #14]; Moseley et al. 1997 [PAG #15]).

5.4. Implications of Federal Laws for Federal Involvement in Species Management

Our federal laws pertaining to wild plants and animals are grounded in the U.S. Constitution, but are based fundamentally in statutes passed by Congress (legislative branch), signed into law or

enacted by the president (executive branch), and interpreted by courts (judicial branch). The statutory nature of federal wildlife law has at least three implications for continued federal involvement in species management. First, the U.S. Constitution is written in general language, and federal courts often have to interpret laws based on it. Thus the case law created by court decisions is pertinent to wildlife management.

Second, executive branch agencies are required to implement the statutory laws created by the legislative branch, and statutes often give these agencies the authority to write implementing regulations. Through rule-making such regulations become administrative law. For example, the ESA provides the Services with the authority to write implementing regulations. As a result, the policy for recovering species is made not so much by Congress, but by the Services during implementation (Brewer and Clark 1994). For example, in the case of habitat protection the ESA section 9 prohibition against "take" includes significant adverse modification of habitat through regulations the FWS wrote defining "harm." Based on its own interpretation, the FWS position has been that the critical habitat designation required by Congress under ESA section 4 is therefore redundant protection, and the agency uses this argument to justify why it does not designate critical habitat as the statute requires (see Appendix A).

Third, it is almost impossible to characterize in statutes the complexities of the natural world. This creates a paradox. Legal descriptions of ecological principles are almost always gross simplifications, yet the variation from one site to another is so great that as a law or regulation becomes more and more specific, the area it can realistically be applied to becomes smaller and smaller. Federal environmental laws are therefore purposefully vague and ambiguous, which gives executive branch agencies considerable flexibility in the way they construe and implement the laws.

A recurrent message throughout this report is that the delisting process and associated institutional responsibilities are in their infancy. The process is still evolving, being modified, and augmented every time a species meets recovery goals and is considered for delisting. The delisting process will continue to evolve at both the federal and state levels as species with different needs have recovered to the point where ESA protection is no longer required. This is particularly so for species that are habitat specialists and species that require regulatory mechanisms to ensure their perpetuation.

A recurrent message throughout this report is that the delisting process and associated institutional responsibilities are in their infancy. The process is still evolving, being modified, and augmented every time a species meets recovery goals and is considered for delisting.

5.5. Summary

Wildlife, although fugitive by their very nature, are generally considered to be the management responsibility of the state in which they reside, unless a federal law invokes a constitutional authority for federal intervention. Current laws of this nature include the ESA, which protects species at risk of extinction, as well as laws the protect eagles, migratory birds, and marine mammals. In addition, managers of National Forest System lands, which in Idaho are 38.6% of all the land in the state, must plan and manage to provide a diversity of plants and animals, including species-of-interest and species-of-concern as well as species-at-risk. States, however, are responsible for managing populations of species.

Chapter 6. Idaho Species That Might Be Delisted in the Near Future

Will some species in Idaho be delisted as a result of recovery in the foreseeable future? The answer to this question involves a degree of guesswork because current, in-depth reports about the status of listed species and recovery accomplishments are not readily available. Moreover, delistings will depend on the priority the Services assign them, as well as budget allocations to the Services for ESA-related activities. These variables are difficult to predict. Nevertheless, this chapter attempts to identify which species might soon be delisted in Idaho.

6.1. Idaho Species Recovery Potential

At this writing there are 1,264 U.S. species listed under the ESA (USFWS 2005e); 22 of them are in Idaho (Table 6-1). A key to recovering these species is implementing ESA recovery plans and attaining their objective criteria for delisting (Taylor et al. 2005).

The FWS and NMFS assign a species recovery priority number to listed species. Recovery priority numbers guide recovery plan development, recovery task implementation, and resource allocation.[115] The FWS uses an 18-point scale based on four factors for assigning a recovery priority number (Table 6-2). The four factors are degree of threat, recovery potential, taxonomic status, and conflict with development. The conflict factor gives priority within each category to those species that are, or may be, in conflict with construction or other development projects or other forms of economic activity.[116] The NMFS system is similar, but does not include taxonomy as a factor, resulting in a 12-point scale. The NMFS system also does not include a conflict factor.[117]

The recovery priority numbers assigned by the Services to listed species in Idaho are presented in Table 6-3. Of the 19 species with assigned recovery priority numbers, 12 faced or face a high degree of threat, five face a moderate degree of threat, and two face a low degree of threat. Most Idaho species have a high recovery potential. Only three species—Utah valvata snail, Idaho springsnail, and Snake River physa snail—have a low recovery potential. Most Idaho species are assigned a "C" category, which means they are in conflict with economic development and will receive priority in recovery planning and activity implementation compared to other species within the same category. Only four species—Water howellia, MacFarlane's four-o'clock, Banbury Springs limpet, and Canada lynx—are not classified as being in conflict with economic development.

The ESA requires that the Services report to the U.S. Congress every two years on the status of efforts to develop and implement recovery plans and the status of all species for which recovery plans have been developed. In Table 6-3, we provide the population status and estimated proportion of recovery objectives achieved for species listed in Idaho from the most recent reports to Congress (USFWS 2004i, NMFS 2003). Five of the 22 listed species in Idaho are improving, nine are stable, one is a mix of stable and improving status, five are declining, and the status of three species is unknown (Table 6-3).

Supplementing Table 6-3 with information in species recovery plans, other federal and state documents, and research literature, we made educated guesses about the potential for recovery and delisting of the 22 listed species in Idaho. In sum, we believe six species are potentially recoverable in the near future, 15 are not, and one species may be delisted due to a listing error (Table 6-4). Details pertinent to our guess about each of these 22 species are provided in the following subsections.

Our analysis suggests that six of the 22 listed species in Idaho have the potential to meet recovery goals and become candidates for delisting in the near future.

6.1.1. Species Potentially Recoverable in the Foreseeable Future (N=6). Our analysis suggests that six of the 22 listed species in Idaho have the potential to meet recovery goals and become candidates for delisting in the near future. They are as follows.

• **Bald Eagle.** Proposed for delisting by the FWS in 1999, today the bald eagle remains on the list as a threatened species. We are optimistic that this test case for delisting (see Sidebar 6-1) will have a favorable outcome and that soon our nation's symbol will fly off the list.

• **Gray Wolf**. The success of the experimental nonessential program (in ESA section 10(j)) to reintroduce wolves to the large wilderness areas in central Idaho and to the Yellowstone ecosystem is well-documented (see, for example, USFWS et al. 2004). In addition, native wolf populations in northern Montana—the same population that wolves north of Interstate 90 in Idaho are classified as a part of—have rebounded. In 2003, the FWS downlisted wolves in the Western Distinct Population Segment

Table 6-1. Idaho species listed under the ESA as threatened (N=12) or endangered (N=10).

Species	Status[1]	Date Listed	Reference (*Fed Reg*)
Mammals (N=5)			
• Canada lynx (*Lynx canadensis*)	T	03/24/00	65 FR 16051
• Gray wolf (*Canis lupus*)[2]	E (Exp)	03/1/67	32 FR 4001
• Grizzly bear (*Ursus arctos horribilis*)	T	07/28/75	40 FR 31734
• Northern Idaho ground squirrel (*Spermophilus brunneus brunneus*)	T	04/05/00	65 FR 17779
• Woodland caribou (*Rangifer tarandus caribou*)	E	01/14/83	48 FR 1722
Birds (N=2)			
• Bald eagle (*Haliaeetus leucocephalus*)	T [downlisted from E]	03/11/67 [04/12/95]	32 FR 4001 [60 FR 35999]
• Whooping crane (*Grus americana*)	E (Exp)	03/11/67	32 FR 4001
Fishes (N=5)			
• Bull trout (*Salvelinus confluentus*)[3]	T		
Columbia River DPS		06/10/98	63 FR 31647
Jarbridge River DPS		04/08/99	64 FR 17110
• Chinook salmon (fall; spring/summer)[4] (*Oncorhynchus tshawytscha*)	T	04/22/92	57 FR 14653
• Sockeye salmon (*Oncorhynchus nerka*)	E	01/03/92	57 FR 212
• Steelhead (*Oncorhychus mykiss*)	T	06/17/98	63 FR 32996
• White sturgeon (Kootenai River) (*Acipenser transmontanus*)	E	09/06/94	59 FR 45989
Invertebrates (N=6)			
• Banbury Springs limpet (*Lanx* sp.)	E	12/14/92	57 FR 59244
• Bliss Rapids snail (*Taylorconcha serpenticola*)	T	12/14/92	57 FR 59244
• Bruneau hot springsnail (*Pyrgulopsis bruneauensis*)	E	01/25/93	58 FR 5938
• Idaho springsnail (*Pyrgulopsis idahoensis*)	E	12/14/92	57 FR 59244
• Snake River physa snail (*Physa natricina*)	E	12/14/92	57 FR 59244
• Utah valvata snail (*Valvata utahensis*)	E	12/14/92	57 FR 59244
Plants (N=4)			
•MacFarlane's four-o'clock (*Mirabilis macfarlanei*)	T [downlisted from E]	10/26/79 [03/15/96]	44 FR 61912 61 FR 10693
•Spalding's catchfly (*Silene spaldingii*)	T	10/10/01	66 FR 51598
•Ute ladies'-tresses (*Spiranthes diluvialis*)	T	01/17/92	58 FR 2048
•Water howellia (*Howellia aquatilis*)	T	07 14/94	59 FR 35860

[1] T = Threatened, E = Endangered (ESA § 3); Exp = Experimental population (ESA § 10(j)).

[2] Gray wolves north of Interstate 90 are listed as endangered. A final rule to downlist them to threatened status (68 FR 15803, 04/01/03) was vacated by an Oregon district court decision on 01/31/2005 (Civil No. 03-1348-JO). Gray wolves south of Interstate 90 are an experimental, nonessential population.

[3] Bull trout in Idaho are listed as Columbia River and Jarbridge River distinct population segments (DPS).

[4] The fall and spring/summer runs of Snake River chinook salmon are considered as separate evolutionarily significant units (ESUs) by NMFS, and are identified as different species by the FWS.

(DPS) from endangered to threatened, although a 2005 Oregon district court decision[118] vacated that rule and these wolves are now listed as endangered (USFWS 2005i).

The gray wolf recovery plan for the northern Rocky Mountains requires that each of the three states in the region—Idaho, Montana, and Wyoming—have Service-approved management plans for wolves post-delisting (USFWS 1987). The management plans for Idaho (ILWOC 2002) and Montana have been approved. The FWS found the Wyoming plan lacking. This is currently the subject of litigation. In January 2005, the Service published regulations expanding the authority of the states of

Table 6-2. Recovery priority number ranking system used by the U.S. Fish and Wildlife Service.

			Recovery Priority Number	
Degree of Threat	Recovery Potential	Taxonomy	Priority	Conflict
High	High	Monotypic genus	1	1C
High	High	Species	2	2C
High	High	Subspecies	3	3C
High	Low	Monotypic genus	4	4C
High	Low	Species	5	5C
High	Low	Subspecies	6	6C
Moderate	High	Monotypic genus	7	7C
Moderate	High	Species	8	8C
Moderate	High	Subspecies	9	9C
Moderate	Low	Monotypic genus	10	10C
Moderate	Low	Species	11	11C
Moderate	Low	Subspecies	12	12C
Low	High	Monotypic genus	13	13C
Low	High	Species	14	14C
Low	High	Subspecies	15	15C
Low	Low	Monotypic genus	16	16C
Low	Low	Species	17	17C
Low	Low	Subspecies	18	18C

Source: 48 FR 43098.

Idaho and Montana to manage wolves, including a more flexible approach to controlling livestock depredation.[119]

On July 19, 2005 the state of Wyoming filed a petition to delist gray wolves in the northern Rockies (Moen 2005). In response to this and another petition, the FWS issued a 90-day finding on October 17, 2005 that substantial information exists to indicate that delisting may be warranted and a 12-month status review will begin (USFWS 2005j; see sections 1.4.1, 1.4.2).

• **Northern Idaho Ground Squirrel**. This small mammal inhabits a small portion of west central Idaho. It was listed as threatened in 2000, and its recovery plan was completed in 2003 (USFWS 2003b). Efforts to promote the species' recovery include a conservation agreement with the Payette National Forest and a safe harbor agreement with a private landowner (USFWS 2000b).

The squirrel population is currently stable, but at a low number of squirrels. Between 1985 and 1999 the population experienced a 92% decline, but such fluctuations are common with rodents because they respond rapidly—positively or negatively—to environmental changes (Sherman and Runge 2001, 2002; Sherman et al. 2001; Haak et al. 2001; USFWS 2003b). If recovery actions are implemented in a timely manner and produce positive responses, FWS estimates that delisting could be initiated in 2010 (USFWS 2003b).

• **MacFarlane's Four-O'Clock**. This small purple flowering plant inhabits steep terrain in the Hells Canyon area. It was listed as endangered in 1979. Following the discovery of additional

Table 6-3. Recovery priority number, population status, and recovery objective achievement for listed threatened and endangered species in Idaho (as of September 30, 2002).

Species	Recovery priority number	Population status[1]	Proportion of recovery objectives achieved[2]
Bald eagle	14C	Improving	4
Gray wolf	3C	Improving	4
Water howellia	7	Improving	4
Chinook salmon (fall; spring/summer)	NA[3]	Improving	NA[5]
Grizzly bear	3C	Stable	2
MacFarlane's four-o'clock	2	Stable	2
Whooping crane[4]	2C	Stable	2
Bull trout	9C	Stable	1
Banbury Springs limpet	8	Stable	1
Bliss Rapids snail	7C	Stable	1
Utah valvata snail	5C	Stable	1
Idaho springsnail	5C	Stable	1
Northern Idaho ground squirrel	3C	Stable	1
Steelhead	NA[3]	Mixed	NA[5]
Woodland caribou	3C	Declining	1
White sturgeon (Kootenai River)	3C	Declining	1
Snake River physa snail	5C	Declining	1
Bruneau hot springsnail	2C	Declining	1
Spalding's catchfly	8C	Declining	1
Ute ladies'-tresses	2C	Unknown	1
Canada lynx	15	Unknown	1
Sockeye salmon	NA[3]	Unknown	NA[5]

[1] Population trend for species throughout its entire current listed range, not just in Idaho.
[2] 1 = 0% to 25% of recovery objectives achieved; 2 = 26%-50%; 3=51%-75%; 4 = 76%-100%; NA = recovery objectives not established due to lack of recovery plan.
[3] Not available. NMFS uses a 12-point recovery priority system and has not assigned numbers to these species.
[4] Population no longer exists in Idaho.
[5] Recovery plan has not been developed.
Sources: USFWS 2004i, NMFS 2003.

populations, the species was downlisted to threatened in 1996. A revised recovery plan was issued in 2000 (USFWS 2000a). Most populations and habitat occur on federal lands managed by the U.S. Forest Service and the Bureau of Land Management. Both of these agencies have undertaken conservation efforts to recover the species, including improved livestock grazing management (Mancuso 1996). Transplanting also has been successful (USFWS 2000a).

Table 6-4. Recovery outlook for Idaho's threatened and endangered species.

Species	Primary reasons for outlook
Species potentially recoverable in foreseeable future:	
Bald eagle	• Proposed for delisting since 1999.
Gray wolf	• Recovery goals met. • State management plan approved.
Northern Idaho ground squirrel	• Habitat protection and management agreements with U.S. Forest Service and private landowners.
MacFarlane's four-o'clock	• New populations discovered.
Ute ladies'-tresses	• New populations discovered. • Under review for delisting.
Water howellia	• New populations discovered (outside Idaho).
Species not recoverable in foreseeable future:	
Bruneau hot springsnail	• Groundwater levels not stabilized.
Bull trout	• Recovery plan not finalized. • Some recovery units may reach goals, but others will not.
Canada lynx	• No recovery plan.
Grizzly bear	• Population declines in Selkirk and Cabinet-Yaak recovery units. • No re-introduction into Selway-Bitterroot area.
Snake River salmon (2 species) and steelhead	• No recovery plans. • Complex recovery issues: habitat, harvest, hatcheries, hydropower.
Snake River snails (4 species)	• Water use issues.
Spalding's catchfly	• No recovery plan. • Declining status of some populations.
White sturgeon (Kootenai River)	• Water issues.
Whooping crane	• Historically very rare in Idaho. • Experimental population a failure.
Woodland caribou	• Population declining. • No final objective for delisting.
Species potentially delisted in the foreseeable future due to listing error:	
Idaho springsnail	• Taxonomic revision.

• **Ute Ladies'-Tresses**. This small orchid with clustered white or ivory flowers was listed as threatened in 1992. A draft recovery plan was completed in 1995 (USFWS 1995b), but was not finalized. In 1996, FWS received a petition to delist the species, but delayed action because funding priorities at that time favored listing species. In 1999, delisting species became a higher priority, but other work precluded action on the delisting petition for the Ute ladies'-tresses. In October 2004, FWS acted on the delisting petition, concluding that delisting may be warranted and commencing the 12-month status review period.[120]

Sidebar 6-1. Bald Eagle: An ESA Recovery Success and Delisting Failure

In 1963, the bald eagle had declined from as many as 100,000 nesting eagles in the conterminous 48 states to only 417 nesting pairs. In 1967 the eagle was listed under the Endangered Species Preservation Act of 1966, and in 1978, listed under the ESA as threatened in Michigan, Minnesota, Oregon, Washington, and Wisconsin, and endangered in the remaining 43 conterminous states. In 1995 the species was downlisted to threatened status throughout the lower 48 states. In July 1999, President Clinton heralded the FWS proposal[121] to delist "our proudest living symbol." He said, "The American bald eagle is back from the brink of extinction, thriving in virtually every state of the union" (USFWS 1999a). Secretary of the Interior Bruce Babbitt said, "Once again we have shown that this landmark law [the ESA] works" (USFWS 1999a). Many newspapers proclaimed bald eagle recovery as an ESA success story.

In 1999 roughly 5,700 breeding pairs existed in the lower 48 states. Numeric population criteria in the recovery plan had been reached or were expected to be reached within a year in every recovery region. Today more than 7,600 breeding pairs are in the lower 48 states (Environmental Defense 2004). The FWS has stated that ESA protection is no longer appropriate (USFWS 2004k). The Bald and Golden Eagle Protection Act of 1940 and Migratory Bird Treaty Act of 1918 provide regulatory mechanisms prohibiting "taking" of eagles. Yet today the bald eagle remains on the list of ESA-protected species.

Environmental Defense (2004), a national citizen conservation group, is insisting that the eagle be delisted. Michael Bean, chair of the group's wildlife program, stated that "government foot-dragging is what's keeping the bird on the ESA list. This is not a failure of the Act, it's a failure of the bureaucracy to push the paper to accomplish the delisting." Colin Rowan, Bean's colleague, said "If the government is not willing to declare a victory when they've won, it's hard to instill confidence in landowners." He feels that delisting is important because it sends a signal to landowners who must deal with endangered species that conservation labors can pay off in the form of reduced government oversight (McMillion 2004).

At a conference marking the 30th anniversary of the ESA in December 2003, former Secretary Babbitt was asked what the proposed delisting of the eagle in 1999 and subsequent failure to do so illustrates about the ESA. He said, "The Fish and Wildlife Service is understandably very reluctant to let loose ... particularly where there are not strong state laws that get to the underlying habitat problem. Having said that, I don't think it's a major issue" (Babbitt 2003). Following up, Gary Frazer, FWS Assistant Director for Endangered Species, said that subsequent to the 1999 proposal, the agency found that the Bald and Golden Eagle Protection Act of 1940 was not the regulatory mechanism they thought it would be (personal communications, Dec. 13, 2003). The primary reasons why delisting has not occurred appear to be concerns about habitat protection (Watts 1999) and the adequacy of regulatory mechanisms that would be in place following delisting to protect habitat (Jamieson 2004).

Critical habitat has not been designated for the bald eagle. Although one might be tempted to argue that if special habitat protection is not essential for recovery of the species it should not be essential for delisting, the FWS position that critical habitat designation is a low priority activity for the agency offers an effective rebuttal. Recovery teams and some states have developed habitat management guidelines emphasizing the importance of protective buffer areas around eagle nesting and winter roosting trees, which are usually large conifers. The FWS has stated that acquisition and management of bald eagle habitat by all levels of government and private organizations will aid in reducing habitat loss as a threat (USFWS 2004k).

Because Environmental Defense has thrown its weight behind delisting, we are optimistic that the bald eagle will fly off the list in the near future. But if the FWS continues to insist on assurances from nonfederal landowners that large trees and buffers will be set aside for the birds, our hopes for delisting diminish. National Wildlife Federation counsel Tom France of Missoula, Montana, described a citizen group's lawsuit challenging wolf delisting as "trying to snatch defeat from the jaws of victory." That seems to apply to the way the FWS has proceeded with bald eagle delisting. There are federal safeguards in place—eagles have special statutory protection against "taking" and if the species is delisted, the FWS must oversee monitoring programs for a minimum of five years, which when combined with potential ESA relisting if eagle numbers get too low, provides a mechanism to safeguard the bald eagle's future.

New information indicates that the population size and distribution for the species are much larger than known at the time of listing. More information also is available on life history and habitat needs, allowing better management. Also, threats are not as great in magnitude or imminence as understood at the time of listing.[122]

• **Water Howellia**. This plant was listed as threatened in 1994. A draft recovery plan was completed in 1996 (USFWS 1996), but has not yet been finalized. Nevertheless the FWS reports that at least 75% of its recovery objectives have been completed and the population status is improving (Table 6-3, USFWS 2004i).

New populations of the species have been discovered in California (Isle 1997) and eastern Washington (Bursik 1995). However, only one population is known to exist in Idaho (Lichthardt and Moseley 2000, USFWS 1996), despite extensive surveys in areas of potential habitat (Bursik 1995). The Flathead National Forest in western Montana contains several populations and amended its NFMA plan in 1996 to include a conservation strategy for the species (USFWS 1996). Recovery and delisting may occur in the foreseeable future due to improvements in populations in states other than Idaho.

6.1.2. Species Not Potentially Recoverable in the Foreseeable Future (N=15). The species we do not feel have the potential for recovery in the near future are as follows.

• **Bruneau Hot Springsnail.** This tiny snail, about twice the size of President Franklin Roosevelt's ear on a dime, was listed as endangered in 1993, and its recovery plan was finalized in 2002 (USFWS 2002c). The existence of this species depends on the thermal aquifers along the Bruneau River and Hot Creek in southwestern Idaho. The quantity of spring flows associated with these aquifers continues to decline as a result of groundwater withdrawals for agriculture and mining. Accordingly, habitat loss is cited as a major reason for declining numbers (Rugenski and Minshall 2003). Current populations at some sites are at their lowest numbers of the past decade (Rugenski and Minshall 2003). Experimental recolonization efforts have been successful, but only with the use of fish exclosures to eliminate predation by tilapia, an exotic fish. In the presence of tilapia, springsnails appear unable to survive (Rugenski and Minshall 2003).

Because habitat is distributed patchily and populations are thus spatially separated along the Bruneau River, it is possible that unique gene pools and thus different species or subspecies of springsnails exist within the drainage. More information regarding population dynamics and genetics is needed before large scale reintroductions can be carried out (Rugenski and Minshall 2003).

• **Bull Trout.** The Columbia River distinct population segment (DPS) of bull trout was listed as threatened in 1998. The Columbia River DPS includes the Snake River and its major tributaries in Idaho, as well as tributaries to the upper Columbia River including the Kootenai and Pend Oreille Rivers in northern Idaho. The Jarbidge River DPS of bull trout, in southern Idaho, was listed as threatened in 1999. A draft recovery plan for the Columbia River DPS was released in 2002 (USFWS 2002b) and for the Jarbidge River DPS in 2004 (USFWS 2004e), but neither draft plan has been finalized.

For recovery purposes the draft recovery plan divides the Columbia River DPS into 22 recovery units. All or parts of 10 of those recovery units are located within Idaho (USFWS 2002b). The determination of whether a distinct population segment of bull trout is recovered will rely on analysis of its overall status, not the achievement of all recovery criteria in all recovery units. For example, it may be possible for the Columbia River DPS to be recovered prior to all recovery criteria being met in all 22 recovery units. Success in attaining the recovery criteria will be reviewed and considered for the impacts both within a recovery unit and throughout a DPS (USFWS 2002b). The Jarbidge DPS can be considered for delisting separately from the Columbia River DPS (USFWS 2004e).

The state of Idaho created a bull trout conservation plan in 1996 in a effort to prevent the listing of bull trout (Batt 1996). State officials have expressed concern about the extent of the Columbia River DPS, as it consists of healthy and struggling populations. Lumping them into one DPS prevents the delisting of fish where and when it may be warranted (Caswell 2003). It seems likely the bull trout will remain on the threatened species list, at least in some river basins, for the foreseeable future.

• **Canada Lynx.** This large cat was listed as threatened in 2000. A court decision[123] forced the Service to reconsider the listing, but did not change the status of the species.[124] However, the court action has delayed the development of a recovery plan for the lynx. The Service plans to establish a lynx recovery team and prepare a recovery plan (USFWS 2004g), but no plan exists at this time.

• **Grizzly Bear.** The grizzly bear was listed as threatened in 1975, and the most recent revision of its recovery plan was finalized in 1993 (USFWS 1993). The recovery plan allows individual bear populations to be delisted once recovery criteria for that population are met. Parts of Idaho are included in the recovery areas for four of six grizzly bear populations identified in the recovery plan: Selkirk, Cabinet-Yaak, Selway-Bitterroot, and Yellowstone (MacCracken et al. 1994 [PAG #12]).

The population in the Yellowstone ecosystem has been recovering with numbers and distribution exceeding target recovery levels for the last several years (USFWS 2004f). The grizzly is also doing well in the Northern Continental Divide ecosystem. Recovery work continues to reduce grizzly bear mortalities and ensure habitat standards for maintaining a recovered population. A conservation strategy for managing the Yellowstone population in the future once it is recovered and removed from federal ESA protection was finalized in March 2003 and includes a management plan for the state of Idaho (Interagency Conservation Strategy Team 2003, Idaho's Yellowstone Grizzly Bear Delisting Advisory Team 2002).

Grizzly bear populations in the Selkirk and Cabinet-Yaak ecosystems continue to experience problems (Wakkinen and Kasworm 2004). In May 1999, the Service found the reclassification of these populations from threatened to endangered to be warranted, but precluded by work on other higher priority species.[125] Delisting of these Idaho populations due to recovery is not likely in the foreseeable future.

The recovery plan identifies the Selway-Bitterroot area as having suitable habitat and space, but few if any bears present. One goal of the recovery plan is to establish grizzly bear populations in all the ecosystems that are known to have suitable space and habitat. However, the recovery plan does not mention any recovery goals, objectives, or criteria for the Selway-Bitterroot population. In 2000, the Service decided to establish a non-essential, experimental population of grizzly bears in the Selway Bitterrroot ecosystem.[126] However, that decision was opened for reevaluation in June 2001[127] and no grizzly bears have been reintroduced into the Selway-Bitterroot ecosystem.

• **Snake River Salmon (2 species) and Steelhead**. The Snake River sockeye salmon was listed as endangered in early 1992, and soon followed by the Snake River chinook salmon (spring/summer and fall runs) which are listed as threatened. The Snake River Basin population (technically, the evolutionary significant unit (ESU)) of West Coast Steelhead was listed as threatened in 1997.

None of the salmon or steelhead in Idaho has a recovery plan. The Federal Caucus, made up of numerous federal action and regulatory agencies, completed its latest recovery strategy for all Columbia River basin salmon and steelhead in 2000 (Federal Caucus 2000), but NMFS still must develop and approve a recovery plan for each listed ESU. NMFS released an updated biological opinion ("BiOp") on dam operation on the Columbia and Snake Rivers in November 2004 (NMFS 2004a). It was to provide guidance for developing recovery plans but was challenged by a lawsuit. The court ordered a different plan for dam operations. NMFS had planned to develop draft recovery plans in 2005 (Federal Caucus 2004), but court orders regarding the BiOp have forestalled that goal. Salmon and steelhead recovery will be a complex process involving management of hatcheries, habitat, harvest, and hydropower (Federal Caucus 2000). These factors and the lack of a recovery plan make delisting in the near future unlikely.

• **Snake River Snails (4 species).** Five species of aquatic snails inhabiting the Snake River in southern Idaho were listed in 1992. Four of them were listed as endangered (Idaho springsnail, Utah valvata snail, Snake River physa, and Banbury springs limpet), and one was listed as threatened (Bliss Rapids Snail). A multi-species recovery plan for all five was completed in 1995 (USFWS 1995a). We consider the potential for delisting the Idaho Springsnail in the next section.

Recovery of the snails involves control of water pollutants, particularly from agriculture, entering the Snake River, and control and augmentation of water supplies in the Snake River basin (USFWS 1995a). Also, five hydroelectric projects on the Snake River operated by Idaho Power Company are within the range of the snails and affect their habitats. These projects are subject to licensing by the Federal Energy Regulatory Commission (FERC).

The 2002 environmental impact statement for project relicensing concluded that project operations would likely adversely affect some of the snail species at some of the projects (FERC 2002). Formal consultation with FWS led to a settlement agreement between Idaho Power and the Service. Idaho Power, in cooperation with FWS, agreed to a six-year study period of the effects of its operations on the listed snails. At the end of the study period, Idaho Power is required to submit a snail protection plan. In its biological opinion, FWS determined that some

projects would adversely affect some snail populations, but none would jeopardize the species (FERC 2004a, b, c, d, e).

In September 2004, Idaho Rivers United filed a complaint in U.S. District Court charging that the biological opinion was legally and scientifically inadequate (Borovansky 2004). Idaho Rivers United has also filed a rehearing request with FERC challenging the validity of the project licenses.

The Idaho Governor's Office of Species Conservation includes delisting of the Bliss Rapids snail as a goal in its 2005-2008 strategic plan (OSC 2004). However, no more details about accomplishing this task are provided. In addition, in July 2004, FWS announced the beginning of a 5-year review of the status of the Bliss Rapids snail.[128]

• **Spalding's Catchfly.** This small carnivorous plant was listed as threatened in 2001. The Service announced the beginning of the recovery planning effort in February 2004 (USFWS 2004h). Until recovery goals are identified it is not feasible to assess prospects for recovery and delisting.

• **White Sturgeon (Kootenai River Population).** The segment of the Kootenai River downstream from Libby Dam in northwestern Montana flows through northern Idaho and has a population of white sturgeon that was listed as endangered in 1994. Its recovery plan was completed in 1999 (USFWS 1999b). Recovery requires management of water levels and flow regimes and habitat. Juveniles of the species take a long time to mature (16-22 years), the species is long-lived (34-70 years), and reproduction frequency is low (2-11 years). A minimum of 25 years following implementation of the recovery plan will be required before delisting the species can be considered (USFWS 1999b).

• **Whooping Crane**. This large migratory bird was listed as endangered throughout the United States in 1970. A new draft revision of the recovery plan was released in January 2005 (USFWS 2005d).

The cranes are listed in Idaho because an experimental population was introduced into the state as part of a reintroduction effort throughout the Rocky Mountains in 1975.[129] A "cross-fostering" program was attempted at Grays Lake National Wildlife Refuge in southeastern Idaho. The program was unsuccessful and hence terminated in 1989. Currently, no whooping cranes are known to exist in Idaho. Although population levels are stable elsewhere (USFWS 2004i), the recovery plan does not anticipate downlisting to threatened status until at least 2035; delisting, if ever, is thus far into the future (USFWS 2005d).

• **Woodland Caribou**. The population of woodland caribou in northern Idaho's Selkirk Mountains was emergency listed as endangered in 1983. A formal endangered listing followed in 1984.[130] The recovery plan was completed in 1994 (USFWS 1994). The Selkirk Mountains are at the southern end of this species' current range. The recovery area for the Selkirk population is approximately 2,200 square miles in northern Idaho, northeastern Washington, and southern British Columbia; 47% of the recovery area is in Canada and 53% in the U.S. (USFWS 1994). In addition to the U.S. recovery plan, the government of British Columbia has developed a recovery strategy (Mountain Caribou Technical Advisory Committee 2002).

The south Selkirk population was estimated at 25 animals in 1983. Population augmentation took place in the Ball Creek drainage of northern Idaho in 1987 (24 animals), 1988 (24 animals), 1990 (12 animals). In 1996 and 1997 the population was augmented with 19 and 13 animals, respectively, in the Colville National Forest of northeastern Washington. In 1998, 11 animals were released in Stagleap Park, British Columbia (USDA-FS 2004).

Between 1967 and 1999 a total of 80 caribou mortalities were documented. Eleven deaths were caused by predation, 25 by poaching, 8 by natural causes, 4 from vehicle collisions, and 29 from unknown causes (USDA -FS 2004). Concerns about winter recreation, access roads, and timber harvest remain.

As of 2003, an estimated 41 caribou inhabit the southern Selkirk Mountains. Of these, only one animal was a permanent resident in the U.S.; all others were migratory and thus spent parts of the year in Canada. The south Selkirk population is considered stable in the short term (USDA-FS 2004), but that has only been achieved through population augmentation. Recovery and delisting appear to be a long way off.

6.1.3. Species Potentially Delisted in the Foreseeable Future Due to Listing Error (N=1).

• **Idaho springsnail.** This springsnail is one of five species of aquatic snails that inhabit the Snake River in southern Idaho that were listed in 1992. It is listed as endangered.

In June 2004, the Idaho Governor's Office of Species Conservation and Idaho Power Company filed a petition with FWS asking that the species be delisted due to a change in its taxonomic status.[131] The petitioners argued that the Idaho springsnail and three other springsnails were one species and that

populations of the species ranged broadly across the northwestern U.S. and were not endangered. In a countermove in August 2004, another group of petitioners asked FWS to list the three other species of springsnails in addition to the Idaho springsnail.

In April 2005, FWS announced 90-day findings for both petitions, finding that both had merit, and initiated two 12-month status reviews.[132] In addition, the FWS chose to initiate and conduct a 5-year status review for the Idaho springsnail at the same time. The outcome of these reviews will determine if the Idaho springsnail can be delisted.

6.2. Summary

Recovery and delisting of threatened and endangered species is the ultimate goal of the ESA. We used the Service's species status reports to Congress, recovery plans, other federal and state documents, and research literature, to make educated guesses about the potential for recovery and delisting the 22 listed species in Idaho. In sum, we believe seven species are potentially delistable in the near future—bald eagle, gray wolf, northern Idaho ground squirrel, Idaho springsnail, MacFarlane's four-o'clock, Ute ladies'-tresses, and water howellia. All but the Idaho springsnail are due to recovery efforts. The other 15 species listed in Idaho will probably continue to need the ESA's protections for the foreseeable future.

Chapter 7. Alternative Approaches to Recovering Species and Managing Them After Delisting

Implementation of the ESA as a means of recovering species is often considered to be problematic. Critics of the recovery process point out that implementation has produced few successes, and that these have taken too long to achieve (Rohlf 2004, Clark and Wallace 2005).

In this concluding chapter, we review some new ideas that would promote recovery and delisting and the management of risks that undergird the factors that imperil species. We base some of these ideas on papers presented at a conference marking the 30th anniversary of the ESA (Goble et al. in press), a manuscript stemming from that conference by ESA scholars offering a negotiated recovery management agreement (RMA) as a new approach (Scott et al. 2005), and a forthcoming PAG report on risk assessment (O'Laughlin 2005c).

We also review new ideas about dealing with ESA land-use problems and analyze alternative ways to surmount the "regulatory mechanism" barrier to delisting when habitat modification is an identified threat. Finally, delisting issues involve trust—trust that the Services have not abandoned adequate concern for the species, and trust that some nonfederal entity will continue to oversee efforts to assure that the species can survive the pressures of economic growth and development without ESA protection. We review some ideas about building trust during ESA implementation that promote recovery and delisting.

One strategy to avoid the dilemmas of the ESA and recovery entirely is to protect species and their habitats before they become threatened or endangered.

7.1. Comprehensive Wildlife Conservation Strategy to Avoid ESA Listing

One strategy to avoid the dilemmas of the ESA and recovery entirely is to protect species and their habitats before they become threatened or endangered. Proactive conservation efforts can prevent species declines with less cost and regulation than required by the ESA (IDFG 2005b). To receive federal grants under a 2001 program, a state must develop a Comprehensive Wildlife Conservation Strategy (CWCS; see section 4.2.3.3 for details).

The Idaho Department of Fish and Game (IDFG) is in the process of preparing the state's CWCS, which is due to the FWS by October 1, 2005. As part of developing the CWCS, IDFG must identify species in the greatest need of conservation (IDFG 2005b). Species that exist in Idaho and are globally imperiled, but not yet protected under the ESA may be candidates for receiving proactive conservation efforts under the CWCS (Table 7-1).

7.2. Rethinking the Recovery Concept—Conservation Reliant Species

Some scholars suggest that most threatened and endangered species will continue to need some active management after recovery goals have been met (e.g., Cheever 2001, Doremus 2000, Rohlf 2004). These species have been termed "conservation reliant" by Scott et al. (2005). Recovery requires that in addition to meeting population goals, the endangerment factors that put listed species at risk must be abated. For conservation reliant species, a continuing degree of habitat management, laws and regulations affecting harvest, and/or control of diseases and predation may be needed after delisting to keep the species from returning to imperiled status.

The amount of active management needed to perpetuate species following recovery can be described on a continuum (Figure 7-1; Scott et al. 2005). At one end are species that occur only in captivity. These species depend on captive breeding for their survival. For these species, reliance on captive breeding to reach numeric population goals would not be considered recovery. For example, the California condor (*Gymnogyps californianus*) could not be considered recovered until it can sustain itself in the wild. Today, it is maintained in zoos and captively bred; fledglings that have been released into the wild have yet to establish viable populations.

At the other end of the continuum are species for which viable populations and adequate habitat can be maintained under existing regulatory mechanisms other than the ESA. The peregrine falcon is one such species. In between the two ends of the continuum are species that require either recurrent intervention to maintain desirable ecological processes (e.g., hydropower system operations modification for salmon or sturgeon in Idaho) or continuous intervention to decrease one of the endangerment factors such as habitat modification, predation or disease (e.g., forest management to meet the habitat needs of lynx or caribou in Idaho).

Species could be considered recovered when population augmentation for demographic purposes is no longer necessary, even though other active

Table 7-1. Globally imperiled species (G1 and G2) in Idaho not currently listed as threatened or endangered..

Scientific name	Common Name	Global Rank[1]
Spermophilus brunneus endemicus	Southern Idaho ground squirrel	G2
Cicindela columbica	Columbia River tiger beetle	G2
Cicindela arenicola	Idaho Dunes tiger beetle	G1
Cicindela waynei	Bruneau Dunes tiger beetle	G1
Glacicavicola bathyscioides	Blind Cave leiodid beetle	G1
Acrolophitus pulchellus	Idaho point-headed grasshopper	G1
Discus marmorensis	Marbled disc	G1
Cryptomastix magnidentata	Mission Creek Oregonian	G1
Oreohelix idahoensis idahoensis	Costate mountainsnail	G1
Oreohelix vortex	Whorled mountainsnail	G1
Oreohelix waltoni	Lava Rock mountainsnail	G1
Fisherola nuttalli	Shortface lanx	G2

[1]The network of Natural Heritage Programs and Conservation Data Centers ranks the rangewide (global rank) status of plants animals, and plant communities on a scale of 1 to 5.
G = Global rank indicator.
1 = Critically imperiled because of extreme rarity or because some factor of its biology makes it especially vulnerable to extinction.
2 = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction.

Sources: IDFG 2005c, 2005d

management activities may be necessary to sustain the species in the wild (Figure 7-1; Scott et al. 2005). Population augmentation to increase genetic diversity would not disqualify a species from being considered recovered. Continuous intervention into habitat management, such as continually adjusting water flows from dams, or periodic intervention, such as yearly prescribed fire, also would not disqualify a species from being considered recovered. Species that require non-ESA regulation to protect habitat or prevent killing also would be considered recovered. It is doubtful that we could "walk away" from any species that has been endangered or threatened and not consider having in place some degree of assurance that species and habitat management needs would be adequately provided after species have been delisted (Scott et al. 2005).

We have estimated the degree of active management necessary to recover the 22 Idaho species listed under the ESA and placed them along the recovery continuum (Figure 7-1). Aquatic species, such as fish and snails, will require the highest degree of active management, particularly of their habitats, in order to avoid a relisting. Plant species will tend to require the least active management, generally some form of habitat protection. Some large mammals, including gray wolf and grizzly bear, will rely more on regulation to avoid intentional harvest or accidental killing than they will on active habitat management.

The recovery continuum represents only one idea about how recovery planning might be modified in the future. It and other ideas may increase the likelihood of more threatened and endangered species in Idaho being delisted in the future.

7.3. Improving Recovery Planning

The ESA mandates that the Service "develop and implement" recovery plans for listed species,

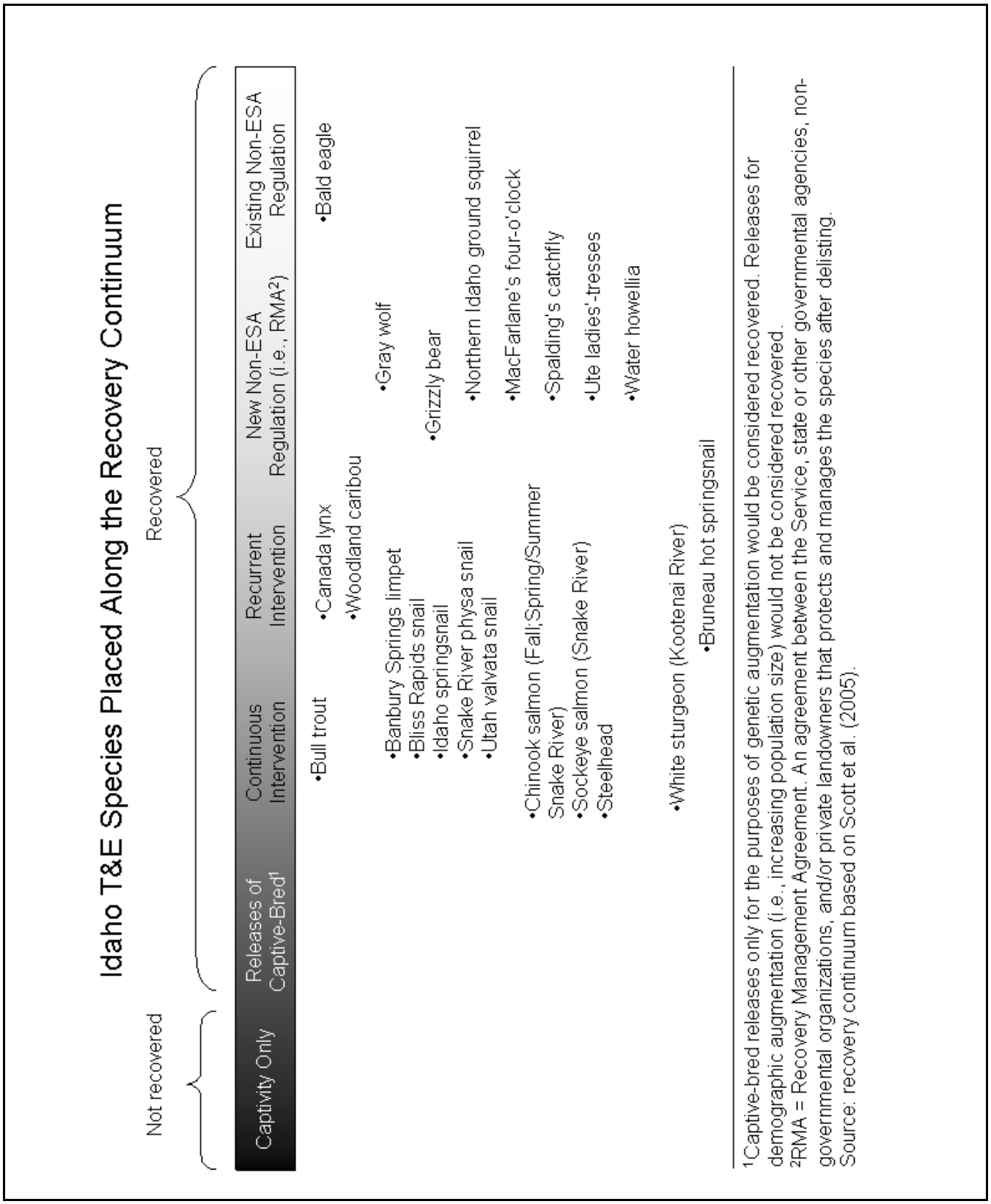

Figure 7-1. Idaho threatened and endangered species placed along recovery continuum.

unless the Service determines that such plans "will not promote conservation of the species."[133] We view recovery plans as a key ingredient to success in achieving the ESA's goals. The recovery plan is the link between listing and delisting.

As noted in Chapter 6, several listed species in Idaho do not have an ESA recovery plan. Some species lack recovery plans because of shifting ESA program priorities within the Services and limited funding. However, recent emphasis on recovery planning has increased the number of species with recovery plans. In 1994, only 54% of listed species had recovery plans; currently, 82% of the 1,264 listed species do (USFWS 2004d).

Despite recent emphasis, recovery plans are widely considered to be the weakest of ESA program mechanisms (Bean 1999, Volkman 2002). Numerous professional scientific and academic organizations have offered advice about how to improve recovery planning. For example, a committee of biologists empaneled by the National Academy of Sciences (NRC 1995) suggested risk assessments (see section 7.8.2 below), a habitat-based approach to recovery (see section 7.5 below), guidelines identifying activities that are consistent with recovery objectives, and delisting criteria developed by recovery working groups. The Society for Conservation Biology conducted an extensive review of recovery plans (Hoekstra et al. 2002) and offered its own list of suggestions:

- making threats to listed species the primary focus of recovery plans;
- specifying species monitoring tasks within recovery plans;
- ensuring that species status-trend data are current, quantitative, and documented;
- keeping authorship teams small;
- making recovery priority rankings more biologically relevant;
- improving and standardizing the recovery plan revision process;
- re-evaluating the use of multi-species recovery plans;
- developing new recovery plan guidelines;
- making personnel explicitly responsible for improving plan implementation;
- expanding personnel training; and
- improving the tracking of expenditures of recovery programs (Clark 2002).

In the following sections we summarize a variety of ideas from the literature on improving the recovery planning process and its implementation, all of which could help reach recovery goals and then delisting.

7.3.1. Objective, Measurable Criteria. A recovery plan must provide objective and measurable criteria describing when a species can be delisted. A review of 135 selected recovery plans suggested that most plans use qualitative, rather than quantitative, recovery criteria; however, species whose status has improved since listing were more likely to have recovery plans with quantitative criteria (Gerber and Hatch 2002). The use of more quantitative recovery criteria may improve the recovery process (SAF 2002).

7.3.2. Mitigate Threats. Listing and delisting decisions are based on the five factors that put species at risk. To review, those risk factors are habitat loss, overexploitation, disease or predation, inadequacy of existing regulatory mechanisms, and other natural or manmade factors affecting the species' continued existence.[134] Eliminating or controlling these factors or threats is the key to recovery and ultimately delisting (Doremus and Pagel 2001, Rohlf 2004). However, most recovery plans offer little or no specific guidance on how to eliminate these threats or causes of species endangerment (Clark et al. 2002, Doremus 2000, NMFS 2004b, Rohlf 2004). To facilitate delisting, recovery plans need to clearly identify how the factors affecting the continued existence of the species need to be mitigated (SAF 2002).

Eliminating or controlling these factors or threats is the key to recovery and ultimately delisting.

The NMFS has recognized the need for better guidance in recovery plans for mitigating or eliminating threats. In October 2004, the NMFS published new interim guidance on recovery planning that supercedes the 1994 guidance (NMFS 2004b). The new guidance noted that recovery plans have long focused on species' demographics and biological needs, without paying adequate attention to alleviating threats. The guidance states that identification of threats that contribute to the status of the species should be central to the recovery plan, as should identification of strategies for dealing with the threats. Recovery actions should specifically reduce or remove each of the threats identified for the species, and monitoring schemes should focus on the degree of success in controlling them (NMFS 2004b). It remains to be seen how this guidance will affect ESA recovery plans for salmon and steelhead because these plans do not yet exist (see 6.1.2 above). We did not find evidence that FWS was developing similar guidelines regarding the specific treatment of threats to species in recovery plans.

7.3.3. Implement Plans. The ESA requires that the Services *implement* a recovery plan for each listed

species as well as develop it.[135] The FWS recognizes that "A recovery plan benefits a species only if it is implemented" (USFWS 1990). Although Congress has consistently recognized the importance of recovery plans, and the Services have spent considerable time and resources writing them, recovery effectiveness has often been limited by inadequate implementation (Rohlf 2004). For example, only 2% of FWS-administered species have achieved more than 75% of their recovery objectives (Taylor et al. 2005).

Implementing a recovery plan is at the Services' discretion (Volkman 2002). A recovery plan is not an actionable decision document, but rather provides guidelines as to what actions must be taken and objectives met in order to delist a species. More emphasis on recovery plan implementation may improve the effectiveness of the recovery process.

7.3.4. Engage Nonfederal Parties. It may be desirable for recovery planners to seek more participation from state agencies, local authorities, and private landowners, who may often be sources of extensive information on listed species as well as instrumental in protecting habitat essential for recovery (Tear et al. 1995, SAF 2002, Sampford 2002). For example, officials of The Peregrine Fund, a non-governmental organization, credit cooperation between federal and nonfederal parties with the successful recovery and delisting of the peregrine falcon (Cade 1998, Burnham and Cade 2003).

It may be desirable for recovery planners to seek more participation from state agencies, local authorities, and private landowners, who may often be sources of extensive information on listed species as well as instrumental in protecting habitat essential for recovery.

Recovery plans could use an interdisciplinary approach and require public participation in their development (Souder 1993). These nonfederal parties could be formally engaged in recovery through negotiated agreements with the Services to implement recovery plans (Volkman 2002).

7.4. Maintaining Adequate Populations

To avoid relisting, it is necessary to maintain adequate populations of species after delisting. How, then, can the state agencies responsible for managing wild animals and plants assure the Service that delisted species will receive adequate protection from excessive killing or "taking"? Such assurance can be provided by a species' management plan focused on effective management, monitoring and enforcement programs. The Idaho Department of Fish and Game (IDFG) has such responsibilities. The Service has the responsibility and authority to approve such a plan before delisting commences.

7.4.1. Management Plan. IDFG is charged with preserving, protecting, perpetuating, and managing the state's wildlife and fish.[136] The department manages more than 70 species of wildlife that are hunted or trapped and 42 species of game fish. It also manages more than 500 species of nongame wildlife and 41 species of nongame fish (IDFG 2005a). IDFG does not have formal, comprehensive management plans for all the species it manages, but does develop them for some species.

Management planning for species that are being considered for ESA delisting receives special consideration under Idaho law.[137] When the Service proposes a species for delisting, or sooner if appropriate, IDFG, in cooperation the Idaho Governor's Office of Species Conservation, can establish a delisting advisory team to develop and recommend an appropriate management plan for the species after it has been delisted and the state resumes management authority for it. The management plan must provide for the management and conservation of the species following delisting, and it must provide safeguards that protect the health, safety, private property, and economic well-being of Idaho's citizens. In developing the plan, the team must consult with appropriate state agencies and boards, including IDFG, the Idaho Department of Lands, the Idaho Department of Agriculture, the Idaho Soil Conservation Commission, the Idaho Transportation Department, the Idaho Department of Water Resources, the Idaho Department of Environmental Quality, and the Idaho Outfitters and Guides Licensing Board. The plan must be approved by the director of IDFG, the Idaho Fish and Game Commission, and the Idaho Legislature before state agencies initiate rulemaking to facilitate implementation of the plan.

The *Idaho Wolf Conservation and Management Plan* (ILWOC 2002), which has been approved by FWS, serves as an example of a state management plan for a species proposed for delisting. The plan addresses wolf ecology, wolf management goals, responsibilities of affected agencies and entities and cooperation between them, and budgeting for wolf management. Because wolves prey on game species and livestock, the plan specifically addresses these

issues in the management goals for wolves, including plans for compensation for livestock depredation.

Wolves, when delisted, will be a big game species, and the IDFG will be authorized to manage the species. Management includes inventory; predator-prey research; harvest monitoring; cooperation with agencies, individuals, tribes, other states, and Canada; control to reduce depredations; and dissemination to the public of current, accurate information (ILWOC 2002). There will be provisions for controlled take.

7.4.2. Monitoring. Monitoring populations is a key to the successful management of a species. IDFG spends more than $3.5 million monitoring wildlife populations and slightly more than that monitoring fish populations and their habitats (IDFG 2005a). The department publishes annual monitoring reports for many fish and wildlife species. The gray wolf and bald eagle post-delisting monitoring programs are key elements of delisting proposals and plans.

Gray Wolf. Up until July 2003 the IDFG was prohibited by the Idaho Legislature from participating in wolf recovery and monitoring activities. Under a new memorandum of agreement between the FWS, IDFG, and the Nez Perce Tribe, the tribe has responsibility for monitoring in the Clearwater Region. IDFG is responsible for monitoring in the rest of the state (C. Harris, review comments). Wolf distribution, reproduction, mortality, dispersal, and livestock depredation and conflict are monitored (Mack and Holyan 2004).

The FWS-approved post-delisting state management plan includes monitoring of wolf populations and their prey base. The cost of monitoring all wolf pack activity across Idaho will be high, so actual-count efforts will be restricted to specific areas of concern. Close coordination of monitoring efforts between the Nez Perce Tribe, IDFG, and USDA Wildlife Services will be imperative (ILWOC 2002).

Bald Eagle. The bald eagle, which has met population recovery goals, has been proposed for delisting since 1999 (see Sidebar 6-1). If the bald eagle is delisted, FWS would work with state wildlife agencies to monitor the status of the species for a minimum of five years, as the ESA requires. If at any time it becomes evident that the species again needs the Act's protection, FWS would relist it (USFWS 1999a). IDFG currently coordinates statewide monitoring of nesting bald eagles and produces an annual report of their status (C. Harris, review comments).

7.4.3. Enforcement. IDFG's enforcement program supports the department's mandate to preserve, protect, perpetuate, and manage the state's fish and wildlife resources. The department spends almost $9 million annually on enforcement activities (IDFG 2005a). In addition to IDFG's staff of conservation officers, all county sheriffs, deputy sheriffs, police officers, Idaho Department of Lands officers, U.S. marshals, and national forest supervisors and forest rangers have the authority to enforce Idaho's fish and wildlife laws.[138]

The state's post-delisting management plan for wolves addresses enforcement. If wolf populations reach levels where controlled harvest is allowed, the same enforcement provisions will apply to wolves as to other species that are classified in the same way (ILWOC 2002). Cases of incidental, accidental, or deliberate killing will be subject to the same penalties applicable to other species.[139]

7.5. Maintaining "Survival Habitat"

The leading *proximate* cause of species' decline is habitat modification or loss, which affects approximately 85% of listed species (Wilcove et al. 1998). The ESA provides for habitat protection by requiring for all threatened and endangered species at the time of listing the designation of habitat essential for species recovery, called "critical habitat."[140] Protecting critical habitat from destruction or adverse modification is the responsibility of each federal agency.[141] This includes "action agencies" such as the USDA Forest Service and USDI Bureau of Land Management as well as the FWS and the NMFS.

The ESA statute, however, does not identify a specific means for protecting habitat on nonfederal lands. To fill this policy gap, FWS has employed the regulatory powers granted by the ESA (Houck 1993), as follows. The Act prohibits all persons from any action causing "take" of a protected species.[142] The Act defines "take" to include "harm."[143] FWS regulations define "harm" broadly to include "significant habitat modification."[144] In effect, habitat is fully protected wherever a species happens to be, whether or not critical habitat has been designated. This regulatory approach has proven to be problematic because of the lack of federal regulatory mechanisms to control land-use practices on nonfederal lands. The Supreme Court ruled in *Sweet Home*[145] that the FWS had devised a reasonable interpretation of "harm" and left the door open as to what "significant habitat modification" might mean (Feldman and Brennan 1997, SELS 2001). Consistent with the regulatory definition, it

means habitat modification must actually kill or injure the species to be considered a "take."[146] Regardless of the FWS position that critical habitat designation is redundant protection (see Appendix A), the ESA requires it.

By definition, critical habitat is what the species needs to recover. The adequacy of data for determining critical habitat will be a continuing problem. Many sources can provide such data, including censuses, surveys, mark-recapture studies, published and "gray" literature, expert opinion, occurrence data from Natural Heritage databases, etc. Data from related species or others that use similar habitat could also be used (Reed et al. 2005).

It seems logical to extend the idea of critical habitat for recovery to say that some portion, if not all, of designated critical habitat would also be necessary for the survival of the species after it has recovered. This suggests the term "survival habitat" as used in the NRC (1995) report *Science and the Endangered Species Act*. Ensuring some degree of habitat protection on federal lands involves the adequacy of regulatory mechanisms in existing law (see Chapter 5). This can be problematic, and ensuring such protection on nonfederal lands is even more so.

Among other things, the ESA is also a federal land-use law benefitting listed species (Rohlf 2004). If a species recovers with these land-use protections in place, what happens next? Delisting could simply place a species back in harm's way (Rohlf 2004). We review the crux of the problem under current ESA habitat protection policies by analyzing habitat protection on federal and then nonfederal lands, then we propose some alternative ideas for reconsidering habitat protection.

About two-thirds of listed species depend on private lands for the majority of their habitat (Groves et al. 2000). Working with private landowners is therefore essential to protecting and recovering imperiled species.

7.5.1. Federal Lands. During the ESA section 7 interagency consultation process the Service makes judgments about how proposed federal action agency projects might cause "jeopardy" to the species and adversely modify designated critical habitat. After the species has recovered and been delisted consultation ceases. Without ESA protection and the consultation process, habitat protection defaults to whatever policies exist outside the ESA for maintaining habitat the species needs to survive.

For example, the National Forest Management Act (NFMA) mandates that the USDA Forest Service "provide for diversity of plant and animal communities" on National Forest System lands. This "diversity" mandate has been contentious since the Act was passed in 1976 (Hoberg 2004, Houck 1997, Padilla 1997). In January 2005 a new set of NFMA implementing regulations was issued (see section 5.2.2). The new planning rule relies on an ecosystem approach to national forest management. Delisted species probably would be placed in a "species-of-concern" category, defined as a species whose "continued existence is a concern and listing under the ESA may become necessary." The rule states that if "the ecosystem approach does not provide an adequate framework for maintaining and restoring conditions to support ... species-of-concern ... then the plan must include additional provisions for these species."[147] This regulatory mechanism for implementing the NFMA "diversity" mandate seems to provide evidence of adequate concern for the continuing protection of delisted species on National Forest System lands. Public lands administered by the USDI Bureau of Land Management do not have a comparable mandate.

7.5.2. Nonfederal Lands. Many listed species occur partially, extensively, and in some cases exclusively, on private lands (USFWS 2004c). For example, a 1994 survey found that 90% of the species protected by the ESA had some portion of their habitat on private land; 37% of them were entirely dependent on private land (GAO 1994). About two-thirds of listed species depend on private lands for the majority of their habitat (Groves et al. 2000). Working with private landowners is therefore essential to protecting and recovering imperiled species.

Recovery actions on nonfederal lands must protect landowners' interests while providing incentives to manage those lands in ways that benefit at-risk species. FWS is fully committed to finding this balance between private property rights and species protection (USFWS 2004c). Recovery goals are not likely to be achieved without active management and strategies, such as incentives, that go beyond acquiring or regulating private land (Bean and Rowland 1997).

Although options are frequently described as either top-down regulation or voluntary incentives-based approaches, a much broader spectrum of strategies is available and a portfolio of them is likely to outperform exclusive reliance on any single approach (Doremus 2003). At least six types of

institutional arrangements or tools create rewards designed to help protect endangered species on private land: impact fees, subsidies, tradable development rights, conservation banking, fee simple acquisition, and conservation easements in the form of either purchased development rights or donations for tax relief (Parkhurst and Shogren 2004). A broader set of federal, state, and local policy instruments are needed to manage the impacts of development on species habitats and ecosystems, including incentive-based instruments such as the Conservation Reserve Program, regulatory mechanisms such as the Clean Water Act, and the tax code to promote stewardship, as well as local zoning and growth management to moderate the impact of urban development (Yaffee 2005). This array of options might also be considered as a strategy to mitigate inadequate regulatory mechanisms, one of the five threats to species (see section 7.6 below).

Managing species free of federal oversight may in some cases provide substantial motivation for state or local governments to participate in creating new regulations, or modifying existing ones, to assist in the recovery process (Rohlf 2004). Many nonfederal landowners have an incentive to develop habitat conservation plans (HCPs) to obtain "incidental take" permits for listed species.[148] An HCP, however, is not likely to be an adequate primary basis for ongoing protection of recovered populations (Rohlf 2004). But an HCP can be a good starting point for developing a recovery management agreement (RMA) (see section 7.7 below).

Reconsidering the ESA's habitat protection mechanisms is a necessary first step in any attempt to make the ESA more effective at protecting habitat for at-risk species on nonfederal lands.

7.5.3. Reconsider the ESA "Critical Habitat" Concept.

The designation of critical habitat during the listing process is the ESA's primary mechanism for protecting habitat (see section 1.5). Ever since it was added in the 1978 amendments to the ESA, critical habitat has vexed FWS, private landowners, and the courts. Numerous commentators have urged Congress to "exorcize the ambiguity of critical habitat" (Murphy and Noon 1991, SAF 2002). Although the ESA statute requires critical habitat designation, FWS has chosen to focus ESA implementation efforts elsewhere, primarily because of the agency's position that critical habitat protection is redundant due to its own expansive definition of "harm" to include "significant habitat modification."

Delineating the boundaries of critical habitat is difficult. Two federal district courts have recently overturned critical habitat designations for the Alameda whipsnake *(Masticophus lateralis euryxanthus*) and the Rio Grande silvery minnow (*Hybognathus amarus*) because the FWS did not adequately specify the "constituent elements" that form the basis for critical habitat, finding the descriptions of these elements too general to withstand review (see details in Doremus 2004). The courts were concerned about two issues. First, the designations did not adequately inform the regulated community, and second, general designations without specific constituent elements would allow FWS to expand the reach of critical habitat beyond that required by the species, causing unnecessary economic disruption. These rulings may be problematic because they require the agency to provide levels of knowledge perhaps unattainable on the required time scale (Doremus 2004).

Reconsidering the ESA's habitat protection mechanisms is a necessary first step in any attempt to make the ESA more effective at protecting habitat for at-risk species on nonfederal lands (SAF 2002). Because FWS's critical habitat program faces serious challenges, the GAO (2003) recommended that the Service provide clear strategic direction for the critical habitat program, within a specified time frame, by clarifying the role of critical habitat and how and when it should be designated, and recommending policy/guidance, regulatory, and/or legislative changes necessary to provide the greatest conservation benefit to threatened and endangered species in the most cost-effective manner (GAO 2003). Although FWS began a process for clarifying critical habitat in 1999,[149] it has not completed the effort. Some groups have suggested that Congress act instead. For example, the Society of American Foresters recommended that Congress should revise the critical habitat provision of the ESA as follows:

- Reconsider the need for designating "critical habitat" in the listing process.
- Require that the Services, at a minimum, identify what is known about habitat relationships and essential habitats in the preamble of proposed and final listing rules,

including habitat areas and conditions necessary for the continued existence of the species.
- This information could then be used formally during the recovery planning process to identify "survival" or critical habitat and would provide a compilation of known data that would allow landowners and agencies to focus conservation efforts (SAF 2002).

The "survival habitat" concept, proposed by the National Research Council (1995), seems to be consistent with the identification of habitat requiring protection after recovery. The post-delisting mechanism for protecting survival habitat would likely be different on nonfederal land than on federal lands, and dependant on the adequacy of existing regulatory mechanisms or other alternative assurances of adequate habitat protection, such as a negotiated agreement (see section 7.7 below). When habitat necessary for a species' survival has been identified, then management techniques for protecting it after delisting can be identified. When a habitat management agreement has been reached between the landowner and the agency responsible for managing the species, that could be considered a regulatory mechanism enforceable through contract law.

Judgments about the adequacy of existing regulatory mechanisms arguably have much more to do with law than science.

7.6. Providing Adequate Regulatory Mechanisms

As a prerequisite to delisting, the ESA requires that the extinction threats (i.e., the five endangerment factors) be sufficiently controlled for the foreseeable future. For most species, such assurances need to be based on legally binding and practically enforceable regulations (Doremus and Pagel 2001). The "inadequacy of existing regulatory mechanisms" is one of the five statutory endangerment factors for listing a species and a reason often cited by the Service in threatened and endangered findings. If a species can be considered "recovered" only after finding that all of the factors that led to its listing have been addressed, the Service will have to find that the regulatory situation has changed for the better in order to delist a species that is at risk partly from a lack of legal protections (Rohlf 2004).

To delist in such a circumstance, the Service would have to determine that the relevant parties—federal land management agencies, states, local governments, or even private landowners—have enacted "regulatory mechanisms" that adequately protect habitat necessary for the species' survival (Rohlf 2004). Difficult though it may be, evaluating the effectiveness of existing laws and agreements therefore will be part of the delisting decision (Doremus and Pagel 2001).

The threat posed by inadequate regulatory mechanisms means that existing policies and programs either do not adequately protect the species from "taking" or do not identify and protect the habitat essential for survival of the species, or both. Because the future is unpredictable, it may be unrealistic to think that the potential for relisting could be eliminated even if the most stringent regulatory mechanisms were in place as safeguards. A more practical approach may be to seek reasonable assurance that efforts to protect the species and habitat essential for its existence will continue following delisting.

In the ESA, Congress directed the Services to consider during listing "those efforts, if any, being made by any State or foreign nation, or any political subdivision of any State or foreign nation, to protect" a species under consideration for threatened or endangered status.[150] While the existence of strong state laws is one method of achieving delisting, it is not the only one (Doremus 2000). For species with substantial habitat on federal lands, or migratory birds or marine mammals, federal laws may provide the needed protection (see section 5.2). Other species likely will need regulatory protection under state law or well-designed conservation agreements. Recovery criteria need to detail needed regulatory measures, even though their adoption and implementation will almost always be beyond the authority of the Services alone (Doremus and Pagel 2001).

Judgments about the adequacy of existing regulatory mechanisms arguably have much more to do with law than science (Rohlf 2004). Purely law-based solutions, however, are inadequate. Threats to imperiled species are largely human-caused and the solutions involve choosing from alternative approaches and implementing them, which is a challenge of environmental governance (Sampford 2002). The challenge is twofold. First, biologists need to determine which populations of species really need recovery action. Second, and just as important, they need to know when a population is recovered and no longer requires human intervention (Gerber et al. 2000).

ESA implementation has social components as well as biological. Policy choices for protecting species express and confirm societal values; they

identify the appropriate relationship between people and nature, and describe the rights and responsibilities of people with respect to nature (Doremus 2003). Establishing recovery thresholds can also have important economic consequences, as insufficient assessment of recovery actions can lead to inequities by spending scarce resources on populations that have recovered at the expense of other species that actually need the help more (Gerber et al. 2000).

Although ESA decisions are to address "the adequacy of existing regulatory mechanisms" in listing and delisting decisions, there are good reasons to seek alternatives to a regulatory approach for modifying land-use activities (Bean 2002):

> The stringent regulatory requirements of the ESA may be the only way of salvaging something for conservation out of the onslaught of development pressure that is turning natural habitat into cities and suburbs. These same requirements, however, are ill-fitted to the working landscapes of farms, ranches, and forests. Other broader approaches are clearly needed, and those that can be aligned with broader landowner interests clearly warrant use.

One alternative approach to regulation would be conservation agreements between landowners and federal and state agencies that set out the protections required by the species and means of ensuring those protections (Doremus 2000). Money is more important in facilitating species' conservation transactions than many people imagine. Monetary incentives are more suitable than regulation as a means of maintaining wildlife habitat on private property (Cheever 2002). Conservation easements are an effective example (Michael 2003).

An RMA would transfer species management authority from the federal Service to another governmental management authority.

Water management issues in the Klamath Basin provide a property-based example of ESA regulatory limitations. As Doremus (2004) pointed out, ESA implementation issues in the basin have focused almost entirely on the federal Klamath Project, even though a National Research Council committee identified many other contributors to the problems facing listed fishes. Federal agencies understand the unfairness in singling out only one of several groups responsible for fisheries decline. However, NMFS has not yet found a legal path for imposing responsibility for salmon protection more broadly (Doremus 2004).

The regulatory approach works best in situations where the government needs to limit activities on very specific parcels of land, or where land restrictions are less likely to change as new information about threats becomes available (Thompson 2002). For other situations, a negotiated agreement may be more effective than regulation.

7.7. The Recovery Management Agreement (RMA) Concept

The ESA was written as a command-and-control, top-down regulatory statute, but in reality its primary means of decision-making is via negotiation (Yaffee 2005, citing Tobin 1990, Yaffee 1982). Negotiations among many interested parties take place before decisions are reached on such things as what species are listed, what actions are required to recover them or to protect critical habitat, and what conservation actions are needed to allow individuals, agencies, or firms to proceed with land-use activities despite the incidental "take" of listed species (Yaffee 2005).

Earlier we introduced the conservation-reliant species concept (see section 7.2 above). To facilitate the recovery of conservation-reliant species and to provide assurances that entities other than the Service will adequately protect species following delisting, Scott et al. (2005) propose the creation of recovery management agreements (RMAs) as a new group of conservation agreements under ESA section 10. Although we do not necessarily endorse the following suggestions, they do represent some new ways of thinking about post-delisting protection for recovered species.

An RMA is essentially an enforceable contract between the Service and other governmental entities (a federal land management "action" agency, or state, tribal, county, or municipal government) with the power to take the necessary conservation management actions and the financial ability to do so for the foreseeable future. An RMA would transfer species management authority from the federal Service to another governmental management authority. As a species nears the delisting criteria in the recovery plan, an RMA would be negotiated. The non-Service authority then would assume all responsibility for management actions while the species is recovering, subject to oversight by the Service (Scott et al 2005).

Transfer of management authority to state and local governments would benefit recovery efforts

because of the broader range of management authorities available to them (e.g., land-use zoning). In addition, the RMA transition period before delisting would provide an opportunity for collaboration between local conservation managers and the Service, allowing each to gain experience, trust, and confidence. The RMA transfer to local control would reflect an acknowledgment of both the biological status of the species and the regulatory protection afforded it by the local authority (Scott et al. 2005). After a species has met the recovery criteria and been delisted, the Service would no longer be involved, except to oversee continued monitoring for at least five years as the ESA requires.[151]

To satisfy legal and biological requirements, an RMA would necessarily include the following:

[a] biological goals tied to the recovery plan;
[b] explicit management actions that reflect the identified risks to the species;
[c] adaptive management strategies to ensure regular evaluation and revision;
[d] a defined duration; and
[e] assurances by the management agency of its ability to implement the agreement (Scott et al. 2005).

An RMA would have two components: a set of biological standards that must be satisfied, and a set of legal requirements that the managing entity must satisfy. The biological standards are determined by the threats to the species, i.e., the five endangerment factors. These threats must be known and treatable. The information in a species' recovery plan should provide guidance for the development of an RMA (Scott et al. 2005).

Incidental take authority under ESA section 10 may also be necessary for management actions undertaken before delisting of a species (Scott et al. 2005). On federal lands, that can be accomplished through the ESA section 7 consultation process. On nonfederal lands, incidental take authority is dependant upon a Service-approved habitat conservation plan pursuant to ESA section 10(j).[152]

The RMA concept is an extension of existing practices and a formalization of the elements of successful management agreements (Scott et al. 2005). The ESA specifically recognizes that state and local governmental actions to conserve species are relevant to the decision to delist a species.[153] There is also judicial precedent for the use of intergovernmental agreements to facilitate recovery (e.g., "safe harbor" agreements) or to forestall the need to list a species (e.g., Candidate Conservation Agreements).

The use of RMAs as a recovery tool will require that they be implemented well before a given species is delisted so that there is a sufficient track record clearly indicating that the RMA is improving the status of the listed species (Scott et al. 2005). RMAs could help assure that delisted species are protected from excessive "take" and that adequate habitat is maintained (Scott et al. 2005).

7.7.1. Federal Lands. The assurance of habitat protection on federal lands could be provided through a memorandum of agreement between the land and resource management agency and the Service. The agreement would be accomplished sometime before the delisting process commences, as progress is made towards the delisting criteria of the recovery plan. This could follow the suggestions of an RMA, as above.

The delisting of Robbins' cinquefoil (*Potentilla robbinsiana*) is a precedent-setting example. The plant was at risk from trampling and collecting. A management agreement was drafted to provide fencing and onsite personnel to guard against both threats. Its status hence improved, recovery criteria were met, and the species was delisted (Scott et al. 2005).

7.7.2. Nonfederal Lands. For nonfederal lands upon which the Service has issued an incidental take permit in response to the required habitat conservation plan,[154] it could likely be a straightforward proposition to build an RMA from the HCP. Otherwise, the RMA would be developed much as HCPs are, through a process of negotiation between the landowner and the Service, with the addition of assurance that the nonfederal governmental agency identified in the RMA would assume responsibility for the species and its needs after delisting. The enforceability of that assurance raises private property rights issues as well as issues of trust.

7.8. Building Trust

We conclude this analysis of ESA delisting with a discussion of how transparent processes for using scientific information, risk assessments, and professional judgment—integrated through either quantitative or qualitative conceptual models that serve as communication devices—can help promote more trustworthy approaches to recovering species and managing them after delisting. Perhaps the most publicized ESA story to date is protection for the northern spotted owl and how the determination of private citizens led to land-use changes (Coggins

2002). The spotted owl conflict and controversy has taught a valuable lesson: cooperative relationships and mutual trust among affected interests are absolutely necessary for recovering imperiled species (Chase 1995, Yaffee 1994). Issues of trust, especially how trust is destroyed, have profound implications for managing risks (Slovic 1993). In the ESA context, managing risks means balancing extinction risk with risks of unnecessary regulation, expenditures, and land-use changes (NRC 1995). Improved scientific information can help build trust, and so can a transparent decision process built upon comparative ecological risk assessment.

7.8.1. Understanding ESA's "Science" Mandate and Why It Affects Trust. The ESA repeatedly calls for the use of the best available science, a call that is reinforced by agency regulations, policies, and guidance. Many people believe scientists and scientific information improve the quality of environmental policy decisions (Oreskes 2004). People are more likely to accept decisions based on science (Kramer 1999). However, this may not always be the case, as there are significant differences among various groups regarding the appropriate role for and efficacy of science in policy decisions (see, e.g., Steel et al. 2004).

Because the ESA relies heavily on science, it is not surprising that science has become a battleground in the controversy surrounding ESA implementation (Duncan 1998, Ruhl 2004, Ruckelshaus and Darm 2005). The ESA is not alone among environmental laws where the role of science is controversial (see, e.g., Kemmis 2002, Pielke 2002, Pielke and Rayner 2004, Pielke 2004, Sarewitz 2004).

Congress hoped that ESA decisions could be based on science alone, and that giving science the key role in decision-making would insulate decisions from politics.[155] This hope was misplaced because scientific information is almost always incomplete and uncertain, and by itself information cannot relieve decision-makers from having to make decisions (NRC 1995). ESA decisions involve difficult policy choices (Rohlf 2004). Decisions rely on both scientific data and professional judgment (Doremus 2004, Ruhl 2004).

The Services can no longer ensure public trust by relying on the apparent scientific nature of their task because they must routinely make judgement calls based on their interpretations of uncertain evidence (Doremus 2004). In many cases scientific data do not exist to guide ESA decisions, and when they do there is always a degree of uncertainty associated with the data. However, some trust may be derived from developing more and better scientific information. For that to happen, the development and evaluation of information must be done in an open and transparent manner. The public should be allowed to see who is making decisions and on what information decisions are made (Doremus 2004).

The Services can no longer ensure public trust by relying on the apparent scientific nature of their task because they must routinely make judgement calls based on their interpretations of uncertain evidence.

The Services would be well-served by adopting guidance for making listing determinations and planning recovery actions (Ruckelshaus and Darm 2005). The guidance should recognize that these activities are not just a science exercise but have important policy components. These "science/policy" issues include: [1] the time period over which species persistence should be measured, [2] the level of risk that results in a threatened or an endangered finding, [3] a clear discussion of what an "acceptable" risk might be under recovery planning for different species, [4] the burden of proof for demonstrating the effects of actions on species recovery, and [5] transparent discussion of how uncertainty in biological conclusions was accounted for in decisions. Guidance needs to be flexible enough to account for the inaccuracy of extinction risk estimates and for the biological differences among different species. If the Services encourage transparent evaluation of the cumulative effects of actions, in light of the overall effect of other actions on a species, ESA decisions would be much improved. Furthermore, scientists and decision-makers truly interested in clarifying the role that science plays in implementation of the ESA should be willing to participate in public forums, where the same transparency of data/inputs and assumptions in analyses can be openly discussed to illustrate how science is used in decisions under the Act (Ruckelshaus and Darm 2005).

Decision models can interject a transparent methodology into ESA debates. The next section presents risk assessment as a decision model and features the transparency with which attention focused on risk can enhance discussions about species and habitat management issues.

7.8.2. Comparative Ecological Risk Assessment. Assessing risk is central to endangered species

Sidebar 7-1. Extinction Risk and Population Viability Analysis

Risk is a concept used to give meaning to things, forces, or circumstances that pose danger to people and what they value (NRC 1996). A committee of biologists charged with assessing the science behind the ESA discussed risk thoroughly in their report (NRC 1995):

> The concept of risk is central to the implementation of the ESA. ... The main risks are risk of extinction (related to the probability of both biological and non-biological events), and risks associated with unnecessary expenditures or curtailment of land use in the face of substantial uncertainties about the accuracy of estimated risks of extinction and about future events.

Estimates of extinction risk are based on population viability analysis (PVA), which is an assessment of the risk of reaching some threshold (such as extinction) or projected growth for a population, either under current conditions or those predicted for proposed management (Reed et al. 2005). PVAs reply to the question "how much is enough?" in terms of population size and habitat configuration. Developing a reply is perhaps the most difficult problem in the science of conservation biology. First, targets for risk in the form of extinction rates, population size or number of populations, and time horizons must be identified. Then analyses must be undertaken to accurately and precisely assess risk of extinction from different amounts and configurations of habitat. This is the classic "minimum viable population size" problem in conservation biology, which led to the creation PVA concepts, models, and applications (Reed et al. 2005).

PVAs can range from qualitative statements without models to spatially explicit, stochastic simulation models (Reed et al. 2005). Quantitative PVA models require information on population size, population growth rate, and variability in population growth rate over time (Ruckelshaus and Darm 2005). Several studies reviewed by Ludwig (1999) raised doubts about estimates derived from PVA models, and he expressed additional concerns about statistical difficulties. Uncertainty is pervasive in the ESA context, including PVAs. Uncertainty clouds our ability to understand, among many other things, the relative importance of various threats and the effect of management activities on species (Doremus 2004). Nevertheless decisions about managing species-at-risk must be made despite the lack of essential information (NRC 1995).

As NMFS develops recovery plans for Pacific salmon, it uses a mix of quantitative extinction risk models and qualitative risk evaluations to determine viability criteria, as it has done for many of its listed marine mammals and turtles. The FWS approaches recovery planning differently. Instead of establishing species-based viability criteria and then identifying which actions can achieve those criteria, FWS focuses technical analyses in recovery planning on threats to species viability and actions to abate those threats (Ruckelshaus and Darm 2005).

The risks associated with unnecessary expenditures or curtailment of land use in the face of substantial uncertainties about the accuracy of estimated risks of extinction and about future events were not addressed in the *Science and the Endangered Species Act* report (NRC 1995), nor are they something that the Services explicitly address in recovery planning, either. If recovery plans were actually *implemented* by the Services, as the Act requires, and if the recovery plan involved "major" federal actions, then analysis of the impacts of alternatives on the environment would be required under the National Environmental Policy Act. FWS would likely need to reconsider its position that recovery plans are categorically excluded from NEPA analysis (see Volkman 2002). For example, FWS followed NEPA procedures for the reintroduction of experimental nonessential populations of gray wolves in the Northern Rockies, which was implemented in 1995, and for the proposed reintroduction of grizzly bears in the Selway Bitterroot ecosystem along the Idaho/Montana border, which has not been implemented.

conservation (NRC 1995). For example, in the listing process, whether a species is threatened or endangered depends on an assessment of its risk of extinction (Doremus and Pagel 2001). During ESA section 7 consultations, assessments of risks to listed species associated with proposed actions by federal agencies are the subject of debate and intricate negotiations with the Service (SAF 2002). Assessments of risk determine whether land management activities result in "take" or "harm" to a protected species and its habitat.

Risk assessment is an odd mixture of science and nonscience (Davies 2000). For example, listing and delisting decisions include a biological

component about the likelihood or probability of extinction, called population viability analysis (Sidebar 7-1). However, these and other ESA decisions also include policy judgments about the degree of risk that is "acceptable" (Ruckelshaus and Darm 2005). Acceptability is based on values, and because values play an important role in risk assessment, *who* does the estimating and comparing of risks, and *how* they define risk are critical questions (Davies 1996).

Biological science alone is not an adequate basis for risk decisions, as these are ultimately public policy choices (NRC 1996). There is also a social aspect to understanding and controlling extinction threats, and institutional aspects related to the effectiveness of mechanisms for managing human behavior. Biology does not provide the tools for managing human behavior; social sciences and the law do (Doremus 2000).

A review of laws and policies supports the conclusion that federal land and resource management "action" agencies and the Services must use some form of risk assessment in their decision-making processes (O'Laughlin 2005b). The ecological risk assessment modeling framework developed by the U.S. Environmental Protection Agency (EPA 1998) can be applied to managing habitat for at-risk species (Fairbrother and Turnley 2005, O'Laughlin 2005a). Risk assessment should not be viewed as a panacea for either species recovery or land management actions. Rather, it is a transparent method for systematically developing and displaying for communication purposes the information base upon which land and resource management decisions involving risk and uncertainty are made. Trust can be built upon transparent decision methods more effectively than upon the exercise of regulatory power unaccompanied by a well-communicated rationale.

Trust can be built upon transparent decision methods more effectively than upon the exercise of regulatory power unaccompanied by a well-communicated rationale.

7.8.3. Professional Judgement, Models, and Transparency. The management of ESA risks is complicated by battles over methodology (Ruhl 2004). Trust in professional judgment, the long-accepted default mode, has diminished. To replace it, some interests call for strict application of the scientific method to support ESA decisions, others for universal application of the precautionary principle (Ruhl 2004). The ESA requires neither. In the future, optimal management of ESA risks likely will continue to depend on professional judgment (Ruhl 2004).

Due to uncertainty, the Services must be allowed to exercise professional judgment, taking their best guess about whether species qualify for listing, what areas constitute critical habitat, and whether federal actions jeopardize the continued existence of protected species (Doremus 2004). The Services should be willing to acknowledge incomplete data, extrapolations, assumptions, and choices about dealing with uncertainty. If the Services do not volunteer such transparency, courts can force them to provide it. For example, the Services could be required to find that threats exceed a certain level before a species can be listed and protected. They could be required to "conclude that a conservation measure is more likely than not to benefit the species before imposing it" (Doremus 2004). Risk-based decision models can do that, and courts presumably can require it. For example, the Healthy Forest Restoration Act of 2003[156] requires that before issuing stop-work injunctions on hazardous fuels treatment projects developed under the Act's provisions, courts consider the short- and long-term risks of treating fuels compared to not treating fuels.

Just as a model is a good way for assessing risk (Haimes 1998), a model can also be a tool for assessing how changes in habitat conditions affect species (Wiens 2002). Each species and situation presents a unique set of challenges for the manager. The same species may present different management issues in different time periods and different environments. A modeling framework thus can be helpful for choosing among potential management scenarios, and accounting for uncertainty regarding knowledge about the species and what management will accomplish (Mills et al. 2005). For example, in an ideal world there would be sufficient data to support the designation of critical habitat to support a viable population. However, we rely on models because we cannot wait for these data to be collected before making decisions about protecting species-at-risk. The logistics of model selection and development for determining critical habitat can be daunting (Ruckelshaus and Darm 2005).

Simple conceptual models used in decision analysis frameworks can be powerful communication tools (EPA 1998). For example, habitat management exerts an influence on population viability by modifying the capability of

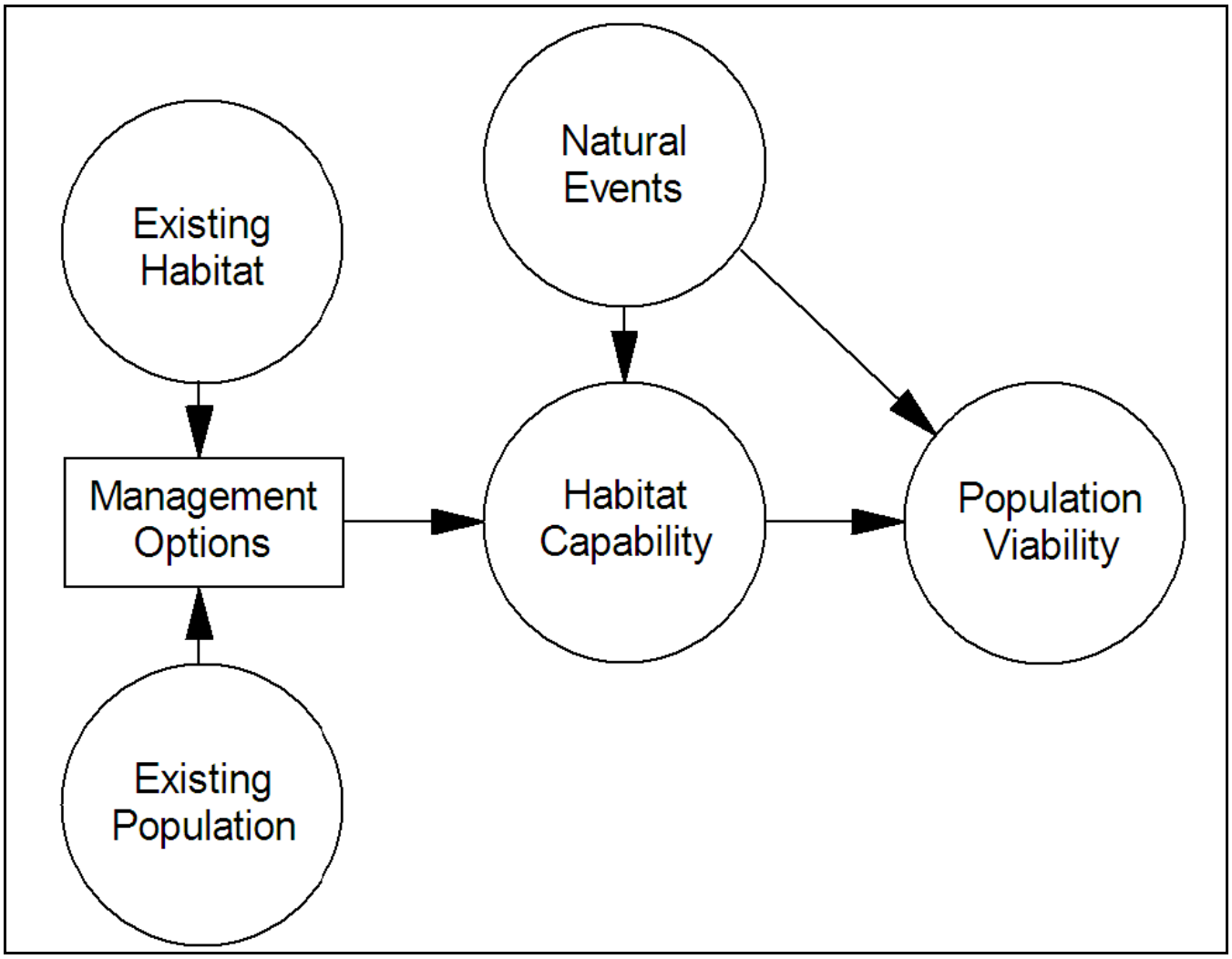

Figure 7-2. Conceptual model of habitat influence on population viability (adapted from Cleaves and Haynes 1999).

habitat to support a species' population (Figure 7-2). A risk-based decision model can demonstrate to the public, regulatory agencies, and the courts the long-term net benefits of active forest management for comparisons of habitat quality parameters such as sediment production with and without active management in fire-adapted forests (O'Laughlin 2005a). A risk-based decision model also has been applied to the management of nonfederal forest lands that are capable of supporting northern spotted owl populations (Roloff et al. 2005).

Decision models can help people think through the questions of if, where, and when hazardous fuels reduction projects should be undertaken. Decision models that incorporate ecological effects of wildfire and fuels management can help managers and regulators assess whether the risks of active management produce benefits to species habitat that over time might outweigh project implementation risks and provide long-term benefits for the persistence of species. Linking risk-based habitat management decision models to extinction risk population viability analysis models could potentially advance efforts to protect and recover species at risk of extinction.

7.8.4. Quantitative and Qualitative Approaches. Ecological risk assessment parameters can be represented quantitatively with existing data or qualitatively with expert opinion (O'Laughlin 2005a). Quantitative approaches and analyses focused on estimating species viability (or conversely, risk of extinction) are where most of the attention in the scientific literature has been focused (Ruckelshaus and Darm 2005). Quantitative methods are not without controversy, but they are relatively well tested and examined, and many of their limitations are well known. Unfortunately, because

of the dearth of data to parameterize even the simplest quantitative approaches, they are useful for only a small fraction of species.

Qualitative approaches to estimating species risk can be just as reliable as quantitative approaches, if the approach is transparent and systematic (McCarthy et al. 2004). Qualitative assessments of relative ecological risks can provide useful insights for environmental decision-making (NRC 1996). For example, recovery planning is often about exploring or ranking management options; in these cases, it is more appropriate to compare risks in a relative fashion that requires less precision (Reed et al. 2005). Comparing the risks associated with alternatives is a simpler approach than trying to develop an elusive standard of acceptable risk (O'Laughlin 2005a).

Neither FWS nor NMFS regularly use widely accepted qualitative approaches to estimating extinction risk for listing decisions (Ruckelshaus and Darm 2005). However, the science of characterizing degrees of imperilment using qualitative approaches also has improved greatly in the past 30 years, and greater attention to qualitative methods would be helpful in ESA decisions for a majority of species-at-risk (McCarthy et al. 2004, Ruckelshaus and Darm 2005).

7.8.5. Learning to Live with Risk. All resource management decisions involve risk, including the decision not to take action (Thomas and Dombeck 1996). Public agencies and institutions are often risk-adverse, and institutional changes are required including ways to promote a culture of creativity and risk-taking to generate more effective options for the future (Yaffee 1994).

Creating a culture of risk-taking in federal agencies will be difficult, but perhaps necessary for them to meet society's expectations. The first step would be to think of the regulatory agencies (i.e., the Services) as risk assessors and for land management "action" agencies, such as the Forest Service and BLM, to think of themselves as risk managers. Second would be getting risk assessors and risk managers to work together, devising multidisciplinary management strategies to protect species and habitats, and effectively communicating to the public the risks associated with alternative management approaches. The PAG's *Risk Assessment Primer for Natural Resource Managers* will provide some guidance for these tasks (O'Laughlin 2005c).

Creating a culture of risk-taking in federal agencies will be difficult, but perhaps necessary for them to meet society's expectations.

Planning for the future is a rational way to deal with uncertainty and confront risk. The ESA creates plans to recover and perpetuate species-at-risk. The ESA requires the Services to develop and implement a recovery plan that identifies objective and measurable criteria for when the delisting process may commence. The recovery plan is thus the linkage between listing and delisting. Requiring certainty in plans and through regulatory mechanisms is asking the Services to have predictive capabilities that do not exist and to create new institutions for habitat protection through land-use planning on nonfederal lands.

Some people are more accepting of risk than others. The degree of risk aversion adopted by federal agency risk managers and risk assessors may be the key to the success of building trust in ESA decisions. Delisting recovered species will largely be a function of FWS and NMFS risk assessors being willing to trust that others also have adequate concern for species welfare.

After a species has met delisting criteria in the ESA recovery plan, assurance that there is zero risk of relisting following delisting seems unrealistic in an uncertain world. An adaptive management approach to managing recovered species and the habitat essential for their continued existence seems desirable. Embracing the idea that relisting is a safety net rather than something to be avoided at all costs would empower adaptive management approaches that could help restore trust. People need to trust that the ESA can, as the law states, help us find a way to balance "economic growth and development" with "adequate concern and conservation"[157] for the species with which we share the planet.

7.9. Summary

Attaining the quantitative population criteria target in a species recovery plan does not guarantee that the delisting process will commence. The bald eagle case is a case in point. The threats, or endangerment factors, that were reasons for listing a species must be eliminated or controlled so as to provide some assurance that the species is no longer threatened or endangered with extinction. Recovery plans provide little or no guidance on doing this, which might be viewed as a weakness in ESA implementation because the recovery plan is the essential linkage between listing and delisting. Assurance implies confidence and trust that appropriate actions will be taken to perpetuate

species after delisting. The importance of trust in ESA listing, recovery, and delisting processes cannot be overstated.

Two of the five endangerment factors—adequate habitat and regulatory mechanisms to ensure its persistence—in combination are a barrier to delisting that is especially problematic on nonfederal lands. FWS has identified this barrier to rationalize its failure to delist the bald eagle. More attention in recovery plans to the identification of habitat areas and features and conditions of habitat a species needs would help facilitate delisting. This would help the regulated community develop trust in actions taken by the Services.

When habitat necessary for a species' survival has been identified then management techniques for protecting the habitat after delisting can be identified. The "survival habitat" concept (NRC 1995) seems to be consistent with the need to identify habitat requiring protection after recovery. The post-delisting mechanism for protecting survival habitat would likely be different on nonfederal land than on federal lands, and dependant on the adequacy of existing regulatory mechanisms or other assurances of adequate habitat protection. When a habitat management agreement has been reached between the landowner and the agency responsible for managing the species, that could be considered a regulatory mechanism enforceable through contract law.

Better scientific information can help build trust, and so can a transparent decision process built upon risk assessment.

"The inadequacy of existing regulatory mechanisms" is one of the five statutory endangerment factors for listing a species and a reason often cited by the Service in threatened and endangered findings. For species with substantial habitat on federal lands, or migratory birds or marine mammals, federal laws may provide the needed protection (see Chapter 5). Other species likely will need regulatory protection under state law or well-designed conservation agreements. There may be viable alternatives to a regulatory approach for controlling land-use activities.

The concept of a recovery management agreement (RMA) could provide some degree of post-delisting assurance that species will be protected from excessive "take" and that adequate habitat will be maintained. As Scott et al. (2005) describe the concept, as a species nears the objective, measurable delisting criteria in the recovery plan an RMA would be negotiated. On nonfederal lands a state or local government authority would assume responsibility for the management actions. While the species is recovering, the RMA is subject to oversight by FWS or NMFS.

The stark reality is that the Services lack the staffing to force endangered species protection upon some decision-makers across our diverse public and private landscape; recovery requires not only grudging compliance, but also active support and collaboration (Yaffee 2005). The RMA transition period before delisting would provide an opportunity for collaboration, as well as giving the local conservation mangers experience while allowing the Service to develop confidence in the local managers. The RMA transfer from federal to nonfederal control would reflect an acknowledgment of both the biological status of the species and the regulatory protection afforded it by the nonfederal authority (Scott et al. 2005). After the species has recovered and been delisted, FWS or NMFS would no longer be involved in management, but still would oversee monitoring for at least five years as the ESA requires, and retain the ability for emergency relisting.

Better scientific information can help build trust, and so can a transparent decision process built upon risk assessment. The strength of risk analysis is enhanced decision-making transparency (Davis 2000), which is highly desirable in managing forestry risks (Hollenstein 2001) and the risks associated with managing endangered species, including extinction risk and risks of unnecessary expenditures or curtailment of land use when the accuracy of extinction risk estimates and future events are highly uncertain (NRC 1995).

After a species is recovered, maintaining an adequate population level through active management is necessary. A government entity other than the Services will play the key role. On federal lands, it will be a land and resource management agency. On nonfederal lands, usually the state fish and game agency will play the key role. Delisting will not occur until the Service has approved a plan for managing the species, and a plan to monitor the welfare of the species for a minimum of five years. Those who expect more assurance than that are likely to view relisting as something that should be avoided. An alternative viewpoint is that relisting is a safety net in the event that monitoring reveals that the management plan and associated agreements are not working as intended.

Appendix A. Protecting Habitat: The "Agony" of the ESA

Critical habitat is often considered the "agony" of the ESA (Houck 1993). Its designation requires drawing lines on a map and performing economic analysis (Tobin 1990, Houck 1993). The FWS regards this as a low priority activity providing only a marginal increment of protection (Buck et al. 2002), and largely duplicates other protection on federal lands (USFWS 2003a). The FWS position has become problematic. Furthermore, critical habitat vexes private landowners and the courts.

Court-ordered critical habitat designation is problematic (USFWS 2003a). The ESA requires critical habitat determinations to be based on those physical or biological features essential to the "conservation" (i.e., recovery) of the species. However, for many species there is a dearth of information regarding those features. Because both the statutory deadlines in the ESA and the court orders generally do not allow time to research these matters, the agency must often make decisions on incomplete information, or base decisions on where to designate critical habitat on inferences from the needs of similar species, or from the occurrences of vegetation communities often associated with a species, rather than actual knowledge of the needs of a species. This in turn leads to sometimes successful lawsuits challenging the designations on the grounds that they were not done properly. The result is a never-ending cycle of litigation in which one lawsuit orders the Service to designate critical habitat despite the lack of adequate information and either the time or resources to acquire it; a second lawsuit orders the designation to be redone due to (often predictable) defects in the initial designation; and on and on into the foreseeable future (USFWS 2003a).

One such example in Idaho is the designation of critical habitat for bull trout (*Salvelinus confluentus*). Citizen conservation groups petitioned for listing in 1992, which the FWS accomplished in 1998. The groups then sued the agency for failing to designate critical habitat and won. Under a court order, the FWS designated critical habitat in September 2004. The groups criticized the economic analysis for not including benefits as well as costs, and for not including a larger range. The groups filed suit in December 2004 to expand the designated areas.

Another example in Idaho is the designation of critical habitat for salmon and steelhead (*Oncorhynchus* spp.). This situation involves active litigation by economic development interest groups as well as citizen conservation groups, and NMFS currently has proposed rules for critical habitat designation (Sidebar A-1).

Critical Habitat as a Species Sanctuary

Some people perceive that an area designated as critical habitat is a refuge or sanctuary for a species. This perception creates problems on federal and nonfederal lands, as discussed below, with implications for post-delisting habitat protection.

Federal Land. On federal land, critical habitat has been described by legal scholars as something close to being a "super-wilderness, permanently off limits to human use" (Coggins and Glicksman 1995). Not everyone agrees with this perception, but it can be said that within critical habitat on federal land, the needs of ESA-protected species take precedence over any other use of that land. The protection of critical habitat against destruction or significant adverse modification on federal land occurs during the interagency consultation process that also protects members of the protected species from "jeopardy."[158]

Although the boundaries of critical habitat circumscribe a particular area, or areas, according to the FWS all the regions within that area are not necessarily considered essential. Planned habitat modifications in critical habitat will only necessitate consultation if they occur within the regions containing the primary physical and biological features required by the species. Critical habitat maps show the entire area because, for legal purposes, it is often impractical or impossible to precisely map the specific regions containing the complete combination of these features (USFWS 2003a).

Nonfederal Land. On nonfederal land, the enforcement of landowner actions to ensure critical habitat is not destroyed or significantly modified is problematic because the ESA statute has a policy gap. The Act does not provide a regulatory mechanism for protecting habitat on nonfederal land. However, through regulations habitat for threatened or endangered species is protected from "harm" regardless of whether or not it has been designated as critical habitat because the FWS used its regulatory powers to fill the policy gap, albeit in a way Congress did not envision (Houck 1993).

Critical habitat designation provides added protection for listed species by requiring federal "action" agencies (e.g., the USDA Forest Service or USDI Bureau of Land Management) to "consult" with the Service before they carry out, fund, or

Sidebar A-1. NOAA-Fisheries (NMFS) Focus on Critical Habitat for Salmon and Steelhead

Issue Statement: On December 10 and 14, 2004, NOAA-Fisheries (NMFS) published proposed rules in the *Federal Register* to designate critical habitat in Washington, Oregon, Idaho and California for 20 species of salmon and steelhead listed as threatened and endangered under the ESA. The proposal includes one rule for 13 species listed in Washington, Oregon and Idaho,[159] and another rule for seven species listed in California.[160]

Background: The ESA requires the federal government to designate "critical habitat" for any species listed under the ESA. Critical habitat designations must take into consideration the economic impact, impacts on national security, and any other relevant impact of such designation. Also, areas may be excluded from critical habitat if a determination is made that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat. However, the failure to designate critical habitat in specific areas must not result in the extinction of the species (Crouse 2005).

Between 1989 and 2000, NOAA-Fisheries (NMFS) listed 26 species of Pacific salmon and steelhead in the Pacific Northwest and California, and enacted final critical habitat designations for six of those species. In February 2000, the agency published final critical habitat designations for 19 ESUs [evolutionarily significant units] listed at that time. Based on the belief that few, if any, additional requirements would be imposed beyond those already associated with the listing of the species themselves, the agency stated that there would be no economic impact resulting from the designations. The National Association of Home-builders challenged the designations, in particular the adequacy of the economic analysis. NOAA-Fisheries sought a remand to withdraw the designations in light of a Circuit Court decision in *New Mexico Cattle-growers' Association v. U.S. Fish and Wildlife Service*. In that case, the Court rejected the FWS approach to economic analysis, which was similar to the approach NOAA-Fisheries had taken in the final rule designating critical habitat for the 19 ESUs. Subsequently, environmental groups sued alleging that the agency failed to designate in a timely fashion. NOAA-Fisheries then settled with these groups and agreed to a critical habitat proposal deadline that was ultimately extended to November 30, 2004, to be followed by final designations in June 2005 (Crouse 2005).

authorize any modifications to critical habitat. It does not matter if a species is present or not on critical habitat on federal lands for the ESA to protect habitat, but this applies only to federal and federally-funded activities. The Service can affect activities on nonfederal land, but only in situations where a federal agency is involved. For instance, a planned habitat modification on nonfederal land that requires federal funding or permitting will be subject to consultation. For example, the filling of wetlands, or using a federal road to access nonfederal timberland. If, during the consultation, the Service concludes that the planned modifications will have a destructive or significant adverse effect on critical habitat, the Service will either prohibit the modifications or suggest alternative modifications that are less likely to cause "jeopardy" to the species or cause significant adverse modification of critical habitat.

The designation of critical habitat has become a significant obstacle to obtaining landowner cooperation in recovery efforts for many species (USFWS 2003a). Although the ESA can compel agencies and landowners or managers not to harm listed species and not to cause significant adverse modification of their habitat when it injures members of the species, the Service cannot compel them to take the positive steps needed to recover species. Such actions must be done voluntarily. Most listed species are found in whole or in part on nonfederal lands, and the Service has found that state and private landowners are generally strongly opposed to having their property designated as critical habitat. This is a classic example of good intentions failing the test of reality (USFWS 2003a).

The actual effect of critical habitat designation on private landowners is uncertain (Moore et al. 2000). Irrespective of actual regulatory impacts, many people perceive that private property within designated critical habitat areas is off limits to use, which potentially lowers property values (Moser and Morrisette 2001). Some landowners fear that the presence of an ESA-listed species or the designation of critical habitat on their land will result in restrictions of current or future activities on their land and subsequent loss of all or some of their property value (Buck et al. 2002). Landowners are also concerned that designation of critical habitat on

their land could render them susceptible to third-party lawsuits. These perceptions are at least as important as reality (Tobin 1990, Ruckelshaus and Darm 2005). Furthermore, different appellate courts have arrived at different interpretations of what Congress intended with regards to critical habitat (Bean and Rowland 1997, Feldman and Brennan 1997, SELS 2001).

For the purposes of this report, suffice it to say that some species have designated critical habitat and some do not, and that some designations are on nonfederal as well as federal land, and some are not. Due to the costs and controversies associated with protecting the habitat species need in order to recover, one therefore could expect related controversies to arise when considering how to protect habitat for recovered species following delisting. This issue is addressed in Chapter 7.

"Take," "Harm," and "Significant Habitat Modification"

Habitat is protected against a "take"[161] differently depending on whether the protected species is an animal or plant, threatened or endangered, and inhabits federal or nonfederal land.

Animals. For endangered animals, habitat is protected implicitly because no one may "take" individual members of a species.[162] "Take" has a broad definition in the ESA, and means "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect."[163] The concept of "harm" is interpreted by the FWS as any act that significantly degrades or modifies habitat in a way that impairs essential behavior patterns,[164] and regulations define "significant habitat modification" as a "take" through the "harm" definition if such an action "actually kills or injures wildlife by significantly impairing essential behavior patterns."[165]

Habitat for an endangered animal species or subspecies is implicitly protected in all geographic regions deemed relevant by FWS or NMFS and may include areas not currently occupied. Habitat for an endangered animal that is classified as a DPS, however, is implicitly protected only within the specific geographic boundaries demarcating the population's range.

Protection for threatened animal species may be treated differently than endangered animals. Through the APA rule-making process, the Service can issue regulations considered necessary for "conservation" (i.e., recovery of threatened species), including regulations prohibiting activities that "take" threatened species.[166] Implicit protection of habitat for threatened animals therefore is at the discretion of the FWS or NMFS.

Plants. Implicit protection of habitat for animals does not pertain fully to plants because the broad prohibition against "taking" protected animals does not apply to plants (Bean and Rowland 1997). In other words, there are no specific mandates that forbid a person from adverse modification of habitat in areas where endangered plants reside. However, the ESA does prohibit the removal, malicious damage, or destruction of any endangered plant if the plant resides on federal land.[167] Therefore, implicit protection of habitat for endangered plants on federal land is not automatic unless use or modification of habitat has an immediate, terminating effect on the plant (immediacy is not a prerequisite for animals). On nonfederal land, the ESA prohibits removal or destruction of an endangered plant only if a person does so in "knowing violation of any law or regulation of any state or in the course of any violation of a state criminal trespass law."[168] This means that protection of habitat for threatened and endangered plants on nonfederal lands is dependent on state law.

Ecosystem "Conservation"

One of the stated purposes of the Act is to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."[169] The protection of ecosystems makes ESA implementation tasks many times more difficult than protecting individual species (Yaffee 2005). The statutory means to ecosystem protection is the listing of individual species and designation of critical habitat essential for their "conservation" (i.e., recovery) (NRC 1995). Some people argue that implementation of the Act should do more than protect species because they interpret protection of ecosystems as more important than the protection of species (O'Laughlin 1992). However, other than designated critical habitat under the ESA, Congress has not provided an explicit means to protect ecosystems under any law. Nevertheless the concept of ecosystem management was embraced by all federal land and resource management agencies in the 1990s. As Keiter (1996) points out, the concept of ecosystem management has tenuous legitimacy until Congress authorizes it, thus it is undefined for legal purposes.

The ESA's "conserve ecosystems" statement has been debated extensively (e.g., NRC 1995). It is likely that the individuals who drafted the ESA in 1973 recognized the importance of protecting the

habitat as well as species (NRC 1995, Mann and Plummer 1995). An ecosystem, in short, is a set of organisms interacting with their environment. Protecting habitat for a species means protecting the ecosystem components a species needs.

The policy statement set forth by the Service agencies[170] proposes that ecosystem "conservation" may be achieved through the Act by a) listing multiple species on a geographic and ecosystem basis; b) developing cooperative agreements among federal agencies, states, tribes, and private landowners that coalesce environments in which groups of listed species depend; and c) developing recovery plans for these ecosystems. Progress has been slow regarding the development of cooperative agreements as a habitat protection mechanism, even though the Act authorizes the Service to use the Section 7 interagency consultation process as a way of encouraging cooperative agreements among land owners and land management agencies (Patlis 1996, Jewell 2000). Such agreements may also be a key part of a successful delisting process (see Chapter 7).

Endnotes

1. 5O CFR 17.11, 17.12
2. ESA § 4(a)(1)
3. ESA § 3(15)
4. ESA § 4(c)(1)
5. ESA § 3(13)
6. ESA § 3(8)
7. ESA § 3(14)
8. ESA § 3(6)
9. ESA § 3(16)
10. 61 FR 4722
11. 56 FR 58612
12. ESA § 2(1)
13. ESA § 2(a)(3)
14. ESA § 3(3)
15. ESA § 4(a)(2)(A)
16. APA, 5 USC § 553
17. 50 CFR 424.14
18. ESA § 4(b)(3)(A)
19. ESA § 4(b)(3)(A)
20. ESA § 4(b)(5)(B)
21. ESA § 4(b)(1)(A)
22. ESA § 3(6)
23. ESA § 3(20)
24. 50 CFR 424
25. ESA § 4(a)(1)
26. ESA § 4(b)(1)(A)
27. 68 FR 15100
28. ESA § 4(b)(3)(C)(i)
29. ESA §§ 4(b)(4) and 4(b)(5)
30. 48 FR 43098
31. 55 FR 24296
32. ESA § 4(b)(5)
33. 59 FR 34270
34. ESA § 4(b)(5)
35. ESA § 4(b)(5)
36. 50 CFR 424.02(h)
37. ESA § 4(b)(6)
38. ESA § 4(b)(6)(A)
39. ESA § 4(I)
40. ESA §§ 9(a)(1) and 9(a)(2)
41. ESA § 3(5)(A)
42. APA, 5 USC § 553
43. 64 FR 31871
44. ESA §§ 9(a)(1)(B) and 9(a)(1)(C)
45. ESA § 3(19)
46. 50 CFR 17.3
47. ESA § 9(a)(2)(B)
48. ESA § 4(b)(3)(A)
49. ESA § 4(a)(2)(B)
50. 50 CFR 424.11
51. 50 CFR 424.11
52. ESA § 4(f)(1)(B)
53. 50 CFR 424.11
54. 64 FR 46541
55. ESA § 4(g)(1)
56. ESA § 4(g)(2)
57. 50 CFR 424.16(c)(2)
58. ESA § 4(b)(3)(A)
59. ESA § 4(b)(3)(B)
60. ESA § 4(b)(5)
61. 50 CFR424.16(c)(2)
62. 64 FR 46541
63. 50 CFR424.16(c)(3)
64. 50 CFR424.18(c)
65. ESA § 11(g)
66. E.g., *Lujan v. Defenders of Wildlife*, 504 U.S. 555
67. EAJA, 28 USC § 2412, 5 USC § 504
68. ESA § 4(b)(3)(c)(ii)
69. 5 USC § 704
70. *Northern Spotted Owl v. Hodel*, 716 F. Supp. 479
71. ESA § 4(b)(3)(C)(ii)
72. 5 USC § 704
73. ESA § 4(f)
74. 69 FR 60605
75. 70 FR 20512
76. 68 FR 15804
77. ESA § 4(g)
78. ESA § 6(d)(2)
79. Idaho Code § 36-101
80. Idaho Code § 36-102
81. Idaho Code § 36-103
82. Idaho Code § 36-104
83. Idaho Code § 36-106
84. Idaho Code § 67-818
85. Idaho Code § 67-8 18
86. Idaho Code § 67-8 18
87. ESA § 6(d)
88. 16 USC § 757a-757g
89. 59 FR 34275
90. 59 FR 34275
91. U.S. Constitution, art. I, § 8, ci. 3
92. 16 USC § 3372
93. U.S. Constitution, art. II, § 2, ci. 2
94. U.S. Constitution, art. VI, ci. 2
95. 16 USC § 703-711
96. U.S. Constitution, art. IV, § 3, ci. 2
97. U.S. Constitution, art. I, § 8, ci. 1
98. 42 USC § 4321 et seq.
99. 16 USC § 1600 et seq.
100. NFMA § 6(g)(3)(B)
101. 36 CFR 219.19
102. 70 FR 1023
103. 70 FR 1028
104. 70 FR 1029

105. 70 FR 1031
106. 59 FR 34273
107. 43 USC § 270 et seq.
108. 64 FR 25263, 68 FR 43647
109. 59 FR 34273
110. 16 USC §§ 668-668d
111. 16 USC § 668; 50 CFR 22
112. 16 USC § 668c; 50 CFR 22.3
113. 16 USC §§ 661-666c
114. 33 USC § 1251 et seq.
115. 48 FR 43098, 55 FR 42496
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118. *Defenders of Wildlife, et al. v. Secretary of Interior, et al.*, Civil No. 03-1348-JO
119. 70 FR 1285
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124. 68 FR 40076
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129. 62 FR 38932
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131. 70 FR 20512
132. 70 FR 20512
133. ESA § 4(f)(1)
134. ESA § 4(a)(1)
135. ESA § 4(f)(1)
136. Idaho Code § 36-103
137. Idaho Code § 36-2401 et seq.
138. Idaho Code § 36-1301
139. Idaho Code § 36-1401 et seq.
140. ESA § 3(5)
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144. 64 FR 31871
145. *Babbitt v. Sweet Home Chapt. Comms. for Ore*. (94-859), 515 U.S. 687 (1995)
146. 50 CFR 17.3
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152. ESA § 10(a)
153. ESA § 4(b)(1)(A)
154. ESA § 10(a)
155. H.R. Conf. Rep. No. 97-835, page 19
156. 16 USC § 6501 et seq.
157. ESA § 2(a)(1)
158. ESA § 7
159. 69 FR 74571
160. 69 FR 71879
161. ESA § 9
162. ESA § 9
163. ESA § 3(18)
164. 46 FR 54748, 54750
165. 50 CFR 17.3
166. ESA § 4(d)
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