



October 23, 2012

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U.S. Fish and Wildlife Service
Division of Conservation and Classification
4401 N. Fairfax Drive, Ste. 420
Arlington, VA 22203

Ms. Marta Nammack
National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910

Re: Comments on Proposed Revisions to the Regulations for Impact Analyses of Critical Habitat

Dear Ms. Alt and Ms. Nammack:

This letter provides comments on behalf of the Western Urban Water Coalition (WUWC), regarding the Department of the Interior and Department of Commerce proposed rulemaking for *Revisions to the Regulations for Impact Analyses of Critical Habitat*, 77 Fed. Reg. 51,503 (Aug. 24, 2012).

The WUWC consists of the largest urban water utilities in the West, serving over 35 million western water consumers in 13 metropolitan areas in five states. The membership of the WUWC includes the following urban water utilities: *Arizona* – Central Arizona Project, City of Phoenix; *California* – East Bay Municipal Utility District, Metropolitan Water District of Southern California, Los Angeles Department of Water and Power, San Diego County Water Authority, City and County of San Francisco Public Utilities Commission, Santa Clara Valley Water District; *Colorado* – Aurora Water, Denver Water; *Nevada* – Las Vegas Valley Water District, Southern Nevada Water Authority, Truckee Meadows Water Authority; and *Washington* – Seattle Public Utilities.

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As individual urban water utilities, WUWC members are in the position of serving both as public entities, for purposes of providing services to urban customers, and as nonfederal entities, for purposes of regulation under the Endangered Species Act (ESA). As an organization, the WUWC has a longstanding commitment to, and involvement with, ESA issues, beginning at a policy level during the Clinton Administration nearly 20 years ago, and has continued with multiple meetings with DOI and involvement throughout the Administration's current ESA improvement process. First initiated by President Obama's Executive Order No. 13,563 (Jan. 18, 2011), and affirmed by Executive Order No. 13,610 (May 10, 2012), federal agencies have been ordered to reduce unjustified regulatory burdens and costs, including those associated with ESA compliance. As explained in our comment letters of March 28, 2011, August 10, 2011, and April 23, 2012, the WUWC strongly supports administrative actions to improve the ESA. Our principal concern with the Administration's current reform program is that it is too limited in scope and, to date, has resulted in few concrete actions. We welcome the proposed rule as an important step in ESA improvement, but strongly encourage more far-reaching and action-forcing initiatives in the near future.

Our agenda for reform is set forth in the attached Position Paper on Reform of the Endangered Species Act (Attachment 1), which has been previously discussed with DOI officials. The WUWC would be pleased to consult with federal agency officials about all of the issues discussed in these position papers.

One of the most significant ESA issues that has been evaluated and acted on by the WUWC is the manner in which areas have been excluded from proposed critical habitat designations on the basis of economic considerations. Following the 2001 Tenth Circuit decision in *New Mexico Cattle Growers Ass'n v. U.S. Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001), the Services determined that it would be necessary to establish a meaningful and consistent approach for determining the economic impacts caused by critical habitat designation. Recognizing the importance of this issue, the WUWC participated with other parties in developing such an approach and submitting it to the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (Attachment 2). While many elements of the WUWC's recommended approach were adopted by the Services for some past designations, in the intervening decade, the methodology used to calculate economic impacts has become confused, with a wide variation in standards and inconsistent results. The WUWC appreciates the Services' renewed commitment to establishing a transparent and consistent method of analyzing economic impacts during the critical habitat designation process, and welcomes the opportunity to submit the comments below.

Timing of Release of Draft Economic Analyses

As a preliminary matter, the WUWC strongly supports the President's March 2012 Memorandum and the proposed rule to release draft economic analyses concurrent with the proposal of critical habitat designation. This approach will allow for greater public participation in the critical habitat designation process, allowing stakeholders the opportunity to provide the Services with valuable information necessary to fully determine impacts, as required under section 4(b)(2) of the ESA. This approach also provides more information and allows stakeholders and the Services the opportunity to collaborate prior to and during the period following the proposed designation in the development of effective habitat conservation and recovery while minimizing negative impacts on parties committed to protecting listed species.

Although the WUWC agrees the economic analyses should be made available for comment at the time of the proposed designation, we are concerned that the actual exclusions based on the economic analyses will lag behind the final critical habitat designation. We therefore recommend that the regulations also should specify that another step will be involved where the *actual proposed exclusions* to be made based on the economic analysis that is released at the time of the proposed rule are released for public comment *before* the final designation determination. Ideally, the exclusion proposal would be made the same as the proposed listing/critical habitat designation. Indeed, section 4(a)(3)(A) of the ESA requires critical habitat designations (including economic exclusions) to be promulgated concurrently with listing. 16 U.S. C. § 1533(a)(3)(A). The Services should *not* adopt a process whereby the final designation would be made on biological grounds only, leaving the economic exclusions for a later date, which could result in reluctance to make exclusions from an already completed designation. Nor should the Services fail to provide for timely public review and comment on proposed exclusions. We therefore request that the procedure be modified so that comments can be submitted on proposed exclusions such that the excluded areas would be acted on at the same time as the final designation.

Economic Framework for Weighing Costs and Benefits of Designations

In the preamble to the proposed rule, the Services note a plan to consistently adopt the so-called "incremental approach" to evaluating the economic impacts associated with critical habitat designations. As discussed in previous briefing papers to the Services, the WUWC recommends that a cost-effectiveness methodology be applied. A detailed discussion of this approach is set forth in Attachment 2.

The cost-effectiveness framework is designed to find the least-costly means to achieving the ESA-mandated objective of designating and protecting habitat that is essential for species conservation. A cost-effectiveness framework is practical because it accepts the statutory

objective of protecting habitat essential for species conservation and focuses on limiting analytical resources on estimating the costs of including specific geographic areas for special management within the designation. The cost for each habitat area can then be compared to the biological value of the habitat to arrive at a designation of critical habitat areas that protects the most essential habitat while minimizing economic costs.

In implementing the cost-effectiveness framework, it is vital that biologists, rather than economists, be given the authority to determine which habitat and physical or biological elements of that habitat have the greatest biological value for the conservation of listed species and what special management measures are necessary to conserve species beyond those necessary to prevent jeopardy to, and likely extinction of, a species. After biologists are given the autonomy to make these initial distinctions, economists have the tools necessary to provide meaningful cost-estimates for comparison with the biological benefits of protecting critical habitat in a particular area.

In making these determinations, economists have several tools that can be used to estimate the full economic costs of critical habitat designation. Some tools are simple to apply, require little data, and can be used to quickly provide pertinent information on the direct economic costs of critical habitat designation. Other, more complex tools, including input-output analysis, allow economists to employ complex modeling and account for additional data, providing a richer analysis of the direct and indirect costs of habitat protection for a particular region or industry.

In evaluating economic impacts associated with critical habitat designation, the Services should be afforded some flexibility in choosing the economic tool that is most appropriate for each designation. The more complicated economic models should be used to analyze designations of large geographic areas and situations where economic activity is concentrated. The simple, direct-cost method should be used where designations are small in area or there is little variation in the type of land use and economic activity throughout the proposed designation.

Under the WUWC's proposed cost-effectiveness approach, the Services are provided with information on the relative costs and benefits for designating or excluding specific geographic areas from designation as critical habitat. Areas with high habitat value and low economic costs should generally be included in such designations; conversely, areas with low habitat value and high economic costs should generally be excluded from designation. The Service will also have the flexibility to consider including high, value-high cost areas, or low, value-low cost areas should the areas described above not provide sufficient habitat to achieve species conservation objectives.

The Services should develop a detailed framework and methodology for economic analysis of critical habitat designation. This framework should be developed through public notice and

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comment, including face-to-face discussions with affected interest groups. The new approach may be embodied in the Services' joint regulations on critical habitat designation, 50 C.F.R. Part 424, or in a formal guidance document. Specifically, the framework and methodology should: 1) eliminate the "incremental" or "baseline" approach and include an exclusion process based on meaningful economic analysis; 2) delineate and prioritize habitat segments based on their relative value in conserving a listed species; 3) use a least-cost or an ordinal ranking cost-effectiveness approach that avoids the monetization of biological benefits, and searches for a critical habitat configuration that satisfies the conservation objective while minimizing costs; 4) require the Services to distinguish between measures necessary to avoid jeopardy and those necessary to conserve the species; 5) calculate the costs of designation using methods and data that are scaled to the scope and impacts of a proposed designation; 6) use an accounting stance that recognizes localized and regional impacts in the near-term, and that considers direct, indirect and cumulative economic impacts.

The importance of developing a uniform method for evaluating economic impacts becomes clear in light of the current Administration's track record on economic exclusions. As revealed in the enclosed Table, based on all crucial habitat designations since 2009, only about 11% of such final actions received any kind economic exclusion (7 out of 59). (Attachment 3). This number is very low and suggests that the Services are not taking the economic exclusion process seriously.

The research set forth in Attachment 3 also reveals the confusing and inconsistent nature of the Services' economic analyses. There is no consistent methodology or procedure that has been used. A review of nearly 200 proposed and final designations shows that only about one-third have been subject to any economic impact analysis. Eight of the analyses used the co-extensive method endorsed by the Tenth Circuit in the *Cattle Growers* decision. Another 15 use the so-called incremental approach accepted by the Ninth Circuit under *Gifford Pinchot Task Force v. USFWS*, 328 F.3d 1059 (9th Cir. 2004). The remainder relied on what appears to be a combined approach. This highly inconsistent record confirms the need for a uniform methodology that would govern all economic exclusion analyses, and the WUWC requests that our proposed cost-effectiveness method be used for this purpose. Merely adjusting the timing of economic analyses as set forth in the proposed rule will not solve the regulatory efficiency problem identified by the President's March 2012 memorandum; adopting standardized exclusion methods and guidelines is far more important.

Habitat Conservation Plan Exclusions

While not the subject of the proposed rule, the WUWC believes it is very important for the Services to reaffirm the strong past practice of excluding areas subject to habitat conservation plans (HCPs) from critical habitat. Exclusion of land and waters within HCPs is required in

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many cases because those plans meet the “special management considerations” requirement of the definition of critical habitat. 16 U.S.C. § 1532(5)(A)(i). When an HCP meets this test, the covered area does not qualify as critical habitat and cannot be included. In addition, even if this rationale does not apply, the Services have discretion under section 4(b)(2) to exclude HCP areas when the benefit for doing so exceeds the benefit from inclusion. *Id.* § 1533(b)(2). In almost every case, the benefits attained by encouraging nonfederal property rights holders to participate in species conservation through an HCP will justify the exclusion. This policy has been a longstanding practice for the Services, and the WUWC requests that formal guidance be adopted to confirm the presumption in favor of excluding HCP areas from critical habitat.

Conclusion

The WUWC commends the Services for their continued efforts to reform implementation of the ESA, and appreciates the opportunity to provide comments on the important subject of how economic analyses should be incorporated into the critical habitat designation process. Please do not hesitate to contact WUWC counsel at Perkins Coie LLP, Guy Martin at (202) 654-6363 or Donald Baur at (202) 654-6234 to discuss any aspects of these recommendations in greater detail.

Very truly yours,



David Modeer
Chair, Western Urban Water Coalition
General Manager, Central Arizona Project

ATTACHMENT 1



Position Paper on Reform of the Endangered Species Act

Urban populations in the West continue to grow rapidly. Established in 1992, Western Urban Water Coalition (WUWC) addresses the legal, policy and technical issues related to the critical role that water plays in the growth of the most urbanized regions of the western United States. The WUWC consists of the largest urban water utilities in the West, serving over 35 million western water consumers in 13 metropolitan areas in five states.¹

Water requirements for municipal, agricultural and environmental purposes have increased competition for the finite water resources of this region. Application of the Endangered Species Act (ESA) in the West has heightened this competition by requiring that water resources be reserved and used for the conservation and recovery of species protected under that law. The current review of the ESA by Congress offers an opportunity to assess the relationship among the demands placed upon water resources for municipal, agricultural and biological purposes, and to make appropriate adjustments to the statute and the manner in which it has been implemented to address the realities of the changing water usage demands and environmental values of the modern West.

The WUWC's approach to water management embodies a conservation ethic shared by the ESA. The WUWC supports the ESA but believes that the Act and its implementation need to be improved. To successfully advance this ethic, the ESA must encourage conservation efforts before species are endangered or threatened and must adequately and promptly follow through with recovery efforts for listed species.

Water utilities are increasingly frustrated over the uncertainty and delay encountered by projects subject to ESA requirements. Traditional ESA programs emphasize single-species efforts, often initiated only when species are facing extinction. Such crisis

¹ The membership of the Western Urban Water Coalition (WUWC) includes the following urban water utilities: *Arizona* – Central Arizona Project, City of Phoenix; *California* – East Bay Municipal Utility District, Metropolitan Water District of Southern California, San Diego County Water Authority, City and County of San Francisco Public Utilities Commission, Santa Clara Valley Water District; *Colorado* – City of Aurora, Denver Water; *Nevada* – Las Vegas Valley Water District, Southern Nevada Water Authority, Truckee Meadows Water Authority; and *Washington* – Seattle Public Utilities.

management results in constantly changing and fragmented recovery efforts that are protracted and costly.

If the ESA is to reach its full potential for conserving the habitat of endangered and threatened species, the traditional manner in which it has been implemented must change. These changes should include: proactive conservation initiatives before species are listed; broadening ESA efforts from a single- to a multiple-species approach; creating opportunities for voluntary participation in ESA programs; use of a consistent and accountable decision-making process; better implementation of recovery plans; more precise and properly-timed designations of critical habitat; and assurances that federal agencies will fulfill their own duties under ESA programs. To address the concerns contained in this Position Paper and to assist Coalition members in fulfilling their responsibilities, the WUWC supports sufficient funding for the initiatives discussed below. These areas of concern, as well as specific recommendations on changes that should be made to the ESA, are described in greater detail in the text that follows.

At the heart of the WUWC approach to ESA implementation is the theme that early intervention should be encouraged to protect species and ecosystems in a more cost-effective manner. Proactive conservation initiatives, undertaken before species are listed as endangered or threatened, prevent conditions from deteriorating to levels that require (a) severe restrictions on human activity in a habitat area, and (b) intensive and expensive recovery efforts. Proactive implementation of such programs would emphasize a consensus approach to conservation issues, and it would avoid the delays that result from the present listing and recovery processes which are often adversarial in nature.

There is a growing recognition that in many cases the most effective way to deal with the current situation is through multiple-species programs initiated in advance of listing. To accomplish this, the ESA must be amended to give formal recognition to such programs, assure those undertaking these efforts that they will receive appropriate authorization for incidental take of species covered by these advance plans, and provide that actions undertaken in accordance with such plans will be considered to be consistent with the requirements of the ESA.

The goals of such programs would be to: (1) make listing a species unnecessary due to proactive multiple-species management efforts; (2) reduce the impacts of a future listing should it occur; (3) provide an in-place mechanism to resolve problems associated with listing to avoid delays in on-going projects; and (4) establish the basis for more effective recovery efforts that will have the least adverse impact on development projects for species that are, or will become, listed under the ESA. These goals, as well as mechanisms to make decisions on recovery plans and critical habitat designations more timely and focused on special needs, serve as the basis for the WUWC ESA reform agenda.

Critical Habitat Designation Should Be Moved from the Listing Stage to the Recovery Plan Stage and Should Take Into Account Economic Considerations and Existing Plans that Provide for Species Conservation

The most problematic aspect of the ESA today is the designation and protection of critical habitat. Section 4(b)(2) requires that critical habitat be designated at the time of listing, except when it is not reasonable and prudent to do so. In fact, for most species, critical habitat designations are not made at the time of listing. This has resulted in an explosion of litigation to compel such designation, which has in turn placed a huge administrative and financial burden on the U.S. Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries, or NMFS), often to the detriment of other aspects of the ESA program. A far better approach is to provide for critical habitat to be designated later in the process, when more or better information is available to assist in more accurate designation and lessen the administrative burden at the listing stage. The ideal time for such designation is at the species recovery plan issuance stage, at such time as the relevant plan has been completed and has entered the implementation stage. WUWC recommendations regarding recovery plan implementation are set forth on pages 9-10.

While making such designations, the agencies have often failed to account properly for the economic impacts caused by designation. Section 4(b)(2) of the Act requires evaluation of economic impacts, and exclusion of those areas where the costs outweigh the benefits, yet no principles exist to guide the evaluation of such impacts so as to factor them into a designation decision. In particular, there is a need for legislative guidance on how economic impacts should be evaluated. This should be done through a cost-effectiveness framework designed to find the least-cost means of achieving the ESA objectives of designating and conserving habitat that is essential for species conservation. Under such an approach, the economic costs for each habitat area should be evaluated by addressing direct and indirect costs, and then comparing such costs with the biological value of the same area. The WUWC has prepared a detailed position paper on how this methodology should be applied.

Finally, critical habitat should exclude areas where special management tools are provided that eliminate the need for designation. This principle has been applied to exclude areas covered by conservation management instruments such as habitat conservation plans (HCPs), safe harbor agreements, and federal land management plans that include species conservation components (e.g., federal land use management plans). In certain situations, however, areas included in HCPs as mitigation lands or other components are appropriate to *include* in critical habitat because of the management goals of all of the applicants/permit holders. HCPs are voluntary agreements, and accordingly their proponents should be allowed to opt for inclusion of such areas in critical habitat when there is unanimous agreement among them to do so.

Recommendations

- Require critical habitat designations to be made when recovery plans are issued in final, not at the listing stage.
- Require the promulgation of rules to specify the methodology used to evaluate economic impacts of critical habitat designation, based upon cost-effectiveness principles and the evaluation of direct and indirect economic impacts.
- Require the exclusion from critical habitat of those areas subject to HCPs, safe harbor agreements, candidate conservation agreements, prelisting agreements or government land or water management plans that include species conservation components that meet ESA standards. For areas subject to non-federal party management, allow the responsible entity or entities to “opt in” such property to critical habitat designation when all of the applicants/permit holders agree to do so.
- Define the term “essential to the conservation of the species” to ensure that only high quality habitat vital for species conservation is designated.

The Definition of the Term “Adverse Modification” of Critical Habitat Should Be Revised to Address Recent Litigation

Another problematic aspect of the critical habitat program is the manner in which impacts to designated areas are evaluated pursuant to ESA consultation. Under section 7(a)(2), federal agencies must consult with FWS or NMFS to ensure that their activities do not cause jeopardy to listed species or adversely modify or destroy critical habitat. The current regulatory definition of the term “adverse modification” has been invalidated by two Circuit Court of Appeals decisions, most recently in *Gifford Pinchot Task Force v. United States*, 378 F.3d. 1059 (9th Cir. 2004). See also *Sierra Club v. U.S. Fish and Wildlife Service*, 245 F.3d. 934 (5th Cir. 2001). As a result of these decisions, the term adverse modification has been linked with a recovery standard under the Act. This is a much higher test than previously applied and leaves unresolved the question of what actions will violate the jeopardy prohibition of section 7(a)(2).

To date, FWS and NMFS have not provided guidance on the meaning of these terms. Efficient and effective administration of the Act requires a clear definition of these terms.

Through new rulemaking, adverse modification should be defined to accomplish several key objectives:

- 1) As required by the court decisions, the term should be linked to conservation.

- 2) Adverse impacts should be tied to the condition of the specific biological and physical habitat elements that were identified in, and the basis for, designation of critical habitat in the first instance. As required by section 7(a)(2), the determination as to whether those elements have been appreciably diminished must be based upon the “best scientific and commercial data available” at the time of the specific consultation. Thus, although the most current data should be used, the measure for recovery is to be based on the reasons for designation in the first instance.
- 3) The concept of “net effects” should be reflected, so that adverse impacts can be offset by protective measures and replacement habitat associated with the proposed action. This concept is already reflected in reasonable and prudent alternatives in biological opinions, and it should be incorporated into the determination of whether adverse modification would occur.
- 4) In addition, congressional guidance should provide that the agencies must avoid too narrow an analysis of the relationship between the impacts of the proposed action and conservation. Assessing conservation solely in the context of impacts of the activity in the action area could lead to a finding of adverse modification even though those effects are inconsequential when viewed from the perspective of the overall designated area. This is especially likely to be the case when large areas are designated. In such a circumstance, even an impact that affects a significant amount of habitat in the action area still may not appreciably diminish the overall recovery prospects for the species. The analysis should therefore consider the effect of the action on species conservation throughout all or a significant portion of its range. In addition, the impact should be long-term or persistent, not merely a brief or one-time occurrence.
- 5) The term “jeopardy” should be defined. This term should reflect the same concepts of direct/indirect net effects, best available science, and offsetting mitigation as discussed previously for critical habitat. Furthermore, jeopardy should be defined to prohibit actions that would cause a species to be placed at risk of not sustaining a minimum viable population level or that would appreciably diminish its current status. This would distinguish jeopardy from adverse modification but not allow actions that would cause effects to a point where the species is placed at risk of survival or caused to be worse off than its current condition.

Based upon these concepts, the revised definition of critical habitat would read as follows:

Destruction or adverse modification means the net effect of a direct or indirect alteration that appreciably diminishes the value of the physical or biological features of the designated area such that they no longer meet the needs considered to be essential to the conservation of the species at the time of designation, after consideration of offsetting improvements in habitat or protection for replacement habitat associated with the proposed action.

While regulatory reform is confined to the principles of the current Act as limited by the courts, there is more flexibility for legislative change. In ESA amendments, Congress should reexamine section 7(a)(2) to ensure that the conservation goals of the Act are adhered to while, at the same time, avoiding an unnecessarily high standard for the acts that trigger the prohibition. With this objective in mind, Congress should consider amending section 7(a)(2) to consider the net effects (including beneficial impacts of the action), and provide that the section 7(a)(2) prohibition would apply only to negative effects that are significant, long-term, and cause the species impacts throughout all or a significant portion of its range.

Recommendation

The regulatory definition of “adverse modification” should be revised to clearly distinguish the term from “jeopardy.” The definition should relate to the factors that were the basis for the listing decision and take into account “net effects” by accounting for offsetting measures that improve habitat conditions. In taking up legislative reform, these principles should be considered, with the understanding that more flexibility exists to redefine the terms in section 7(a)(2) to address conservation concerns without setting the prohibited action test too high.

Confirm the No Surprises Rule and Other Regulatory Incentives

One of the most important innovations in ESA implementation over the last decade has been the increased use of regulatory incentives to encourage non-federal parties to participate in species conservation efforts. The most significant such innovation is the so-called “No Surprises” rule, which guarantees parties to HCPs that the government will not require them to make new and unexpected investments to keep their incidental take permits. This concept, implemented by regulation, has been one of the principal motivating factors for bringing non-federal parties into the ESA program. For over eight years, the No Surprises rule has been challenged in litigation, casting a cloud over its use. It is therefore essential to legislatively confirm the No Surprises rule. The same is true for other agreements that cover incidental take, regulatory incentives, such as safe harbor agreements, pre-listing agreements, candidate conservation agreements, and ecosystem-based HCPs.

Recommendations

- Authorize federal agencies to develop conservation plans for individual species throughout their entire range on federal land, and for entire ecosystems on federal land. Such plans must be adequately funded by the federal government.
- Authorize federal funding that provides resources to support development and implementation of regional programs (e.g., mitigation banking agreements).

- Confirm the No Surprises Rule, including its application not only to HCPs, but also to other ESA plans and agreements that focus on proactive initiatives involving listed species, such as safe harbor agreements.

Enhance the Program for Developing Recovery Plans

The ESA recovery plan concept should be broadened so that multiple-species approaches can be pursued. Current programs focus on recovery and preservation of single species. Such programs may benefit listed species, but they can fail to protect unlisted species or ensure biological diversity. Designation of critical habitat and implementation of recovery plans for a single species allow habitat modifications that may be detrimental to other coexisting species, and they can delay protection until the capacity of a habitat to support a diverse biota is severely compromised.

Project proponents should have the option under the ESA of pursuing solutions to ESA problems based on multiple-species approaches covering species subject to the ESA that may be affected by their actions. The discretionary use of a multiple-species habitat conservation initiative, as an alternative to single-species conservation and recovery programs, provides a process for long-term planning by state and local agencies to avoid resource conflicts. It also provides a flexible and effective tool that allows the private sector and resource users to work cooperatively with the federal government, and it promotes ESA goals without stifling needed resource development and economic growth initiatives.

Recovery plans should be developed through more open and cooperative procedures whereby: affected agencies and parties are allowed to participate; relevant data are shared; data collection needs are identified through a cooperative process; and reasonable time frames are developed and adhered to in order to complete the plans and implement them.

In addition, recovery plans need to be prepared with more attention to detail and specific deadlines. They should be required to include quantifiable and clearly defined milestones that make it possible to track the progress toward recovery. Clearly detailed recovery targets should be set forth, and plans should be required to follow an “adaptive management” approach where they can be revised mid-course, if necessary.

Finally, the program must ensure that adequate funding is available to develop and carry out recovery plans. The failure to provide such funds is especially deleterious if, as recommended above, critical habitat designation is tied to recovery plan development. Failure to fund recovery plan development will lead to a new round of litigation, defeating the purpose of the amendment. It also will hamper the goal of the ESA to promote species conservation.

Recommendations

- Provide for the development of multiple-species or habitat-based recovery plans, including plans that will apply to species throughout their entire range on federal lands.
- Require recovery plans to be more detailed, and include requirements for content, recovery milestones, mid-course progress evaluations, and projected time frames for ultimate recovery and delisting. Recovery plans themselves should be developed under time lines that require implementation as expeditiously as practicable. Such plans must be developed through procedures that allow for input from affected stakeholders.
- Ensure adequate funding to develop recovery plans.

Implementation of ESA Recovery Plans Must Be Better Prescribed and Managed

One frustration with the ESA is that recovery plan implementation efforts are not always undertaken expeditiously or effectively. Also, in many cases these measures do not allow sufficient flexibility to deal with species conservation problems as they arise. Administrative and legislative actions are needed to address these problems.

Species conservation efforts that result from recovery plans do not always contain measurable milestones by which the progress toward species recovery can be gauged. This limits the ability of responsible agencies and regulated parties to evaluate the effectiveness of such efforts and the time and costs estimated to achieve the plan's goals. Moreover, responsible agencies have no means to require other federal or regional agencies and other parties to implement the actions identified in the plans.

Thus, delayed recovery efforts place species and habitats at greater risk, and require more extensive and costly actions when the efforts are initiated. Recovery of listed species is the underlying goal of the ESA, and more must be done to strengthen and expedite agency recovery plans. Frequently, involved agencies lose track of the fact that recovery plans advance the dual purpose of assisting species conservation and making possible resource use and development activities. For example, such plans could, but seldom do, include specific factors that may be adopted for mitigation purposes by parties whose activities may affect listed species or designated critical habitat. Such guidance would benefit species as well as provide options to affected parties regarding how to conduct their activities in a way that is consistent with the Act.

Recommendations

- Require timely implementation of recovery plans.

- Require standards for cooperative decision-making and data gathering procedures for implementing recovery plans.

A Consistent Decision-Making Process Must Be Used to Execute Provisions of the ESA

A uniform decision-making process based on scientifically credible information would improve species preservation and habitat protection efforts. If stakeholders in agency decisions are able to review and comment at critical points in the process, there would be clearer expectations and greater confidence that program efforts would benefit endangered and threatened species.

Implementing agencies often lack sufficient staff and resources to thoroughly review and consistently apply all available data when preparing listing decisions, biological opinions, incidental take permits, recovery plans, and designation of critical habitat. This has caused protracted, acrimonious debates that often result in judicial challenge. Such litigation fails to provide timely protection for threatened and endangered species, and it often impedes or halts important water resource development projects. Greater confidence in the credibility and consistency of ESA decisions reduces the hesitation of agencies, developers and the public to participate in the process, and speeds implementation of ESA decision-making and recovery initiatives. Species conservation and ecosystem preservation efforts based on sound technical information and objective decision-making provide the most cost-effective use of limited resources.

It is in the best interest of ESA stakeholders, including municipal water utilities, to assist FWS and NMFS in acquiring the resources necessary to gather, evaluate and utilize sound scientific information. Additional resources could be made available through memoranda of understanding between stakeholders and FWS/NMFS, or through agreements with state or regional agencies assisting the federal agencies. Designation of critical habitat based on accurately characterized sites results in focused recovery plans that use the minimal resources necessary to achieve program objectives. It is particularly important that federal agencies have the funds necessary to fulfill their own obligations in recovery and other initiatives, and that failure to do so does not result in an undue burden on non-federal parties.

Recommendations

- Develop such mechanisms as cooperative agreements with other stakeholders to provide technical assistance to federal agencies in undertaking analysis of biological data, public comments, and other pertinent information needed to make objective, thoroughly-researched and publicly accountable decisions under the ESA.
- Encourage promulgation of regulations and agency guidelines that require agencies implementing ESA programs to develop comprehensive, step-by-step procedures to guide agency decisions and public participation in all key

aspects of ESA implementation, including recovery plans, listing decisions, biological opinions and critical habitat designations, and procedures for appealing questionable decisions rendered by agency staff. Guidance should emphasize procedural standardization and a uniform decision-making process.

- Establish assurances that non-federal parties who participate in joint ESA initiatives with the federal government will not have their own obligations increased in situations where the federal government fails to fulfill its commitments.

Federal Agencies Should Be Required To Fulfill Their Own ESA Obligations

In complex, multi-party species conservation initiatives, federal parties often assume their own affirmative obligations. The responsibilities of other parties are frequently linked to these federal duties and actions. Some examples of such arrangements include:

1) The Lower Colorado River Multi-Species Conservation Plan, including numerous non-federal participants whose contributions to the ESA conservation goals for 26 species are closely tied to the federal agency commitments;

2) The Roosevelt Reservoir HCP, where the ESA commitments of the non-federal parties are tied to federal actions taken under reasonable and prudent alternatives and measures included in the biological opinion for the raising of the Dam and reoperation of the Reservoir for conservation purposes; and

3) The Upper Colorado River Endangered Fish Recovery Program. This cooperative program was signed by the four upper basin states and the Department of the Interior in 1988. It mandates actions to recover four species of endangered fish, pursuant to a state and federal cooperative program funded 50% by the federal government and 50% by the states. Although the program has received the necessary funding, for the last couple of years the federal OMB has attempted without success to eliminate a portion of the federal funds. While the portion in dispute affects only FWS's approximately \$1 million annual share of the program, and not the larger U.S. Bureau of Reclamation contribution, withdrawal of that funding could be problematic. It could jeopardize the continuance of the program as the "reasonable and prudent alternative" which allows many Upper Colorado River water use and development efforts to proceed.

The WUWC is concerned that federal participants in such programs may sometimes not be able to meet their requirements. This can often be the result of a lack of funding, or sometimes just the demands of other federal business. Unfortunately, when this occurs it often weakens the overall ESA program for that plan and places an added burden on the other parties. Such an outcome can lead to unfair results where the approach reflected in the plan is undermined and the costs and responsibilities of all the parties increased beyond agreed levels.

To avoid this situation, it is important to ensure adequate funding of federal participation in such programs as well as federal government fulfillment of its duties. If the federal participants do not meet their duties, the other non-federal participants should not be required to increase their own obligations. Finally, the parties to such plans should be ensured that the terms of the agreement are fully enforceable and not subject to the defense of sovereign immunity.

Recommendations

- Provide adequate funding of federal participation in cooperative, multi-party conservation programs.
- Mandate federal agency compliance with their agreed-upon duties under such programs.
- Ensure that non-federal participants will not have their obligations increased to compensate for federal noncompliance.
- Provide for the full enforceability of such agreements for all parties.

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ATTACHMENT 2



Position Paper
Administrative Reform of Endangered Species Act

**A Recommended Method for Economic Analysis for Critical Habitat
Designation Under the Endangered Species Act**

Introduction

When a species of fish or wildlife is listed under the Endangered Species Act (“ESA”), the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (collectively, “the Services”) are required to designate “critical habitat” for the species. The ESA defines critical habitat as “specific areas . . . on which are found those physical or biological features” that are “(I) essential to the conservation of the species and (II) which may require special management considerations or protection.” The ESA also requires that the Services weigh the economic costs of critical habitat designation against the benefits of species conservation before making a final determination.

This whitepaper describes and recommends a method for weighing the economic costs of critical habitat designation against the benefits of habitat protection for species conservation. It is grounded in a belief that economists should focus their analysis on giving policymakers the input they need to make sound decisions in accordance with the law.

1. A cost-effectiveness approach is the appropriate framework of economic science for weighing the economic costs and benefits of critical habitat designation.

The Services should employ a cost-effectiveness framework that is designed to find the least-cost means to achieving the ESA-mandated objective of designating and protecting habitat that is essential for species conservation. A cost-effectiveness framework is practical because it accepts the statutory objective of protecting habitat essential for species conservation and focuses limited analytical resources on estimating the costs of including specific geographic areas for special management within the designation. The costs for each habitat area can then be compared to the biological value of the habitat to arrive at a designation of critical habitat areas that protects the most essential habitat while minimizing economic costs.

2. Agency biologists should determine the biological value of specific habitat areas for the conservation of the species.

Biologists – not economists – should decide which habitat and physical/ biological elements of that habitat have the most biological value for species conservation and what special management measures are needed to conserve species beyond those measures necessary to prevent jeopardy to, and likely extinction of, a species. When biologists make these distinctions, economists can provide meaningful cost-estimates for comparison with the biological benefits of protecting critical habitat in a particular area.

3. Economists can estimate the direct and indirect economic costs of critical habitat designation for specific geographic areas and standards for habitat protection.

Economists have several tools that can be used to estimate the economic costs of critical habitat designation. Some tools are simple to apply, require little data, and can be employed to quickly provide information on the direct economic costs of critical habitat designation. Other tools, such as input-output analysis, involve complex modeling and additional data, but provide a richer analysis of the direct and indirect costs of habitat protection for a particular region or industry.

The Services should be afforded some flexibility in choosing the economic tool that is most appropriate for each designation. The more complicated economic models should be used to analyze designations of large geographic areas and areas where economic activity is concentrated. The simple, direct-cost method should be used where designations are small in area or there is little variation in the type of land use and economic activity throughout the proposed designation.

4. Use a practical approach for weighing the costs of critical habitat designation against the benefits of critical habitat protection.

Under the recommended cost-effectiveness framework, the Services are provided with information on the relative costs and benefits for designating or excluding specific geographic areas from habitat designation. Areas that have high habitat value and low economic cost will usually be included. Areas that are low in habitat value, but high in economic cost should be excluded. And, if high habitat value – low cost areas do not provide enough habitat for the conservation of the species, then the Services can consider including high, value-high cost areas, or low, value-low cost areas to achieve species conservation objectives.

Discussion

When a species of fish or wildlife is listed under the ESA, the Services are required to designate “critical habitat” for the species. The ESA defines critical habitat as “specific areas . . . on which are found those physical or biological features” that are “(I) essential to the conservation of the species and (II) which may require special management

considerations or protection.”¹ The ESA also requires that the Services weigh the economic costs of critical habitat designation against the benefits of species conservation before making a final determination.²

This whitepaper describes and recommends a method for weighing the economic costs of critical habitat designation against the benefits of habitat protection for species conservation.

I. How Does the Science of Economics Approach a Problem Like the Economic Costs of Critical Habitat Designation?

The discipline of economics provides several different analytical frameworks to address the economic costs of a specific project or proposal. The utility of each framework depends on the type of economic question being asked.

Efforts to affect government policies and projects based on anticipated economic effects have a long history. For example, federal water projects frequently were the subject of such analysis. Beginning in the early 1960s, the U.S. Water Resources Council (“WRC”) sought to codify an appropriate methodology for estimating water project costs and benefits. Evolving from this process, the WRC Principles and Guidelines (1983) standardized water project evaluation.

Under the National Environmental Policy Act, many federal actions and policies, not just federal water projects, require environmental impact statements that generally include estimates of the economic impacts. Often the economic methodologies codified in the WRC Principles and Guidelines are used as a template for the economic analysis in an Environmental Impact Statement.

In 1978, the ESA was amended to require that economic effects be considered in the designation of critical habitat. The Safe Drinking Water Act Reauthorization introduced the concept of cost/benefit analysis in a realistic framework that exists as a model today. The lessons learned from previous attempts to apply economic analysis to government decision-making should also be taken into account in developing an economic methodology for critical habitat designation.

A. Alternative Accounting Frameworks for Economic Analysis

Among the first questions that must be answered before the economic impacts of critical habitat designation decisions can be estimated is “impacts to whom?” While the question

¹ 16 U.S.C. § 1532(5).

² The ESA requires that the critical habitat determination be based on the best scientific and commercial data available and take into account probable economic impacts. 16 U.S.C. § 1533(b)(2); 50 C.F.R. § 424.12(a); *see also*, *New Mexico Cattle Growers Ass’n v. U.S. Fish & Wildlife Serv.*, 248 F.3d 1277 (10th Cir. 2001) (requiring analysis of economic impacts of critical habitat designation).

could be framed in several ways, such as impacts to particularly important regional economic sectors, the question is usually framed in terms of impacts on particular geographic units or areas. The WRC Principles and Guidelines identify two alternative economic accounting frameworks that should be used to analyze the impacts of alternative actions or projects: National Economic Development (“NED”) and Regional Economic Development (“RED”).

1. National Economic Development

The NED accounting framework views the impacts of a project from the perspective of the entire United States. The question posed is: “Does the project actually result in a net change in the economic activity of the nation? By how much does it increase or decrease the amount of goods and services produced in the country?”

When the WRC formulated the Principles and Guidelines, it gave the NED perspective a dominant role in framing the economic impacts of water projects. In that context, the persuasive underlying economic assumptions of NED made sense. The big water projects under consideration in the 1930s through 1960s were to be paid for mostly with federal dollars, and were being justified by the assertion that they would be good for the economic development of the entire country.

In the context of today’s critical habitat issues, it is much less clear that the NED criteria should dominate economic analysis. Congress preempted the NED criteria when it passed the ESA – implicitly concluding that the national “benefits to whomsoever they shall accrue” of preserving endangered species always exceed the costs of such preservation. This means that the NED benefits that are directly attributable to the decision to list and preserve the species are largely irrelevant to the cost of critical habitat designation.

Misapplication of the NED framework could lead to costly analysis of issues that are irrelevant to the designation of critical habitat. For example, because several recent analyses mixed listing and critical habitat issues, they were led unnecessarily into such NED benefit considerations such as existence values, recreation benefits, and quality of life. A full NED accounting would be appropriate if the policy question were whether it is in the national interest to conserve a species that qualifies for listing under the ESA, but Congress has already made that decision. In a NED framework, all of the economic impacts of species conservation are a consequence of the listing decision, but those impacts cannot be considered in the listing decision. The ESA presumes that the national benefits of conserving listed species will always exceed the costs of critical habitat designation. That is why the ESA requires critical habitat designation for listed species. The possible exception to the above is for NED effects that are incidental to the designation of particular tracts or attributes of critical habitat. If adding critical habitat designation on top of the protections already provided to an endangered or threatened species either makes possible some economic activity in the designated area or precludes some economic activity in the area, then this could have NED consequences. In most cases however, such NED effects will be mitigated by the national economy’s ability to adjust to changes in one sector or geographic area, and any net impacts will be so small that they approach insignificance in the US economy.

If a critical habitat designation just moves economic activity around, impacting some sectors or places but producing offsetting effects elsewhere as the larger economy adjusts, then the designation has no NED effect. Given that the national economy reasonably approximates a general equilibrium system, where most inputs and outputs are mobile, and impacts to one sector or place are transferred to other sectors or places, it is common for project or policy impacts to a sector or region to mostly wash out from the NED perspective. For example, if an action eliminates 100 jobs, and the displaced workers find equally productive work elsewhere, then the net NED impact would be properly estimated as zero. For all of these reasons, the NED accounting framework is of little practical value to the decision-making process for critical habitat designation.

2. Regional Economic Development

Rather than NED, most of the economic and policy issues surrounding the designation of critical habitat relate to the Regional Economic Development (RED) accounting framework. Under this approach, the regional, local, and near-term impacts matter for a full social accounting of who is impacted.

Congress explicitly opened the door for economic analysis of critical habitat designation decisions, and the courts have reinforced this directive, saying that the Secretary must “weigh the benefits of exclusion against those of inclusion of particular areas within the designated habitat.”³ While such “weighing” might have a NED component, it is much more likely that these benefits or costs will be regional or local.

The RED accounting framework could potentially be focused at several possible regional levels. One could look at the economic consequences of critical habitat designation at a state level; at the level of a sub-state region, perhaps counties; or at a very local level, perhaps even at the level of specific firms or property owners. Economic analysis could also conceptualize these regional consequences as affecting particular industries, economic sectors, or other groups of particular concern.

Recommendation: To be useful to the critical habitat decision-making process, economic analysis should focus on the regional economic effects of such designations.

It is these kinds of regional consequences that are really important to the decision-making process for critical habitat designation. The NED effects of designation will almost always be minor, but what really matters is if there is a region, an industry, or a firm that is likely to be substantially damaged or substantially benefited by the inclusion or exclusion of specific geographic areas from critical habitat designation.

³ *Catron County Bd. of Comm'rs v. U.S. Fish and Wildlife Serv.*, 75 F.3d 1429, 1435 (10th Cir. 1996).

B. Alternative Ways of Conceptualizing the Role of Costs and Benefits

Given that attention should be focused on the RED accounting framework when we evaluate the designation of critical habitat, what does this imply about the relevant economic methodology? There are two main ways to conceptualize the economic analysis appropriate to this setting.

1. Cost-Effectiveness Analysis

When a specific project outcome or project budget is predetermined, alternative project designs or elements may be considered using cost-effectiveness analysis. A cost-effectiveness analysis identifies the least-cost method for providing a given level of output, where the output is specified in non-monetary terms, e.g. biological improvements. Cost-effectiveness analysis can identify the lowest cost project elements that meet a given standard. If there are alternative menus of project elements each with an equal chance of meeting the standards, the decision is simple – choose the least costly alternative.

2. Benefit-Cost Analysis

A benefit-cost analysis includes the full cost analysis and devotes equal attention to quantification of project benefits. Benefits reflect the increased value of market goods and non-market recreational, esthetic, and cultural values attributable to a project. Benefit-cost analysis is commonly summarized in the form of a benefit-cost ratio, with a ratio of greater than one signaling the economic feasibility of the project. Successful application of cost-effectiveness or benefit-cost analysis depends upon complete scientific understanding of the underlying processes. Hydrology, river ecology, biology and engineering help us to understand the biological and physical consequences of the alternative actions, economics helps us to understand and quantify some of the human and economic consequences of choosing among the feasible alternatives. If the underlying science is deficient, economic assessment cannot fill the gaps.

Recommendation: Cost-Effectiveness Analysis is the appropriate framework for weighing the costs and benefits of critical habitat designation.

Which of these alternative analytic frameworks is most appropriate for the economic analysis required as a part of the critical habitat designation process? There are several considerations, which, on balance, demonstrate that cost-effectiveness analysis is the preferable approach for critical habitat designation.

The listing decision and the consequent jeopardy standard are intended to assure that the listed species will be protected from extinction. Thus, as stated above any NED and RED benefits that are attributable to the assurance that the species will avoid extinction are a consequence of the listing decision, not the critical habitat designation. Because the purpose of the ESA is to conserve and de-list listed species, the marginal NED and RED benefits of critical habitat designation, above those already conferred by listing, will be small to zero for

most species. In other words, the benefits of critical habitat designation are a given under the ESA, which requires such designation for listed species. The critical habitat designation can be considered a delineation of those areas within which the specific obligations and burdens of species conservation will be concentrated.

If the economic benefits of critical habitat designation are small to zero, then the remaining economic decision criterion is the cost of designation for specific geographic areas. If economic analysis is to be useful in deciding what habitat to designate as critical, it must assist in deciding which alternative habitat tracts or elements thereof are the most cost-effective. The resulting designation must be shown to assure the conservation of the listed species. We conclude that cost-effectiveness is the appropriate analytic framework for assessing the economic impacts of critical habitat designation decisions.

This lack of expected benefits from critical habitat designation allows us to sidestep a full-scale cost/benefit analysis. This has several advantages. It considerably reduces the data requirements for the analysis. It eliminates the need to impute economic values for changes in the abundance of the listed species. It avoids the difficult issue of how to measure non-use values (such as the value of knowing that something exists), and non-priced outputs (such as recreation). In other words, if one can adopt the cost-effectiveness framework when estimating the economic impacts of designation for most species, this will considerably reduce the scale and the agency costs of doing such analyses. This approach produces a more reliable assessment of economic impacts associated with designation because the economic consequences of listing, which the ESA does not allow to be considered, are already taken as a given. The result is a true assessment of economic impacts, which occurs within the statutory mandates laid out by the Act.

II. What Is the Role of Benefits in the Critical Habitat Decision?

It serves no purpose to estimate total economic benefits of critical habitat designation. That would only be useful in a decision whether to designate critical habitat at all based on net benefit, but Congress has already made the determination that species that are threatened or endangered with extinction must be listed and protected through various means, including the designation of critical habitat. Because critical habitat must be designated, the only questions are: (1) What are the physical and biological features of habitat that are essential for the conservation of a species?; (2) Which specific habitat areas contain those elements that are essential for the conservation of the species?; (3) How much of the specific habitat areas containing those elements is essential for the conservation of the species?; and (4) What are the special management measures that would be applied to protect the essential physical and biological features of areas designated as critical habitat? By answering these questions, biologists can delineate the sum total of eligible habitat areas and the relative value of each habitat area as a contribution toward the statutory objective of species conservation.

To implement a cost-effectiveness framework, biologists would delineate and rank-order or score specific habitat segments for their relative value as contributions toward the conservation of the species. A logical basis for delineating and scoring a habitat area would

be the quality of physical and biological features that the ESA identifies as criteria for critical habitat designation. In addition, biologists would provide economists with information that differentiates between the level of protection that might be required to avoid jeopardy to the species and the level of protection that would be required to prevent destruction or adverse modification of areas designated as critical habitat. The differentiation between jeopardy and critical habitat protection should be based on special management measures or protection standards that biologists determine to be necessary for the physical or biological features that are essential for the conservation of species. For example, native growth buffers, water temperature, old growth percentages, and other habitat protection measures would be defined in terms of a jeopardy standard and a critical habitat or conservation standard.

Recommendation: The benefits of critical habitat designation should be weighed in biological terms – not economic terms.

For cost-effectiveness analysis, the only relevant benefit is the objective of protecting enough critical habitat for the conservation of the species. Biologists within the federal agencies should delineate and rank-order specific geographic areas as potential critical habitat and identify special management measures or protection standards for the physical and biological features that make habitat “critical.”

Under this approach, the primary burden for providing data on the biological objectives and means for achieving those objectives falls on the Services and their biologists. This burden is consistent with the data and decision-making requirements that agency biologists must satisfy in status reviews, listing decisions, critical habitat designation, and recovery planning for species. Moreover, it is in the interest of listed species to differentiate and prioritize habitat segments so that the critical habitat designation and exclusion process is informed by relative biological value as well as costs of protection. However, it is essential that such a ranking be undertaken in an objective manner that avoids the often relied upon practice of simply asserting that all habitat is of “equal value.”⁴ The need to rank order or score habitat areas according to biological value must be enforced as a cornerstone of cost-effectiveness analysis.

III. How Should the Costs of Critical Habitat Designation Be Estimated?

Using habitat units and levels of protection provided by biologists, economists can estimate the costs for each unit of critical habitat protection above the baseline of jeopardy protection. The various available economic tools can then be applied to estimate total direct and indirect costs.

⁴ “Except in those circumstances determined by the Secretary, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species.” 16 U.S.C. § 1532(5)(C).

As discussed above, economic analysis of critical habitat designation should, in most cases, focus on the RED stance and adopt the cost-effectiveness framework. What does this imply about which of the analytic methodologies available to economists are appropriate tools to estimate these regional costs?

A. Direct Impacts

The direct impacts of designating critical habitat are the immediate consequences to the directly affected individual(s) and business(es) from the designation. The measure of these direct economic impacts is the income lost because of the designation. The estimation of direct impacts is a relatively straightforward application of economic and accounting principles. For example, if the damaged sector is agriculture, the loss of farm income can be estimated using crop or livestock budgets that are usually available from the state Cooperative Extension Service. Budgets can be estimated for other affected sectors drawing on local knowledge, secondary data, or from the sector purchase coefficients of an input-output model estimated for the region.

Note that federal agency section 7 consultation costs are not likely to be direct RED costs. Consultation costs would only affect regional production and spending patterns if they affect the agency's spending patterns in the region. Any added agency spending to support the section 7 consultations would be a stimulus to the economy of the region – not a cost. Conversely, consultation costs incurred by local stakeholders are part of the economic impact and should be included as costs in the direct RED accounting.

B. Secondary Impacts

Secondary economic impacts result as the direct economic effects ripple through the rest of the regional economy. These secondary impacts occur when the directly affected sector(s) would ordinarily buy inputs from other regional businesses (backward linkages) or produce outputs that serve as raw materials for other regional industries (forward linkages). For example, a new irrigation project will cause agriculture to buy more from backward-linked fertilizer, machinery, and insurance sectors, and may allow expansion of forward-linked livestock and food-processing sectors. Damages to an existing irrigation sector would have opposite effects – business losses in both forward-and backward-linked sectors.

The measure of these secondary impacts is often conceptualized as lost “value added;” the lost wages, rents, and profits that would have accrued to the labor, land, and capital in the regional economy as a result of the primary shock. It is generally held that secondary impacts are small or absent given a national accounting (NED) perspective. The WRC (1983) directed that secondary impacts not be included in NED analyses of federally funded water resources projects unless there is massive national-level unemployment of labor and capital. The logic is that resources employed by a new water project are generally bid away from other productive employment elsewhere in the national economy (the “wash out” assumption).

The WRC Principles and Guidelines do allow secondary impacts to be a part of the RED account of a project analysis – making it possible for the economic analysis to not only estimate the magnitude of the secondary impacts, but to also trace these secondary impacts to other affected sectors of the regional economy.

The direct regional impacts of critical habitat designation will generally be much larger than the secondary impacts, and thus will dominate the critical habitat decision process. The smaller secondary regional impacts will play a lesser role, primarily as they track impacts among the affected sectors. Note that the regional secondary impacts of designating critical habitat will also grow disproportionately smaller for smaller regions. This is because the directly affected people and businesses in a region are more likely to purchase production inputs and consumer goods outside of a smaller region. Spending “leaks” more rapidly from smaller regions.

C. Alternative Regional Economic Models to Estimate Secondary Impacts

For many critical habitat designations, where the proposed designations are small in scale and in remote areas, it may be unnecessary to estimate the secondary regional effects of designation since these will often be small in magnitude and small relative to the direct effects. Note that estimating secondary impacts increases the accuracy of the regional economic impacts, but in many cases adding secondary impacts will not affect the rank order of habitat areas by economic impact. This is because the multipliers will increase each estimate of direct impacts by similar proportions. The exception is where economic uses differ dramatically between different areas of proposed critical habitat and carry with them different income multipliers.

In cases where the secondary impacts are expected to be larger, there are a range of available estimation tools that can be used to estimate these secondary impacts on regional economic activity and on regional value-added. With the tools now available, estimation of the backward-linked secondary economic impacts to an affected economic region is relatively straightforward.

While input-output models is the tool commonly used to estimate secondary impacts, there are several choices, so the appropriate tool may depend on the scale of analysis justified by the scale of the critical habitat designation. Several alternatives are:

1. Economic Base Models

This method may be justified as a shortcut alternative in economic analysis of quite small-scale critical habitat designations. Economic base analysis begins by identifying the export base sectors of the regional economy (which bring money into the region by exporting goods and services) and the non-basic sectors. The non-basic sectors are viewed as service, support, and local consumption sectors supported by the income generated in the basic sectors. The base ratio is the ratio between these two sector groupings. If a critical habitat designation damages one of the basic sectors, then the base ratio could be used to project a corresponding secondary impact to the non-basic sectors of the regional economy. The

virtue of economic base models is that they are relatively cheap, and relatively easy to construct. The downside is lowered accuracy and sectoral detail, but the results may be adequate for small-scale critical habitat designations, where the regional secondary impacts are likely to be small anyway.

2. Input-Output Models

This is the economic modeling tool most commonly used to estimate secondary impacts. The methodology of input-output analysis dates to the 1930s, but has only recently been made available for routine regional impact problems, due to advances in computer technology and the availability of non-survey input-output technique. The IMPLAN database and software package is widely used for applied studies and would be appropriate for analysis of critical habitat designation. In the hands of a practitioner familiar with the IMPLAN software package and the procedures needed to apply it, the cost of an IMPLAN study need be little more than the cost of an economic base study. The IMPLAN study may have the added advantage of being able to provide industry regional purchase coefficients that could be helpful in estimating the direct impacts of the designation.

3. Computable General Equilibrium Models

Input-output models have been criticized for their failure to account fully for the way the economy adjusts to strong impacts. They essentially assume that resources made redundant by some strong impact to the economy are never reemployed by some other sector or region, and reductions in outputs from the region are never replaced by production from other producers or regions. The following section talks about ways to circumvent this problem of input-output models. The other alternative is to build these relationships into the model – which is the premise of Computable General Equilibrium (“CGE”) models. The state-of-the-art for CGE modeling is still time consuming, expensive to construct, and requires special modeling expertise. In a few cases, for large-scale and important designations, a CGE modeling approach may be justified. However, in most cases where the secondary regional impact is expected to be significant to a critical habitat decision, an IMPLAN based input-output model should be adequate for the task.

Recommendation: The choice of model and method depends on the scope of designation and the affected economic landscape.

There is no one right method; rather, the method should be scaled to the designation. Large designations and designations affecting significant concentrations of economic activity may warrant analysis of direct, secondary, and dynamic effects through data-intensive models such as input-output and CGE. Smaller designations may deserve only a direct effects analysis. In some cases, the direct effects analysis may be all that is necessary to compare and decide between the relative costs and benefits of designation for particular habitat segments regardless of indirect economic impacts where the economic value/activity across the various habitat segments is relatively small or comparable. The method used should also reveal the incidence of costs not only by area, but also by economic sector or property owner.

While the ESA does not explicitly require that the incidence of economic costs be considered, a meaningful attempt to weigh benefits against costs should also consider who bears the costs and whether that burden is concentrated on particular interests. These equitable considerations should also inform the critical habitat designation process. Each of the models provides information that decision-makers could use to determine who will bear the costs of protection for critical habitat and whether those who will be hurt by a designation decision could be compensated for their losses.⁵ That information could, in turn, be used to design public policies and programs to ameliorate economic adjustments and dislocations caused by protection for critical habitat.⁶

While the regional direct and secondary impacts of critical habitat designation can be estimated quite easily with techniques such as input-output modeling, translating these impact estimates into estimates of costs is more difficult. Secondary effects expressed as changes in value added are not valid measures of net damages or benefits, primarily because these economic effects are transitory. Moreover, economic impacts as measured in an input-output analysis contain large measures of both benefits and costs in affected sectors. Change in net economic welfare is an appropriate measure of damage (or benefit) from an event. While the precipitating event may indeed ripple along the purchase and sales transactions to impact other businesses in the regional economy, these secondary impacts are generally not permanent because the regional economy will adjust over time. In time, much of the displaced labor will find alternative employment inside or outside the region. Much of the capital will, in time, either move to other uses, or be depreciated. Even land, although immobile, nearly always has some alternative use. Economists call the value of a resource in its next-best alternative use its “opportunity cost.” CGE models purport to model this readjustment, but with considerable complexity and cost. An alternative is to compute secondary damages after the displaced resources have been reemployed by subtracting opportunity costs from the estimated secondary impacts. As a rule of thumb, about 80 percent of the secondary impacts are offset by the opportunity costs of the displaced resources reemployed in their next-best alternative, leaving 20 percent of the impacts as

⁵ For example, in *Tulare Lake Basin Water Storage Dist. v. United States*, 49 Fed. Cl. 313 (Fed. Cl. 2001), just compensation was required for owners of water rights whose water delivery contracts were diminished to provide instream flows beneficial to ESA-listed fish species.

⁶ The need for and use of such information is implicit in several policies and programs designed to compensate property owners, businesses, individuals, and communities that are injured by protection for ESA-listed species. For example, in response to the listing of the Northern Spotted Owl and protection for its critical habitat, the Northwest Forest Plan included the Northwest Economic Adjustment Initiative. Over a decade, the Initiative targeted hundreds of millions of dollars in grants-in-aid, loan guarantees, and other programs to assist forest-products dependent communities, workers, and businesses to adjust to economic dislocation caused by protection for the northern spotted owl. Similarly, the nonprofit organization Defenders of Wildlife has created the Bailey Wildlife Foundation Wolf Compensation Trust as a program to compensate ranchers for livestock losses caused by depredation for ESA-listed wolves.

damages. This approach can serve as a shortcut in the economic analysis of critical habitat designation – allowing the conversion of regional secondary impacts to regional secondary costs.

IV. The Exclusion Process: Weighing the Costs Against the Benefits

Under the recommended approach, decision-makers are provided with two key sets of information:

- 1) Biologists provide a rank-ordered pool of specific geographic areas that are eligible for designation and have been stratified as possessing more or less biological value for the conservation of the species.
- 2) Economists estimate the economic costs of including each geographic area defined by biologists within the designation of critical habitat, based on the appropriate model choice noted above.

With this information, decision-makers can implement a critical habitat exclusion process by (1) developing alternative configurations of habitat designations that provide equivalent biological benefits and selecting the least-cost alternative or (2) by assigning habitat segments ordinal rankings of biological and cost values and including or excluding areas based on their marginal contributions to total costs and benefits. We do not offer a definitive statement here on the most appropriate method of cost-effectiveness analysis, but we do assert that such an approach is the most meaningful and pragmatic way to fulfill the ESA's requirement that economic costs be considered in the process of critical habitat designation. The examples we offer here can be more fully developed if the Services accept as a first principle the cost-effectiveness approach.

Under the first cost-effectiveness approach, each of the options to be analyzed may be defined as a combination of habitat areas that provides equivalent biological benefits, so that economists may perform a least-cost analysis to select a habitat configuration that achieves conservation objectives but imposes the least cost by excluding areas where higher costs may be avoided.

Under the second cost-effectiveness approach, each habitat area may be analyzed by locating it in a 2x2 matrix that assigns ordinal values for high and low economic costs and high and low biological values. Areas with high costs and low biological values will be good candidates for exclusion. Areas with low economic costs and high biological values will be good candidates for designation. Areas that are low cost and low value may be excluded or included by the Services with less potential for public controversy. Areas that are high cost and high biological value can be intensely debated by the public for inclusion or exclusion. An equivalent method would be to compare habitat areas rank-ordered by biological value and economic impact, and use a triage analysis.

Using a simple matrix and decision-making process such as this will promote meaningful public participation by making the decision process accessible to the lay public. It will focus decision-makers and the interested public on the most important factors in a complicated process. It will also approximate the least-cost analysis method that assumes species conservation as a given objective and minimizes the costs of obtaining that objective.

Recommendations

The Services should develop a detailed framework and methodology for economic analyses of critical habitat designation through public notice and comment, including face-to-face discussions with affected interest groups. The new approach may be embodied in the Services' joint regulations on critical habitat designation, 50 C.F.R. Part 424, or in a formal guidance document. Specifically, the framework and methodology should: 1) eliminate the "incremental" or "baseline" approach and include an exclusion process based on meaningful economic analysis; 2) delineate and prioritize habitat segments based on their relative value in conserving a listed species; 3) use a least-cost or an ordinal ranking cost-effectiveness approach that avoids the monetization of biological benefits, and searches for a critical habitat configuration that satisfies the conservation objective while minimizing costs; 4) require the Services to distinguish between measures necessary to avoid jeopardy and those necessary to conserve the species; 5) calculate the costs of designation using methods and data that are scaled to the scope and impacts of a proposed; 6) use an accounting stance that recognizes localized and regional impacts in the near-term, and that considers direct, indirect and cumulative economic impacts.

Related Literature

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ATTACHMENT 3

SPECIES	FEDERAL REGISTER	CRITICAL HABITAT DESIGNATION		ECONOMIC ANALYSIS			ECONOMIC FRAMEWORK			CHANGES OR EXCLUSIONS MADE BASED ON ECONOMICS	
		proposed	final	no mention	in progress	draft or final	co-extensive impacts (including all actions that may have an impact, including listing) - 10th Circuit	incremental impacts (impacts above a set baseline that includes impacts associated with listing) - 9th Circuit	hybrid (combination of baseline impacts and incremental impacts)	yes	no
9 Bexar County, TX, Invertebrates	76 FR 9872 (2/22/11)	x			x						
	76 FR 46234 (8/2/11)	x (Reopening of the Comment Period)				draft November 14, 2011			x		
	77 FR 8450 (2/14/12)		x			final June 24, 2011			x		x
10 Subspecies of Great Basin Butterflies	76 FR 61532 (10/4/11)	x		x							
29 Mollusk Species	76 FR 61826 (10/5/11)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x							

124 Species on Oahu	77 FR 21936 (4/12/12)	x (Reopening of the Comment Period)				draft February 2012		x			
						final July 2012					
135 Species on Molokai, Lanai, Maui, and Kahoolawe	77 FR 34464 (6/11/12)	x			x						
Alabama Sturgeon	74 FR 26488 (6/2/09)		x			October 2008			x		x
Altamaha Spinymussel	75 FR 61664 (10/6/10)	x			x						
Arizona Striped Whiptail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Arkansas River Speckled Chub	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Arroyo Toad	74 FR 52612 (10/13/09)	x			x						
	76 FR 7246 (2/9/11)		x			x	<i>report not available on www.regulations.gov</i>			x	

Austin Blind Salamander	77 FR 50768 (8/22/12)	x			x			x			
Big Red Sage	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Black Abalone	75 FR 59900 (9/28/10)	x				2010	<i>report not available on www.regulations.gov</i>				
	76 FR 66806 (10/27/11)		x			2011	<i>report not available on www.regulations.gov</i>		x		
Black-Spotted Newt	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Blanco Blind Salamander	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Brush-pea	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Buena Vista Lake Shrew	74 FR 53999 (10/21/09)	x		x							
	76 FR 23781 (4/28/11)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				

	77 FR 40706 (7/10/12)	x (Reopening of the Comment Period)				x					
Bull Trout in the Coterminous United States	75 FR 2270 (1/14/10)	x					x	<i>report not available on www.regulations.gov</i>			
	75 FR 13715 (3/23/10)	x (Reopening of the Comment Period)					x	<i>report not available on www.regulations.gov</i>			
	75 FR 63898 (10/18/10)		x				x	<i>report not available on www.regulations.gov</i>			x
Bushy Whitlow-wort	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Bylas Springsnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Cactus Ferruginous Pygmy Owl	76 FR 61856 (10/5/11)	<i>(Notice of 12-month finding on petition to list and designate CH)</i>		x							
California Red- Legged Frog	74 FR 51825 (10/8/09)	x				September 2009			x		
	75 FR 12816 (3/17/10)		x			x	<i>report not available on www.regulations.gov</i>				

Canada Lynx	74 FR 66937 (12/17/09)	<i>(Notice of 12-month finding on petition to change final listing of DPS to include New Mexico)</i>		x							
Casey's June Beetle	74 FR 32857 (7/9/09)	x			x						
Chihuahua Catfish	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Chiricahua Leopard Frog	76 FR 14126 (3/15/11)	x			x						
	76 FR 58441 (9/21/11)	x (Reopening of the Comment Period)				draft September 15, 2011			x		
	77 FR 16324 (3/20/12)		x			final March 19, 2012			x		x
Chihuahua Scurfpea	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Chupadera Springsnail	77 FR 25668 (5/1/12)	x (Reopening of the Comment Period)				draft November 1, 2011			x		
	77 FR 41088 (7/12/12)		x			final March 1, 2012			x		x

Chisos Coralroot	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Chucky Madtom	76 FR 63360 (10/12/11)	x			x						
	77 FR 30988 (5/24/12)	x (Reopening of the Comment Period)				draft May 2012			x		
Clay-Loving Wild Buckwheat	74 FR 49835 (9/29/09)	<i>(Notice of 12-month finding on a petition to revise CH)</i>		x							
Coachella Valley Milk Vetch (Astragalus Lentiginosus var. Coachellae)	76 FR 53224 (8/25/11)	x									
	77 FR 28846 (5/16/12)	x (Reopening of the Comment Period)				draft May 2012					
Colorado Tiger Beetle	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Comal Blind Salamander	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Contiguous U.S. DPS of Canada Lynx	74 FR 8616 (2/25/09)		x			October 2008			x		x

Cook Inlet Beluga Whale	74 FR 17131 (4/14/09)	<i>(advance notice of proposed rulemaking to designate CH)</i>		x							
	74 FR 63080 (12/2/09)	x				November 2009		x			
	75 FR 1582 (1/12/10)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	76 FR 20180 (4/11/11)		x			x	<i>report not available on www.regulations.gov</i>				x
Cook's Lomatium	74 FR 37314 (7/28/09)	x			x						
	75 FR 1568 (1/12/10)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				
	75 FR 42490 (7/21/10)		x		x		<i>report not available on www.regulations.gov</i>				x
Coqui Llanero	77 FR 36457 (6/19/12)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				
Cook's Peak Woodlandsnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
	76 FR 63360 (10/12/11)	x			x						

Cumberland Darter	77 FR 30988 (5/24/12)	x (Reopening of the Comment Period)				May 2012			x		
DeBeque Phacelia	76 FR 45078 (7/27/11)	x			x						
	77 FR 18157 (3/27/12)	x (Reopening of the Comment Period)				draft March 2, 2012			x		
	77 FR 48368 (8/13/12)		x			final June 7, 2012			x		x
Delaware County Cave Crayfish	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>	x								
Dona Ana Talussnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>	x								
Dusky Gopher Frog (see Mississippi Gopher Frog, below)											
Edwards Aquifer Diving Beetle	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>	x								
	73 FR 72209 (11/26/08)		x			September 2008		x			x

Elkhorn and Staghorn Corals	75 FR 3711 (1/22/10)	<i>(Notice of 12-month determination on how to proceed with petition to revise CH designation)</i>		x							
False Spike Mussel	74 FR 66261 (12/15/09)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x							
Ferris's Copper	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Fish Creek Fleabane	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Florida Manatee	74 FR 49842 (9/29/09)	<i>(Notice of 90-day finding on a petition to revise CH)</i>		x							
	75 FR 1574	<i>(Notice of 12-month finding on petition to revise CH designation)</i>		x							
Flying Earwig Hawaiian Damselfly	74 FR 32490 (7/8/09)	<i>(listing proposal, CH not prudent)</i>		x							
Franciscan Manzanita	77 FR 54517 (9/5/12)	x			x						
Frosted Flatwoods Salamander	74 FR 6700 (2/10/09)		x			June 2008			x		x
Georgetown Salamander	77 FR 50768 (8/22/12)	x			x			x			

Georgia Pigtoe Mussel	74 FR 31144 (6/29/09)	x			x						
	75 FR 6613 (2/10/10)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				
	75 FR 67512 (11/2/10)		x			x	<i>report not available on www.regulations.gov</i>				
Gierisch Mallow	77 FR 49894 (9/17/12)	x			x						
Gila Tryonia Snail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Glowing Indian-Paintbrush	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Golden Orb Mussel	74 FR 66261 (12/15/09)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x							
Golden Sedge	75 FR 45592 (8/3/10)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	76 FR 11086 (3/1/11)		x			x	<i>report not available on www.regulations.gov</i>				
Grand Canyon Cave Scorpion	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Grand Wash Springsnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Gulf of Maine DPS of Atlantic Salmon	74 FR 39903 (8/10/09)		x			May 2009		x		x	

Hawaiian Monk Seal	74 FR 27988 (6/12/09)	<i>(Notice of 12-month finding on a petition to</i>		x							
	76 FR 32026 (6/2/11)	x				x	<i>report not available on www.regulations.gov</i>				
	76 FR 41446 (7/14/11)	x (Notice of Public Hearings)				x	<i>report not available on www.regulations.gov</i>				
	76 FR 68710 (11/7/11)	x (Reopening of the Comment Period)				draft 2010	<i>report not available on www.regulations.gov</i>				
	77 FR 37867 (6/25/12)	x (Reopening of the Comment Period)				draft 2010	<i>report not available on www.regulations.gov</i>				
Hine's Emerald Dragonfly	74 FR 18341 (4/22/09)	x				March 2007	x				
	75 FR 21394 (4/23/10)		x			x	<i>report not available on www.regulations.gov</i>				x
Huachuca Milk-Vetch	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Huachuca Woodlandsnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
	74 FR 31144 (6/29/09)	x			x						

Interrupted Rocksnailed	75 FR 6613 (2/10/10)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				
	75 FR 67512 (11/2/10)		x			x	<i>report not available on www.regulations.gov</i>				x
Jaguar	77 FR 50214 (8/20/12)	x			x						
Jollyville Plateau Salamander	77 FR 50768 (8/22/12)	x			x			x			
Kaibab Bladderpod	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Kingman Springsnailed	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Koster's Springsnailed	74 FR 10701 (3/12/09)	x				July 2005	x				
	75 FR 35375 (6/22/10)	x				draft	<i>report not available on www.regulations.gov</i>				
	76 FR 9297 (2/17/11)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	76 FR 33036 (6/7/11)		x			x	<i>report not available on www.regulations.gov</i>				x
La Graciosa Thistle	74 FR 10211 (3/10/09)	x				January 2009			x		
	74 FR 56978 (11/3/09)		x			July 2009		x			x
	75 FR 16404 (4/1/10)	x			x						

Lane Mountain Milk Vetch	75 FR 67676 (11/3/10)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				
	76 FR 29108 (5/19/11)		x			x	<i>report not available on www.regulations.gov</i>				x
Large-Flowered Woody Meadowfoam	74 FR 37314 (7/28/09)	x			x						
	75 FR 1568 (1/12/10)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				
	75 FR 42490 (7/21/10)		x		x		<i>report not available on www.regulations.gov</i>				x
Laurel Dace	76 FR 63360 (10/12/11)	x			x						
	77 FR 30988 (5/24/12)	x (Reopening of the Comment Period)				May 2012			x		
Leatherback Sea Turtle	75 FR 319 (1/5/10)	x		so far, relying on other reports				x		x	
	75 FR 7434 (2/19/10)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	75 FR 41436 (7/16/10)	<i>(Notice of 90-day finding)</i>		x							
	76 FR 25660 (5/5/11)	<i>(Notice of 90-day finding on a petition to revise CH)</i>		x							

	77 FR 4170 (1/26/12)		x			x	<i>report not available on www.regulations.gov</i>				x
	77 FR 32909 (6/4/12)	<i>(Notice of 12-month determination on how to proceed with petition to revise CH designation)</i>		x							
Loach Minnow	75 FR 66521 (10/28/10)	x			x						
	76 FR 61330 (10/4/11)	x (Reopening of the Comment Period)				draft July 6, 2011			x		
	77 FR 10810 (2/23/12)		x			x	<i>report not available on www.regulations.gov</i>				x
Lost River Sucker	76 FR 76337 (12/7/11)	x			x						
	77 FR 43796 (7/26/12)	x (Reopening of the Comment Period)				draft April 17, 2012			x		
Louisiana Black Bear	74 FR 10350 (3/10/09)		x			November 2008			x		x

Louisiana Pigtoe Clam	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Lower Columbia River Coho Salmon and Puget Sound Steelhead	76 FR 1392 (1/10/11)	x (ANPR)			x						
Marbled Murrelet	74 FR 6852 (2/11/09)	x		x							
	76 FR 61599 (10/5/11)		x			x	<i>report not available on www.regulations.gov</i>				x
Mexican Fawnsfoot Mussel	74 FR 66261 (12/15/09)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x							
Mimic Cavesnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Mineral Creek Mountainsnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
	75 FR 31387 (6/3/10)	x			x						
	75 FR 77817 (12/14/10)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				

Mississippi Gopher Frog	76 FR 59774 (9/27/11)	x (Reopening of the Comment Period)				draft August 17, 2011			x		
	77 FR 2254 (1/17/12)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	77 FR 35118 (6/12/12)		x			September 2011	<i>report not available on www.regulations.gov</i>				x
Morton's Wild Buckwheat	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Moss	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Munz's Onion	77 FR 23008 (4/17/12)	x			x						
	77 FR 55788 (9/11/12)	x (Reopening of the Comment Period)				draft August 3, 2012			x		
Navasota False Foxglove	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
	74 FR 10701 (3/12/09)	x				July 2005	x				
	75 FR 35375 (6/22/10)	x				draft	<i>report not available on www.regulations.gov</i>				

Noel's Amphipod	76 FR 9297 (2/17/11)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	76 FR 33036 (6/7/11)		x			x	<i>report not available on www.regulations.gov</i>				x
North Pacific Right Whale	73 FR 19000 (4/8/08)		x	x							x
Northern Spotted Owl	77 FR 14062 (3/8/12)	x			x						
	77 FR 27010 (5/8/12)	x (Reopening of the Comment Period)			x						
	77 FR 32483 (6/1/12)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
Notodontid Moth (4 distinct varieties)	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Nueces Shiner	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Oregon Chub	74 FR 48211 (9/22/09)	x				September 2009			x		
	75 FR 11010 (3/10/10)		x			x	<i>report not available on www.regulations.gov</i>				x
	75 FR 18107 (4/9/10)		x (correction)	x							

Oregon Coast Evolutionarily Significant Unit of Coho Salmon	73 FR 7816 (2/11/08)		x			December 2007	x			x	
Pacific Coast Population of Western Snowy Plover	76 FR 16046 (3/22/11)	x			x						
	77 FR 2243 (1/17/12)	x				April 2, 2012			x		
Pacific Hawaiian Damsselfly	74 FR 32490 (7/8/09)	<i>(listing proposal, CH not prudent)</i>		x							
Pagosa Skyrocket	76 FR 45078 (7/27/11)	x			x						
	77 FR 18157 (3/27/12)	x (Reopening of the Comment Period)				draft June 7, 2012			x		
	77 FR 48368 (8/13/12)		x			March 2, 2012			x		x
Parachute Beardtongue	76 FR 45078 (7/27/11)	x			x						
	77 FR 18157 (3/27/12)	x (Reopening of the Comment Period)				draft June 7, 2012			x		
	77 FR 48368 (8/13/12)		x			x March 2, 2012			x		x
	74 FR 10701 (3/12/09)	x				July 2005	x				
	75 FR 35375 (6/22/10)	x				draft	<i>report not available on www.regulations.gov</i>				

Pecos Assimineia	76 FR 9297 (2/17/11)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	76 FR 33036 (6/7/11)		x			x	<i>report not available on www.regulations.gov</i>				x
Pecos Pupfish	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Pecos Springsnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Peninsular DPS of Desert Bighorn Sheep	74FR 17288 (4/14/09)		x			June 2008			x		x
Phyllostegia Hispida	74 FR 11319 (3/17/09)	<i>(listing decision, CH not prudent)</i>		x							
Pinaleno Talussnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Plateau Shiner	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Polar Bear	74 FR 56086 (10/29/09)	x				x					
	75 FR 24545 (5/5/10)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				

	75 FR 76086 (12/7/10)		x			x	<i>report not available on www.regulations.gov</i>				x
Preble's Meadow Jumping Mouse	74 FR 52066 (10/08/09)	x				x					
	75 FR 29700 (5/27/10)	x (Reopening of the Comment Period)					x	<i>report not available on www.regulations.gov</i>			
	75 FR 78430 (12/15/10)		x				x	<i>report not available on www.regulations.gov</i>			x
Prostrate Milkweed	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>					x				
Queen Conch	77 FR 51763 (8/27/12)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>					x				
Quino Checkerspot Butterfly	74 FR 28776 (6/17/09)		x			October 2008			x	x	
Quitobaquito Tryonia Snail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>					x				
Rattlesnake-master Borer Moth	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>					x				
Reticulated Flatwoods Salamander	74 FR 6700 (2/10/09)		x			June 2008			x		x
	76 FR 31686 (6/1/11)	x					x				

Riverside Fairy Shrimp	77 FR 12543 (3/1/12)	x (Reopening of the Comment Period)				draft	report not available on www.regulations.gov				
Rocky Mountain Monkeyflower	77 FR 52293 (8/29/12)	(Notice of 90-day finding on petition to list and designate CH)									
Roswell Springsnail	74 FR 10701 (3/12/09)	x				July 2005	x				
	75 FR 35375 (6/22/10)	x				draft	report not available on www.regulations.gov				
	76 FR 9297 (2/17/11)	x (Reopening of the Comment Period)				x	report not available on www.regulations.gov				
	76 FR 33036 (6/7/11)		x			x	report not available on www.regulations.gov				x
Rough Hornsnail	74 FR 31144 (6/29/09)	x			x						
	75 FR 6613 (2/10/10)	x (Reopening of the Comment Period)				draft	report not available on www.regulations.gov				
	75 FR 67512 (11/2/10)		x			x	report not available on www.regulations.gov				x
Royal Moth	74 FR 66866 (12/16/09)	(Notice of partial 90-day finding on petition to list and designate CH)		x							
	76 FR 63360 (10/12/11)	x			x						

Rush Darter	77 FR 30988 (5/24/12)	x (Reopening of the Comment Period)				May 2012			x		
Sabino Dancer	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Salado Salamander	77 FR 50768 (8/22/12)	x			x			x			
Salina Mucket Mussel	74 FR 66261 (12/15/09)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x							
Salt Creek Tiger Beetle	74 FR 19167 (4/28/09)	x				July 2007		x			
	75 FR 17466 (4/6/10)		x			x	<i>report not available on www.regulations.gov</i>				x
San Bernardino Springsnail	76 FR 71300 (11/17/11)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				
						final March 9, 2012			x		
San Jacinto Valley Crownscale	77 FR 23008 (4/17/12)	x			x						
	77 FR 55788 (9/11/12)	x (Reopening of the Comment Period)				draft August 3, 2012			x		

Sangre de Cristo Peaclam	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
San Diego Ambrosia	74 FR 44238 (8/27/09)	x			x						
	75 FR 27690 (5/18/10)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	75 FR 74546 (11/30/10)		x			x	<i>report not available on www.regulations.gov</i>				
San Felipe Gambusia	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
San Xavier Talussnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Santa Ana Sucker	74 FR 65056 (12/9/09)	x			x						
	75 FR 38441 (7/2/10)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	75 FR 77962 (12/14/10)		x			x	<i>report not available on www.regulations.gov</i>				

Santa Rita Yellowshow	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Shortnose Sucker	76 FR 76337 (12/7/11)	x			x						
	77 FR 43796 (7/26/12)	x (Reopening of the Comment Period)				draft April 17, 2012			x		
Slickspot Peppergrass	74 FR 52014 (10/8/09)	<i>(listing decision, CH not prudent)</i>		x							
	76 FR 27184 (5/10/11)	x			x						
	76 FR 39807 (7/7/11)	x (Reopening of the Comment Period)		x							
Smooth Pimpleback Mussel	74 FR 66261 (12/15/09)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x							
Sonoma County DPS of California Tiger Salamander	74 FR 41662 (8/18/09)	x			x						
	76 FR 2863 (1/18/11)	x				x	<i>report not available on www.regulations.gov</i>				
	76 FR 36068 (6/21/11)	x (Reopening of the Comment Period)				draft January 2011	<i>report not available on www.regulations.gov</i>				
	76 FR 54346 (8/31/11)		x			final July 27, 2011			x		x

Southern DPS of Eulachon	76 FR 515 (1/5/11)	x				2010	<i>report not available on www.regulations.gov</i>			
	76 FR 65324 (10/20/11)		x			2011	<i>report not available on www.regulations.gov</i>			x
Southern DPS of North American Green Sturgeon	74 FR 52300 (10/9/09)		x			September 2009		x		x
Southern Purple Lilliput Clam	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x						
Southern Resident Killer Whale	71 FR 69054 (11/26/06)		x			November 2006	x			x
Southern Selkirk Mountains Population of Woodland Caribou	76 FR 74018 (11/30/11)	x			x					
	77 FR 16512 (3/21/12)	x (Reopening of the Comment Period)			x					
	77 FR 32075 (5/31/12)	x (Reopening of the Comment Period)				draft May 2, 2012			x	
Southwest Alaska DPS of Northern Sea Otter	74 FR 51988 (10/8/09)		x			May 2009			x	x
Southwestern Willow Flycatcher	76 FR 50542 (8/15/11)	x			x					
	77 FR 41147 (7/12/12)	x (Reopening of the Comment Period)				draft June 2012			x	
	75 FR 66482 (10/28/10)	x			x					

Spikedace	76 FR 61330 (10/4/11)	x (Reopening of the Comment Period)				draft July 6, 2011			x		
	77 FR 10810 (2/23/12)		x			x	<i>report not available on www.regulations.gov</i>				x
Spreading Navarretia	74 FR 27588 (6/10/09)	x			x			x			
	75 FR 19575 (4/15/10)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	75 FR 62192 (10/7/10)		x			x	<i>report not available on www.regulations.gov</i>				x
Squaw Park Talussnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Stonefly	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Tamaulipan Agapema	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Texas Fatmucket Mussel	74 FR 66261 (12/15/09)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x							
	74 FR 66261 (12/15/09)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x							

Texas Heelsplitter Mussel	74 FR 66261 (12/15/09)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x								
Texas Pimpleback Mussel	74 FR 66261 (12/15/09)	<i>(Notice of 90-day finding on petition to list and designate CH)</i>		x								
Texas Salamander	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x								
Texas Troglobitic Water Slater	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x								
Tharp's Blue-star	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x								
Thread-Leaved Brodiaea	74 FR 64930 (12/8/09)	x			x							
	75 FR 42054 (7/20/10)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>					
	76 FR 6848 (2/8/11)		x			x	<i>report not available on www.regulations.gov</i>					
Three Forks Springsnail	76 FR 71300 (11/17/11)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>					
						final March 9, 2012				x		

Tidewater Goby	76 FR 64996 (10/19/11)	x			x						
	77 FR 43222 (7/24/12)	x (Reopening of the Comment Period)				draft July 12, 2012			x		
Toothless Blindcat	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Triangle Pigtoe Clam	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Tumbling Creek Cavesnail	75 FR 35752 (6/23/10)	x			x						
	76 FR 2076 (1/12/11)	x (Reopening of the Comment Period)				draft	<i>report not available on www.regulations.gov</i>				
	76 FR 37663 (6/28/11)		x			March 15, 2011			x		x
Umtanum Desert Buckwheat	77 FR 28704 (5/15/12)	x				February 2012		x			
U.S. DPS of Smalltooth Sawfish	74 FR 45353 (9/2/09)		x			October 2008	x				x
Verde Rim Springsnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
	74 FR 63366 (12/03/09)	x			x						

Vermilion Darter	75 FR 37350 (6/29/10)	x (Reopening of the Comment Period)				x	<i>report not available on www.regulations.gov</i>				
	75 FR 75913 (12/7/10)		x			x	<i>report not available on www.regulations.gov</i>				x
Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp	76 FR 7528 (2/10/11)	<i>(Notice of 90-day finding on a petition to revise CH)</i>		x							
Western Snowy Plover	77 FR 36728 (6/19/12)		x			x	<i>report not available on www.regulations.gov</i>				x
Wet Canyon Talussnail	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
White Bluffs Bladderpod	77 FR 28704 (5/15/12)	x				February 2012		x			
White Sands Pupfish	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Widemouth Blindcat	74 FR 66866 (12/16/09)	<i>(Notice of partial 90-day finding on petition to list and designate CH)</i>		x							
Willow Monardella (<i>Monardella linoides</i> <i>ssp. viminea</i>)	76 FR 33880 (6/9/11)	x			x						
	76 FR 59990 (9/28/11)	x (Reopening of the Comment Period)				draft August 25, 2011			x		
	77 FR 13394 (3/6/12)		x			x	<i>report not available on www.regulations.gov</i>				x

Wintering Population of Piping Plover	74 FR 23476 (5/19/09)		x			November 2008			x		x
Yellowcheek Darter	76 FR 63360 (10/12/11)	x			x						
Yellowcheek Darter	77 FR 30988 (5/24/12)	x (Reopening of the Comment Period)				May 2012			x		