

## **FINAL DRAFT REPORT**

# **ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE BAKER'S AND YELLOW LARKSPURS**

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## PREFACE

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1. The U.S. Fish and Wildlife Service has added this preface to all economic analyses of critical habitat designations:
2. "The standard best practice in economic analysis is applying an approach that measures costs, benefits, and other impacts arising from a regulatory action against a baseline scenario of the world without the regulation. Guidelines on economic analysis, developed in accordance with the recommendations set forth in Executive Order 12866 ("Regulatory Planning and Review"), for both the Office of Management and Budget and the Department of the Interior, note the appropriateness of the approach:

*'The baseline is the state of the world that would exist without the proposed action. All costs and benefits that are included in the analysis should be incremental with respect to this baseline.'*

3. "When viewed in this way the economic impacts of critical habitat designation involve evaluating the 'without critical habitat' baseline versus the 'with critical habitat' scenario. Impacts of a designation equal the difference, or the increment, between these two scenarios. Measured differences between the baseline and the scenario in which critical habitat is designated may include (but are not limited to) changes in land use, environmental quality, property values, or time and effort expended on consultations and other activities by federal landowners, federal action agencies, and in some instances, State and local governments and/or private third parties. Incremental changes may be either positive (benefits) or negative (costs).
4. "In New Mexico Cattle Growers Ass'n v. U.S.F.W.S., 248 F.3d 1277 (10<sup>th</sup> Cir. 2001), however, the 10th Circuit recently held that the baseline approach to economic analysis of critical habitat designations that was used by the Service for the southwestern willow flycatcher designation was 'not in accord with the language or intent of the ESA.' In particular, the court was concerned that the Service had failed to analyze any economic impact that would result from the designation, because it took the position in the economic analysis that there was no economic impact from critical habitat that was incremental to, rather than merely co-extensive with, the economic impact of listing the species. The Service had therefore assigned all of the possible impacts of designation to the listing of the species, without acknowledging any uncertainty in this conclusion or considering such potential impacts as transaction costs, reinitiations, or indirect costs. The court rejected the baseline approach incorporated in that designation, concluding that, by obviating the need to perform any analysis of economic impacts, such an approach rendered the economic analysis requirement meaningless: 'The statutory language is plain in requiring some kind of consideration of economic impact in the CHD phase.'

5. "In this analysis, the Service addresses the 10th Circuit's concern that we give meaning to the ESA's requirement of considering the economic impacts of designation by acknowledging the uncertainty of assigning certain post-designation economic impacts (particularly section 7 consultations) as having resulted from either the listing or the designation. The Service believes that for many species the designation of critical habitat has a relatively small economic impact, particularly in areas where consultations have been ongoing with respect to the species. This is because the majority of the consultations and associated project modifications, if any, already consider habitat impacts and as a result, the process is not likely to change due to the designation of critical habitat. Nevertheless, we recognize that the history of consultations on critical habitat is not broad, and, in any particular case, there may be substantial uncertainty whether an impact is due to the critical habitat designation or the listing alone. We also understand that the public wants to know more about the kinds of costs consultations impose and frequently believe that designation could require additional project modifications.
  
6. "Therefore, this analysis incorporates two baselines. One addresses the impacts of critical habitat designation that may be 'attributable co-extensively' to the listing of the species. Because of the potential uncertainty about the benefits and economic costs resulting from critical habitat designations, we believe it is reasonable to estimate the upper bounds of the cost of project modifications based on the benefits and economic costs of project modifications that would be required due to consultation under the jeopardy standard. It is important to note that the inclusion of impacts attributable co-extensively to the listing does not convert the economic analysis into a tool to be considered in the context of a listing decision. As the court reaffirmed in the southwestern willow flycatcher decision, 'the ESA clearly bars economic considerations from having a seat at the table when the listing determination is being made.'
  
7. "The other baseline, the lower boundary baseline, will be a more traditional rulemaking baseline. It will attempt to provide the Service's best analysis of which of the effects of future consultations actually result from the regulatory action under review - i.e. the critical habitat designation. These costs will in most cases be the costs of additional consultations, reinitiated consultations, and additional project modifications that would not have been required under the jeopardy standard alone as well as costs resulting from uncertainty and perceptual impacts on markets."

DATED: March 20, 2002

## EXECUTIVE SUMMARY

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8. The purpose of this report is to identify and analyze the potential economic effects of the proposed designation of critical habitat for two plant species, the Baker's larkspur (*Delphinium bakeri*) and Yellow larkspur (*Delphinium luteum*), in coastal Sonoma and Marin Counties, California. This report was prepared by Economic & Planning Systems, Incorporated (EPS), under subcontract to Industrial Economics, Incorporated (IEC), under contract to the U.S. Fish and Wildlife Service's Division of Economics.
9. Section 4(b)(2) of the Endangered Species Act (the Act) requires that the U.S. Fish and Wildlife Service (the Service) base the designation of critical habitat upon the best scientific and commercial data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas within critical habitat, provided the exclusion will not result in extinction of the species.
10. The focus of this economic analysis is on section 7 of the Act, which requires Federal agencies to insure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. Federal agencies are required to consult with the Service whenever they propose an action that may affect a listed species or its designated critical habitat. Aside from the protection that is provided under section 7, the Act does not provide other forms of protection to lands designated as critical habitat. Because consultation under section 7 only applies to activities that involve Federal permits, funding or involvement, the designation of critical habitat will not afford any additional protections for species with respect to such strictly private activities.

## IMPACT SUMMARY

11. Two primary categories of potential costs are considered in the analysis. These categories are:
  - Costs associated with identifying the effect of the designation on a particular parcel or land use activity (e.g., technical assistance, section 7 consultations).
  - Costs associated with any modifications to projects, activities, or land uses resulting from the outcome of section 7 consultations with the Service.
12. The total future potential economic impact from section 7 consultations and project modifications associated with the larkspurs listing and critical habitat designation is estimated at \$18,000. A state highway culvert repair project and

- two flood and erosion control projects on private land are likely to require a total of one formal and two informal consultations with the Service and generate this level of expenditure.
13. For the informal consultations on the flood and erosion control projects, no project modifications are anticipated. In addition, no additional costs are expected from project modifications to the state highway culvert repair project.
  14. Of the \$18,000 in total cost impacts, \$7,000 are attributable to the designation of critical habitat. The consultation for the culvert repair proposed by Caltrans, and its \$11,000 estimated cost, would have occurred in the absence of critical habitat and should be attributed to the listing.

## **ORGANIZATION OF REPORT**

15. This report is organized into six chapters. **Chapter I** provides an introduction to this report, describes the species and its habitat, and lays out the framework and methodology for the analysis. **Chapter II** describes the proposed habitat and land uses. **Chapter III** focuses on methods and data. **Chapter IV** discusses impacts of critical habitat designation, and **Chapter V** discusses the benefits of critical habitat designation.

## I. INTRODUCTION AND BACKGROUND

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16. On June 18, 2002, the U.S. Fish and Wildlife Service (the Service) proposed designating critical habitat for two plant species – the Baker's Larkspur (*Delphinium bakeri*) and Yellow Larkspur (*Delphinium luteum*) – (hereafter the "larkspurs"), on 4,412 acres of land in Marin and Sonoma Counties, California. The purpose of this report is to identify and analyze the potential economic effects that would result from this designation. This report was prepared by Economic & Planning Systems, Incorporated (EPS), under subcontract to Industrial Economics, Incorporated (IEc), under contract to the Service's Division of Economics.
17. Section 4(b)(2) of the Endangered Species Act (the Act) requires that the Service base the designation of critical habitat upon the best scientific and commercial data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. The Service may exclude areas from critical habitat designation when the benefits of exclusion outweigh the benefits of including the areas as critical habitat, provided the exclusion will not result in extinction of the species.
18. Under the listing of a species, section 7(a)(2) of the Act requires Federal agencies to consult with the Service in order to ensure that activities they fund, authorize, permit, or carry out are not likely to jeopardize the continued existence of the species. The Service defines jeopardy as any action that would appreciably reduce the likelihood of both the survival and recovery of the species. For designated critical habitat, Section 7(a)(2) also requires Federal agencies to consult with the Service to ensure that activities they fund, authorize, permit, or carry out do not result in destruction or adverse modification of critical habitat. Adverse modification of critical habitat is currently construed as any direct or indirect alteration that appreciably diminishes the value of critical habitat for conservation of a listed species.

## II. PROPOSED CRITICAL HABITAT AND LAND USES

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### DESCRIPTION OF SPECIES AND HABITAT

19. The Baker's and Yellow Larkspurs are perennial herbs in the buttercup family threatened by road maintenance and construction, unmanaged sheep grazing, excessive collection, and random natural events such as unseasonable fires or insect infestations.<sup>1</sup> The Baker's species is currently restricted to a single location in Marin County, California. The plant grows in soils of decomposed shale and grows to 26 inches in height. Its dark blue or purplish flowers are evident from April through May.
20. The Yellow Larkspur inhabits coastal prairie and coastal scrub, typically on moderate to steep slopes, at elevations ranging up to about 100 meters. Its flowers appear during the months of March, April, and May, and are bright yellow. The Yellow Larkspur grows to about 22 inches high and is pollinated by hummingbirds.
21. Based on field surveys and research, the Service has identified physical and biological habitat features, referred to as primary constituent elements, that are essential for the conservation of the Baker's and Yellow Larkspurs. Primary constituent elements for the Baker's Larkspur include:
  - Soils that are derived from decomposed shale;
  - Plant communities that support associated species, such as California bay, California buckeye, and coastal live oak; and
  - Mesic (moderately moist) conditions on extensive north-facing slopes.
22. Primary constituent elements for the Yellow Larkspur include:
  - Plant communities that support the appropriate associated species, including north coastal scrub or coastal prairie communities;
  - Soils derived from sandstone or shale, with rapid runoff and high erosion potential, such as Kneeland or Yorkville series soils;
  - Generally north aspected areas near steep sloped canyon walls; and
  - Habitat upslope and downslope from known populations to maintain disturbance such as occasional rock slides or soil slumping that the species appears to require.

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<sup>1</sup> Information on the Baker's and Yellow Larkspurs and its habitat comes from the *Proposed Designation of Critical Habitat for the Baker's and Yellow Larkspurs*, June 18, 2002 (67 FR 41376).

Both the Baker's and Yellow Larkspurs are listed as rare species under California's Endangered Species Act.<sup>2</sup>

## PROPOSED CRITICAL HABITAT AND EXISTING LAND USES

23. The Service has proposed six units of critical habitat for the Baker's and Yellow Larkspurs on approximately 4,412 acres of private land in Marin and Sonoma Counties.
24. The counties' close proximity to San Francisco as well their favorable climates have attracted a significant number of new residents in recent years. Both have a rural coastal corridor and inland valleys containing abundant acreage for farm production. In recent years, open space for tourism and recreation have contributed to significant population and economic growth for Marin and Sonoma Counties.
25. Two units, one in each county, totaling 1,828 acres, have been designated for the Baker's Larkspur. The 796 acre Marin County unit is occupied, and the 1,032 acre Sonoma County unit is unoccupied. The unoccupied unit was included as part of the critical habitat designation because of its value as a reintroduction site for the Baker's Larkspur. Reintroduction is advisable because of the plant's limited range, its small population size, and the high degree of threat from chance catastrophic events.
26. Four units, one in Sonoma County and the other three in Marin County, totaling 2,584 acres, have been designated for the Yellow Larkspur. The limited number of populations of the Baker's Larkspur and the high degree of threat from catastrophic events support the inclusion of all four units. The four units represent areas where the plant has been recently documented to occur, and each is presumed to be occupied.

## BAKER'S LARKSPUR UNITS

27. Both habitat units for the Baker's Larkspur are four to seven miles inland from the coastline and consist of steep north facing ridges with an overstory of coastal live oak. The hillside in each habitat unit is bordered at lower elevations by a creek and alongside the creek in each unit is a county maintained two lane road. Current land uses include occasional farmhouses and ranch improvements within each habitat unit and along the unit's edges, including corrals, barns, and fences. Some cattle grazing takes places in cleared areas alongside the road, both within and directly adjacent to the habitat unit.
28. Land ownership within the Sonoma County unit consists of numerous 20 to 60 acre parcels with few exceptions. County planning officials know of no

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<sup>2</sup> Fish and Game Code §§ 2050 *et seq.*, as viewed on [http://www.dfg.ca.gov/hcpb/species/t\\_e\\_spp/teplant/teplanta.shtml](http://www.dfg.ca.gov/hcpb/species/t_e_spp/teplant/teplanta.shtml) on September 9, 2002.

development applications for this area and were doubtful that subdivision or other land development approvals would occur in this area in the future. Lack of utility infrastructure, distance to jobs and basic supplies, and restrictive agricultural zoning are the primary factors contributing to current land uses.<sup>3</sup>

29. The Marin County unit consists primarily of parcels larger than 60 acres, several of which have conservation easements owned by the Marin Area Land Trust. The County's General Plan designates these areas with the most restrictive agriculture land use category and would permit no more than one housing unit to be built for every 60 acres.<sup>4</sup> Steep slopes, lack of utility infrastructure, and the restricted zoning for these properties make development highly unlikely.

### YELLOW LARKSPUR UNITS

30. The areas containing the Yellow Larkspur's habitat units lie within the coastal fog belt no more than two miles from the coastline. Steep canyon walls are common to each unit, and paved roads pass through two of the four habitat units. The other two units, L2 and L3, have no paved roads nearby, are both in Marin County, and are accessible only from dirt roads that pass through coastal headlands now used for grazing. Future development there is very unlikely.
31. Occasional ranch improvements are seen in L2 and L3. The zoning for the parcels included in the proposed critical habitat designation is compatible only with agricultural land uses and allows no more than one housing unit for every 60 acres. Several large properties in the northernmost unit have easements owned by the Marin Area Land Trust.
32. The third Marin County Yellow Larkspur unit, named Unit L4, is bisected by the Pacific Coast Highway (State Route 1), which runs alongside Keyes Creek from the point it enters Tomales Bay. The County's General Plan classifies this land as open space or agriculture, and development of any kind, due to the creek's wide floodplain and bordering steep canyon walls, is unlikely.<sup>5</sup>
33. The single Sonoma County Yellow Larkspur proposed habitat unit is in the vicinity of Bodega Bay, a small coastal town with a significant seasonal population and stock of second homes built on lower sections of the broad, steep hillsides. A small amount of marshland along State Route 1 occurs at the foot of several hillsides. State Route 1 bisects the habitat unit east of the town. County

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<sup>3</sup> Personal communication with Planner, Sonoma County Permit and Resource Management Division, Santa Rosa, California, June 10, 2002.

<sup>4</sup> Personal communication with Planning Counter staff, Marin County Community Development Department, San Rafael, California, June 10, 2002.

<sup>5</sup> Personal communication with Planning Counter staff, Marin County Community Development Department, San Rafael, California, June 10, 2002.

and state transportation planners were at one time studying whether to relocate the highway and construct a bypass. However, this project is not supported by local residents and is no longer being evaluated or considered for funding.

34. An 85 housing unit subdivision is the only known proposed development project along this part of the coast, and County planning staff's description of the project site places the proposed subdivision outside of the proposed habitat unit to the northwest and adjacent to the main town site. Few development applications are expected for this area in the future.<sup>6</sup>

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<sup>6</sup>Personal communication with Planner, Sonoma County Permit and Resource Management Division, Santa Rosa, California, June 10, 2002.

### III. METHODS AND DATA

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#### FRAMEWORK FOR ANALYSIS

35. The focus of this economic analysis is on section 7 of the Act, which requires Federal agencies to insure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. Federal agencies are required to consult with the Service whenever they propose an action that may affect a listed species or its designated critical habitat. Aside from the protection that is provided under section 7, the Act does not provide other forms of protection to lands designated as critical habitat. Because consultation under section 7 only applies to activities that are carried out, permitted, or funded by Federal agencies, the designation of critical habitat will not afford any additional protections for species with respect to strictly private activities.
36. This analysis first identifies land use activities within or in the vicinity of those areas being proposed for critical habitat that are likely to be affected by section 7 of the Act. To do this, the analysis evaluates a "without section 7" scenario and compares it to a "with section 7" scenario. The "without section 7" scenario constitutes the baseline of this analysis. It represents the level of protection that would be afforded the species under the Act if section 7 protective measure were absent. This level of protection would include other Federal, State, and local laws. The "with section 7" scenario identifies land-use activities likely to involve a Federal nexus that may affect the species or its designated critical habitat, which accordingly have the potential to be subject to future consultations under section 7 of the Act.
37. Economic activities identified as likely to be affected under section 7 and the resulting impacts that section 7 can have on such activities constitute the upper-bound estimate of the proposed critical habitat economic analysis. By defining the upper-bound estimate to include both jeopardy and adverse modification impacts, the analysis recognizes the difficulty in sometimes differentiating between the two in evaluating only the critical habitat effects associated with the proposed rulemaking. This step is adopted in order to ensure that any critical habitat impacts that may occur co-extensively with the listing of the species (i.e., jeopardy) are not overlooked in the analysis.
38. Upon identifying section 7 impacts, the analysis proceeds to consider the subset of impacts that can be attributed exclusively to the critical habitat designation. To do this, the analysis adopts a "with and without critical habitat approach." This approach is used to determine those effects found in the upper-bound estimate that may be attributed solely to the proposed designation of critical habitat. Specifically, the "with and without critical habitat" approach considers section 7 impacts that will likely be associated with the implementation of the *jeopardy* provisions of section 7 and those that will likely be associated with the

- implementation of the *adverse modification* provision of section 7. In many cases, impacts associated with the jeopardy standard remain unaffected by the designation of critical habitat and thus would not normally be considered an effect of a critical habitat rulemaking. The subset of section 7 impacts likely to be affected solely by the designation of critical habitat represent the lower-bound estimate of this analysis.
39. The critical habitat designation for the Baker's and Yellow Larkspurs encompasses land under private ownership only. For private lands subject to critical habitat designation, section 7 consultations and modifications to land uses and activities can only be required when a Federal nexus, or connection, exists. A Federal nexus arises if the activity or land use of concern involves Federal permits, Federal funding, or another form of Federal involvement. Section 7 consultations are not required for activities on non-Federal lands that do not involve a Federal nexus.
40. In addition to lands contained within the proposed critical habitat designation, this report will examine adjacent activities sponsored or permitted by Federal agencies that may affect the Baker's and Yellow larkspurs and/or adversely modify the proposed critical habitat.
41. This report estimates impacts of listing and critical habitat designation on activities that are "reasonably foreseeable," including, but not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Accordingly, the analysis bases estimates on activities that are likely to occur within a ten-year time horizon.

## METHODOLOGICAL APPROACH

42. This report relies on a sequential methodology and focuses on distilling the salient and relevant aspects of potential economic impacts of designation. The methodology consists of:
- Determining the current and projected economic activity within and around the proposed critical habitat area;
  - Considering how current and future activities that take place or will likely take place on Federal and private land could adversely affect proposed critical habitat;
  - Identifying whether such activities taking place on privately-owned property within the proposed critical habitat boundaries are likely to involve a Federal nexus;
  - Evaluating the likelihood that identified Federal actions and non-Federal actions having a Federal nexus will require consultations under section 7

of the Act and, in turn, that such consultations will result in modifications to projects;

- Estimating per-unit costs of expected section 7 consultations, project modifications and other economic impacts associated with activities in or adjacent to areas proposed as critical habitat;
- Estimating the upper bound of total costs associated with the area proposed for the designation (including costs that may be attributed co-extensively with the listing of the species) and the lower bound of costs (i.e., costs attributable solely to critical habitat);
- Determining the benefits that may be associated with the designation of critical habitat; and,
- Assessing the extent to which critical habitat designation will create costs for small businesses and/or affect property values as a result of modifications or delays to projects.

## **INFORMATION SOURCES**

43. The methodology outlined above relies on input and information supplied by staff from the Service, State of California Transportation Department (Caltrans), Natural Resources Conservation Service (NRCS), Bureau of Indian Affairs, U.S. Army Corps of Engineers (ACOE), Sonoma County Transportation and Public Works Department, Sonoma County Permit and Resource Management Department, and the Marin County Public Works and Community Development Departments. Comments and information on land uses and the effects of critical habitat designation were not available from private landowners, so this analysis uses information from the possible action agencies regarding activities occurring on the private land and the likelihood of Federal nexuses being associated with these activities.

## IV. IMPACTS OF CRITICAL HABITAT DESIGNATION

44. This chapter estimates the per-unit costs of expected section 7 consultations, project modifications and other economic impacts associated with activities in or adjacent to areas proposed as critical habitat. Project modification costs depend on the economic activities impacted by critical habitat designation. Consultation costs, however, are administrative in nature and, although conducted at variable levels of efforts, have more predictable unit costs.
45. Estimates of the cost of an individual consultation were developed from a review and analysis of historical section 7 files from a number of Service field offices around the country. These files addressed consultations conducted for both listings and critical habitat designations. Cost figures were based on an average level of effort for consultations of low, medium, or high complexity, multiplied by the appropriate labor rates for staff from the Service and other Federal agencies. Estimates take into consideration the level of effort of the Service, the Action agency, and the applicant during both formal and informal consultations, as well as the varying complexity of consultations. Informal consultations are assumed to involve a low to medium level of complexity. Formal consultations are assumed to involve a medium to high level of complexity.
46. Section 7 consultation costs include the administrative costs associated with conducting the consultation, such as the cost of time spent in meetings, preparing letters, and in some cases, developing a biological assessment or biological opinion. Biological assessments are prepared to determine whether proposed projects, and in some cases their alternatives, are likely to adversely affect the listed species or designated critical habitat. Biological assessments include a survey of the literature, a detailed discussion of the effects of the action on listed species or critical habitat, and findings based on this information.
47. The costs of reinitiating a consultation are assumed to be similar to conducting the original consultation, because the re-initiation generally involves time spent in meetings and preparing letters. This analysis assumes that the economic impact associated with a non-substantive re-initiation is similar to the cost of an informal consultation and the economic impact associated with a substantive re-initiation is similar to the cost of a formal consultation. The cost of internal consultation, where the Service is the Action agency, depends on the activity under consideration and may be similar to the costs of either informal or formal consultations.
48. Cost estimates for technical assistance are based on an analysis of past technical assistance efforts by the Service in Southern California. Technical assistance costs represent the estimated economic costs of informational conversations, letters, and meetings between landowners and the Service regarding the designation of critical habitat for the larkspurs. Most likely, such communication will occur between private property owners and the Service regarding areas designated as critical habitat or lands adjacent to critical habitat.

49. Estimated administrative costs associated with section 7 consultations, re-initiations, and technical assistance efforts are presented in **Exhibit 1** (these are per effort estimates). The low and the high scenarios represent a reasonable range of costs for each type of interaction. For example, when the Service participates in technical assistance with a third party regarding a particular activity, the cost of the Service's effort is expected to be approximately \$260 to \$680. The cost of the third party's effort is expected to be approximately \$600 to \$1,500.

<b>Exhibit 1</b>					
<b>ESTIMATED ADMINISTRATIVE COSTS OF CONSULTATION AND TECHNICAL ASSISTANCE EFFORTS FOR THE BAKER'S AND YELLOW LARKSPURS (PER EFFORT)</b>					
<b>Critical Habitat Impact</b>	<b>Scenario</b>	<b>Service</b>	<b>Action Agency</b>	<b>Third Party</b>	<b>Biological Assessment<sup>a</sup></b>
Technical Assistance	Low	\$260	\$0	\$600	\$0
	High	\$680	\$0	\$1,500	\$0
Informal Consultation	Low	\$1,000	\$1,300	\$1,200	\$0
	High	\$3,100	\$3,900	\$2,900	\$4,000
Formal Consultation	Low	\$3,100	\$3,900	\$2,900	\$4,000
	High	\$6,100	\$6,500	\$4,100	\$5,600

<sup>a</sup> A third party bears the cost of a biological assessment. When no third party is involved, the Action agency bears the cost.

Notes: Low and high estimates primarily reflect variations in staff wages and time involvement by staff. Technical assistance also has educational benefits to the landowner or manager and to the Service.

Sources: IEC analysis based on data from the Federal Government General Schedule Rates, Office of Personnel Management, 2002, a review of consultation records from several Service field offices across the country, and communications with Biologists in the Service.

## **CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)**

50. Caltrans receives partial funding from the Federal Highway Administration for transportation infrastructure projects located throughout the state. Because of this Federal nexus, it is standard procedure for the agency to ask the Service for a list of endangered and threatened species present in the map quadrangle where each project is located as part of the environmental review conducted for each project. When projects are sited within critical habitat units, Caltrans may require technical assistance to understand more about the habitat and possible project-related impacts. These communications may also develop into an informal or formal section 7 consultation, and project modifications may be recommended to avoid or minimize impacts to species and critical habitat.

51. Working from its highway repair and construction project lists, Caltrans has identified a culvert repair project along State Route 1 south of Tomales is likely to require a formal consultation.<sup>7</sup> Because of the known locations of existing larkspur populations, road maintenance activities that modify road embankments or alter the likelihood of landslides on the slopes above the roadway have the potential to impact both the species and its habitat. This consultation is likely to result in the issuance of a biological opinion if the Service believes the project may adversely affect the listed species or its critical habitat. The total cost of this consultation for both the agency and the Service may be as much as \$11,000.
52. Project modifications for this type of culvert repair project may include the relocation of staging areas for heavy equipment and a shift in the location of equipment operations.<sup>8</sup> Neither measure is expected to incur a cost to the agency.
53. Caltrans routinely queries the Service to learn of the listed species that may exist on each of its project sites, and information on species listed under authority of the California Endangered Species Act is also easily available to the agency. For the particular culvert repair project considered in this analysis, because the larkspur populations are located on the roadside in the proposed habitat unit, this consultation would likely have occurred without the Service's action of designating critical habitat. The consultation cost is therefore attributable to the listing of the Yellow Larkspur.

## **NATURAL RESOURCES CONSERVATION SERVICE (NRCS)**

54. The Natural Resources Conservation Service (NRCS) is an agency of the United States Department of Agriculture (USDA). NRCS assists landowners in planning and installing conservation measures that protect soil and water resources. In Sonoma and Marin counties, field offices of the NRCS administer a cost sharing program for farmers and ranchers seeking to control erosion and flood damage. Projects may include channel work, levees and dykes, floodways, sediment basins, grade stabilization structures, and streambank stabilization. The cost of each project is split between the landowner and NRCS.
55. Local NRCS personnel estimate that as many as two of its future projects may be located in areas designated as critical habitat for the larkspurs. These projects may occur in any of the six habitat units, because floodplains and the potential for erosion damage are present in each habitat unit. According to agency expectations for future compliance with section 7, each project may result in one informal consultation that will likely cost NRCS, the landowner, and the Service \$3,500 total per consultation.

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<sup>7</sup> Personal communication with Environmental Services Division, Caltrans, June 18, 2002.

<sup>8</sup> Personal communication with section 7 branch staff chief, Sacramento Fish and Wildlife Office, Sacramento, California, August, 2002.

56. NRCS efforts are confined in most cases to degraded areas of potentially productive pasture land where no Baker's or Yellow larkspur species have been known to occur from their collection histories. However, NRCS may request an informal consultation with the Service on projects where direct or indirect impacts to larkspur habitat are in question. Site visits by Service personnel will allow an assessment of the level of competition within the mix of native and non-native plant species that typically inhabit NRCS project sites, the impact of the lowered water table on the suitability of the habitat, and the degree of soil slumping within the zone of erosion.<sup>9</sup>
57. Because no plants are likely to inhabit the project site itself and the primary constituent elements of larkspur habitat include many common vegetation types, the consultations would not have likely occurred without critical habitat designation. These impacts, costing a total of \$7,000, then, are attributable entirely to the critical habitat designation.
58. Other USDA programs, including conservation payments, disaster assistance, commodity loan programs, and subsidy programs, provide a potential Federal nexus for certain crop and livestock producers in Marin and Sonoma Counties. However, within the jurisdictional area of the Service's Sacramento Field Office, no consultations for any Federally-listed species or in areas currently designated as critical habitat have occurred in the past for these programs.<sup>10</sup> Therefore, based on the consultation history, this analysis assumes that the USDA will continue its current operating procedures and is unlikely to consult the Service on these types of activities in the future. For all USDA programs except NRCS technical and financial assistance to landowners for erosion and flood control projects, no section 7 consultation and associated project modification costs are expected.

## **BUREAU OF INDIAN AFFAIRS (BIA)**

59. Under federal law administered by the BIA, land purchased by members of certain recognized Indian tribes may be taken into trust for the benefit of the tribe. The 2001 Omnibus Indian Advancement Act provides for the restoration of the Graton Rancheria and permits the tribe to establish its own tribal government, constitution, and membership rolls. The Graton Tribe is originally from the towns of Graton, Marshall, Bodega, Tomales, and Sebastopol in Marin and Sonoma Counties. An application for trust status in areas designated as critical habitat constitutes a Federal nexus.
60. According to BIA officials with jurisdiction over the Graton Rancheria's affairs, the tribe has a chairman but has not yet sought trust status for any lands owned

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<sup>9</sup> Personal communication with Rangeland Management Specialist, Natural Resources Conservation Service, Petaluma, California, June 20, 2002 and September 4, 2002.

<sup>10</sup> Personal communication with section 7 branch staff member, Sacramento Fish and Wildlife Office, Sacramento, California, February, 2002 and September 5, 2002.

by members of the tribe or for land planned for purchase by the tribe or its members.<sup>11</sup> Most tribes eventually apply for trust status for tribal or member property if authorized by federal statute, but in the case of the Graton Rancheria, there is only a very small chance that this land would be within a larkspur critical habitat unit, since a very small percentage of the tribe's ancestral lands in Southern Sonoma County are being proposed for critical habitat.

61. BIA officials also believe that the Graton Tribe is more likely to purchase land possessing some degree of infrastructure and suitable for housing or commercial development, characteristics that exclude nearly all proposed critical habitat.<sup>12</sup> The economic impact of critical habitat designation on the BIA and the Graton Rancheria, therefore, is expected to be zero.

## **ARMY CORPS OF ENGINEERS**

62. As stated earlier, because of topography, distance from public infrastructure, and clear general plan land use policies, very few applications for development are expected for most of the areas with critical habitat designation. Two habitat units, the Bodega Bay (L1) Yellow Larkspur unit and the Coleman Valley (B1) Baker's Larkspur unit, however, are located near existing public infrastructure or within county general plan areas designated for rural or low density residential land uses. Creeks and marshes are also present alongside roads within each unit. If parcels in either of these two habitat units were approved for development by County authorities, the most likely Federal nexus would be Clean Water Act 404 permits required when proposed development impacts creeks, wetlands, or other "waters of the U.S."
63. Officials in the Army Corps of Engineers did not know of any 404 permit applications pending for the Bodega Bay or Coleman Valley areas, and added that a landowner with a creek on the property is not subject to regulation if creek crossings are built over the high water point on both sides of the creek.<sup>13</sup> The availability of alternative bridge designs that do not require Army Corps permits indicates that development in the Coleman Valley unit that requires a permit from the Army Corps of Engineers under section 404 of the Clean Water Act is unlikely.
64. For the Bodega Bay habitat unit, an examination of access routes to hillside development in the area indicated a low probability of impacts to roadside wetlands, because access to the developable sites is not restricted by these

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<sup>11</sup> Personal communication with Realty Division staff, Bureau of Indian Affairs, Sacramento, California, May 30, 2002.

<sup>12</sup> Personal communication with Endangered Species Specialist, Bureau of Indian Affairs, Sacramento, California, July 29, 2002.

<sup>13</sup> Personal communication with Enforcement Staff, San Francisco Regional Office, Army Corps of Engineers, San Francisco, California, June 18, 2002.

- wetlands. Hence, the primary water features of both habitat units, roadside creeks and marshes, are unlikely to be affected in the event that a development project is proposed for land within critical habitat units, and therefore, a section 404 permit will not be required.
65. Based on the information above, future activities on private lands that would require a permit from the Army Corps of Engineers, and therefore require consultation under section 7 of the Act, are unlikely. As a result, private development in all six units is unlikely to be impacted by the proposed designation of critical habitat.

## **SUMMARY OF IMPACTS**

66. **Exhibit 2** summarizes the potential for new consultations and project modifications and the expected costs attributable to the listing and critical habitat designation for the Baker's and Yellow Larkspurs. It is expected that section 7 implementation will lead to increased costs of approximately \$18,000 total as a result of one new formal and two new informal consultations between the Service and the NRCS, its project applicants, and Caltrans.
67. Of the \$18,000 in total cost impacts, \$7,000 are attributable to the designation of critical habitat. The consultation for the culvert repair proposed by Caltrans, and its \$11,000 estimated cost, would have occurred in the absence of critical habitat and should be attributed to the listing.
68. The distribution of these costs across the habitat units is summarized in **Exhibit 3**. The BIA, recognized tribes and tribal members, private landowners and the ACOE should incur no additional costs resulting from critical habitat designation or the listing of the species.

<b>Exhibit 2</b>				
<b>SUMMARY OF ACTIVITIES AND LAND USES IMPACTED BY THE DESIGNATION OF CRITICAL HABITAT FOR THE BAKER'S AND YELLOW LARKSPURS</b>				
<b>Potentially Affected Party</b>	<b>Reasonably Foreseeable Activities and Land Uses within Proposed Critical Habitat</b>	<b>Proposed Critical Habitat Units Affected</b>	<b>Estimated Consultation Costs<sup>a</sup></b>	<b>Estimated Project Modification Costs</b>
California Department of Transportation (Caltrans)	Road construction and maintenance	Yellow Larkspur 4: Tomales	\$11,000	\$0
Natural Resources Conservation Service	Flood control and revegetation	All Units	\$4,600	\$0
Bureau of Indian Affairs	Petition for tribal lands to be placed into trust status	All Units	\$0	\$0
U.S. Army Corps of Engineers	Land development	Yellow Larkspur 1: Bodega Bay Baker's Larkspur 1: Coleman Valley	\$0	\$0
Private landowners	Flood control and revegetation	All Units	\$2,400	\$0
Private landowners	Land development	Yellow Larkspur 1: Bodega Bay Baker's Larkspur 1: Coleman Valley	\$0	\$0
<b>TOTAL</b>			<b>\$18,000</b>	<b>\$0</b>
<p><sup>a</sup>Action agency consultation costs include costs borne by the U.S. Fish and Wildlife Service. Totals are rounded.                      Source: EPS analysis based on conversations with personnel from Caltrans, NRCS, BIA, the U.S. Army Corps of Engineers, the Sonoma County Department of Permit and Resource Management, and the Marin County Community Development Department, June and September 2002.</p>				

<b>Exhibit 3</b>			
<b>SUMMARY OF POTENTIAL COSTS BY PROPOSED CRITICAL HABITAT UNIT</b>			
<b>Proposed Critical Habitat Unit</b>	<b>Affected Activities and/or Land Uses<sup>a</sup></b>	<b>Total section 7 Costs</b>	<b>Costs Due Solely to Critical Habitat Designation</b>
Baker's Larkspur 1: Coleman Valley	Flood control and revegetation	\$1,200	\$1,200
Baker's Larkspur 2: Salmon Creek	Flood control and revegetation	\$1,200	\$1,200
Yellow Larkspur 1: Bodega Bay	Flood control and revegetation	\$1,200	\$1,200
Yellow Larkspur 2: Estero Americano	Flood control and revegetation	\$1,200	\$1,200
Yellow Larkspur 3: Estero de San Antonio	Flood control and revegetation	\$1,200	\$1,200
Yellow Larkspur 4: Tomales	Culvert maintenance	\$11,000	\$0
	Flood control and revegetation	\$1,200	\$1,200
<b>TOTAL</b>		<b>\$18,000</b>	<b>\$7,000</b>

<sup>a</sup> Projects that treat land for flood and erosion control within proposed critical habitat may occur in any one of the six habitat units. To reflect the probabilistic cost, the \$7,000 total consultation costs for both projects are divided between the six units. Costs are rounded.

Source: EPS analysis based on conversations with personnel from Caltrans, NRCS, BIA, the U.S. Army Corps of Engineers, the Sonoma County Department of Permit and Resource Management, and the Marin County Community Development Department, June, July, and September 2002.

## POTENTIAL IMPACTS TO SMALL BUSINESSES

69. Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever a federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).<sup>14</sup> However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.<sup>15</sup> SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities. Accordingly, the following represents a screening level analysis of the potential effects of critical habitat designation on small entities to assist the Secretary in making this certification.
70. This analysis determines whether critical habitat potentially affects a "substantial number" of small entities in counties supporting critical habitat areas. If a "substantial number" of small entities are potentially affected, the analysis also quantifies the probable number of small businesses that experience a "significant effect." While SBREFA does not explicitly define either "substantial number" or "significant effect," the Small Business Administration (SBA) and other Federal agencies have interpreted these terms to represent an impact on 20 percent or more of the small entities in any industry and an effect equal to three percent or more of a business' annual sales.<sup>16</sup>
71. There are four land use activities that are within the proposed critical habitat designation for the larkspurs that are expected to be affected by section 7 of the Act. These land use activities were identified as being potentially impacted by section 7 implementation (i.e., requiring consultations or project modifications) under the "without section 7" scenario:
- Petition for placement of tribal lands into trust status
  - Land development
  - Treatment of land for flood and erosion control
  - Road construction and maintenance.

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<sup>14</sup> 5 U.S.C. 601 et. seq.

<sup>15</sup> Thus, for a regulatory flexibility analysis to be required, impacts must exceed a threshold for "significant impact" **and** a threshold for a "substantial number of small entities." See 5 U.S.C. 605 (b).

<sup>16</sup> See U.S. Small Business Administration, *The Regulatory Flexibility Act: An Implementation Guide for Federal Agencies*, 1998, accessed at <http://www.sba.gov/advo/laws/rfaguide.pdf> on December 3, 2001.

72. Road construction and maintenance does not have third party involvement (i.e. only the Action agency and the Service are expected to be involved). Thus, small entities will not be affected by section 7 implementation for California Department of Transportation (Caltrans) activities. In addition, no land development requiring federal permits or tribal land petitions for trust status are reasonably foreseeable within the proposed critical habitat units in the next ten years.
73. One federal agency, however, administers a program that benefits small entities. The Natural Resources Conservation Service (NRCS) assists landowners in planning and installing conservation measures that protect soil and water resources. In Sonoma and Marin Counties, field offices of the NRCS administer a cost sharing program for farmers and ranchers seeking to control erosion and flood damage. Projects may include channel work, levees and dykes, floodways, sediment basins, grade stabilization structures, and streambank stabilization. The cost of each project is split between the landowner and NRCS.
74. According to agency expectations for future compliance with section 7, each project may result in one informal consultation that will likely cost the landowner \$1,200 total per consultation.
75. NRCS efforts are confined in most cases to degraded areas of potentially productive pasture land where no Baker's or Yellow larkspur species have been known to occur from their collection histories. However, NRCS may request an informal consultation with the Service on projects where direct or indirect impacts to larkspur habitat are in question. Site visits by Service personnel will allow an assessment of the level of competition within the mix of native and non-native plant species that typically inhabit NRCS project sites, the impact of the lowered water table on the suitability of the habitat, and the degree of soil slumping within the zone of erosion.<sup>17</sup>
76. Because no plants are likely to inhabit the project site itself and the primary constituent elements of larkspur habitat include many common vegetation types, the consultations would not have likely occurred without critical habitat designation. These private party impacts, costing a total of \$2,400, then, are attributable entirely to the critical habitat designation.
77. Local NRCS personnel estimate that, in the next ten years, as many as two of its future projects may be located in areas designated as critical habitat for the larkspurs. Hence, as many as two rural landowners who have livestock, forestry, or other agricultural enterprises may receive partial federal funding for flood and erosion control projects. These two farms or ranches constitute the only potentially small entities, based on the definition of small entities set forth by SBREFA.

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<sup>17</sup> Personal communication with Rangeland Management Specialist, Natural Resources Conservation Service, Petaluma, California, June 20, 2002 and September 4, 2002.

78. Forestry, agriculture, or livestock production constitute the only commercial activities that could take place on land owned by NRCS funding recipients. Because there are 653 smaller producers in these industries for Sonoma and Marin Counties, less than 0.3 percent of the small entities in the industries are impacted.<sup>18</sup>
79. Because fewer than 20 percent of the small entities in these industries are likely to be affected, this analysis concludes that a significant impact on a substantial number of small entities will not result from the designation of critical habitat for the larkspurs.

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<sup>19</sup> Duns Market Identifiers, Dun and Bradstreet, June 2002.

## V. BENEFITS OF CRITICAL HABITAT DESIGNATION

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80. The published economics literature has documented that real social welfare benefits can result from the conservation and recovery of endangered and threatened species (Bishop (1978, 1980), Brookshire and Eubanks (1983), Boyle and Bishop (1986), Hageman (1985), Samples *et al.* (1986), Stoll and Johnson (1984). Such benefits have also been ascribed to preservation of open space and biodiversity (see examples in Pearce and Moran (1994) and Fausold and Lillieholm (1999) both of which are associated with species conservation. Likewise, regional economies can benefit from the preservation of healthy populations of endangered and threatened species, and the habitat on which these species depend.
81. The primary goal of the Act is to enhance the potential for species recovery. Thus, the benefits of actions taken under the Act are primarily measured in terms of the value the public places on species preservation (e.g., avoidance of extinction, and/or an increase in a species' population). Such social welfare values may reflect both use and non-use (i.e., existence) values. For example, use values might include the potential for recreational use of a species, should recovery be achieved. Non-use values are not derived from direct use of the species, but instead reflect the utility the public derives from knowledge that a species continues to exist.
82. In addition, as a result of actions taken to preserve endangered and threatened species, various other benefits may accrue to the public. Such benefits may be a direct result of modifications to projects made following section 7 consultation, or may be collateral to such actions. For example, a section 7 consultation may result in the requirement that residential construction projects avoid removal of soils on certain steep slopes where listed species occur. The relocation of the building site may directly benefit the listed species or its critical habitat, while reduced sedimentation into nearby creeks from the building site may provide the collateral benefits of improving water quality and fish habitat.
83. This chapter describes the benefits resulting from implementation of section 7 of the Act, in the context of areas affected by the proposed designation. It then discusses the extent to which existing valuation studies can be used to monetize these benefits. Finally, it discusses whether these benefits can be defined on a unit-by-unit basis, and whether these benefits attributable to critical habitat designation can be distinguished from all section 7 related benefits.
84. As discussed below, it is not feasible to fully describe and accurately quantify the benefits of this designation in the context of this economic analysis. The discussion presented in this report provides examples of potential benefits, which derive primarily from the listing of the species, based on information obtained in the course of developing the economic analysis. It is not intended to provide a complete analysis of the benefits that could result from section 7 of the Act in

general or critical habitat designation in particular. Given these limitations, the Service believes that the benefits of critical habitat designation are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.

## **CATEGORIES OF BENEFITS**

85. Implementation of section 7 of the Act is expected to substantially increase the probability of recovery for the species. Such implementation includes both the jeopardy provisions afforded by the listing, as well as the adverse modification provisions provided by the designation. Specifically, the section 7 consultations that address the larkspurs will assure that actions taken by Federal agencies do not jeopardize the continued existence of the larkspurs or adversely modify its habitat. Note that these measures are separate and distinct from the section 9 "take" provisions of the Act, which also provide protection to this species.
86. The benefits of critical habitat designation can therefore be placed into two broad categories: those associated with the primary goal of species recovery, and those that derive mainly from the habitat protection required to achieve this primary goal. The sections below describe these two categories of benefits.

### **BENEFITS ASSOCIATED WITH SPECIES RECOVERY**

#### **Existence Value**

87. A number of published studies have demonstrated that the public holds values for endangered and threatened species separate and distinct from any expected direct use of these species (i.e., a willingness to pay to simply assure that a species will continue to exist). These studies include Boyle and Bishop (1987), Elkstrand and Loomis (1998), Kotchen and Reiling (2000), and Loomis and White (1996). While the public's willingness to pay for preservation and enhancement of a wide-range of species has been studied, no studies have addressed the non-use values associated with endangered larkspurs. Thus, it is not possible to develop a monetary measure of this category of benefit.

#### **Horticultural Specialty Sales**

88. The National Agriculture Statistics Service of the U.S. Department of Agriculture conducted a 1998 census of horticultural specialty operations in the U.S. to obtain a comprehensive and detailed picture of the horticultural sector of the economy. The larkspur genus, *Delphinium*, contained 341 varieties whose sales amounted to \$934,000 of flats and \$3,995,000 of potted larkspurs at the wholesale and retail level in 1998. These sales were made by 1,563 different horticultural vendors

nationwide.<sup>19</sup> It is likely that very few, if any, of these sales were of the Baker's or Yellow larkspurs. Full recovery of both species could eventually yield economic benefits in the form of additional horticultural sales. These benefits might include an increase in jobs and expenditures or, if considered within the welfare economics context, an increase in producer and consumer surplus.

89. The exact timing and magnitude of these potential benefits are highly uncertain, as no recovery plan has been completed for the larkspurs.

## BENEFITS ASSOCIATED WITH HABITAT PROTECTION

### **Ecosystem Health**

90. Larkspurs are an integral part of the ecosystems in which they live. Protecting the primary constituent elements for larkspur habitat, including preserving native vegetation types, may reduce losses in species diversity and ecosystem function caused by non-native grasses and forbes that outcompete native species in Marin and Sonoma Counties. Each one of these native plants may in turn provide some level of direct or indirect benefit to the public and local economies.

### **Recreational Benefits**

91. In addition to the long-term potential for augmentation of horticultural sales of the Baker's and Yellow Larkspurs, protecting critical habitat for this species may result in preservation of coastal habitat suitable for recreational uses such as hiking and sightseeing from public roadways. Conservation of coastal headlands and proximate inland ridges may lead to increased tourism and contribute to the expansion of a tourist economy in certain communities.<sup>20</sup> In addition, such activities are likely to generate social welfare benefits to recreators. Quantification of these benefits, however, is limited by the same information constraints are discussed above.

### **Other Benefits**

92. Measures undertaken to protect larkspurs habitat could lead to other benefits including protection and enhancement of property values. Again, quantification and monetization of these categories of benefits would require additional, detailed information.

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<sup>20</sup> *1998 Census of Horticultural Specialties*, National Agricultural Statistics Service, U.S. Department of Agriculture, Washington, DC.

<sup>21</sup> Of course, if designation of critical habitat somehow constrains these activities, these constraints will be manifest as a cost of the designation.

93. Additional benefits of designating critical habitat for the larkspurs may include educational/informational benefits (increased awareness by the public of the extent of larkspur habitat), increased support for existing conservation efforts, and reduced uncertainty regarding the extent of larkspur habitat. For example, critical habitat designation will provide a firm legal definition of the extent of larkspur habitat, which may reduce regulatory uncertainty. At this time sufficient information does not exist to quantify or monetize the benefits of this designation, and thus it is not possible to present monetized benefits on a unit-by-unit basis.

## **PLACING MONETARY VALUES ON THE BENEFITS OF SECTION 7 IMPLEMENTATION**

94. Sufficient information does not exist to allow for quantification of the secondary benefits of habitat protection (e.g., habitat enhancement for other species and of property values). One kind of useful data for this purpose would be a measure of the public's willingness to pay to enhance the probability of recovery of an endangered plant species. At this time, studies of the monetary value of larkspur recovery and protection of larkspur habitat do not exist in the economics literature.
95. In general, benefits transfer is the method used by economists to apply the results of existing valuation studies to a new policy question. For example, the economics literature provides a large number of studies that define the economic surplus associated with recreational fishing trips. These studies are commonly used to predict the value of a fishing day at a site that has not been studied, given various attributes of that site (e.g., species of fish, demographics of the local community, etc.).<sup>21</sup> Two core principals of defensible benefits transfer are (1) the use of studies that apply acceptable techniques to generate welfare values, and (2) similarity between the good being valued in the literature and the good being valued in the policy context to which the transfer is being made. At this time, studies suitable for a benefits transfer exercise have not been identified.

## **ASSIGNING BENEFITS ON A UNIT-BY-UNIT BASIS AND TO THE CRITICAL HABITAT DESIGNATION**

96. Where possible, the benefits of critical habitat designation should be described on a unit-by-unit basis, and distinguished from the benefits that result from implementation of the jeopardy provisions of section 7 of the Act. Exhibit 4 shows the likelihood for each habitat unit to contribute to the benefits of

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<sup>22</sup> For more discussion of benefits transfer, see Environmental Protection Agency, *Guidelines for Preparing Economic Analyses* (EPA 240-R-00-003), September 2000.

additional horticultural sales, ecosystem health, recreational use, and higher property values. These associations between habitat units and benefits are based on the unique geographic and land use characteristics of each habitat unit.

<b>Exhibit 4</b>				
<b>ASSOCIATION BETWEEN POTENTIAL BENEFITS AND PROPOSED CRITICAL HABITAT UNITS</b>				
<b>Proposed Critical Habitat Unit</b>	<b>Potential Benefit From Habitat Unit</b>			
	<b>Horticultural Sales</b>	<b>Ecosystem Health</b>	<b>Recreational Use</b>	<b>Property Values</b>
Baker's Larkspur 1: Coleman Valley	Possible	Possible	Possible	Possible
Baker's Larkspur 2: Salmon Creek	Possible	Possible	Possible	Not Likely
Yellow Larkspur 1: Bodega Bay	Possible	Possible	Possible	Possible
Yellow Larkspur 2: Estero Americano	Possible	Possible	Not Likely	Not Likely
Yellow Larkspur 3: Estero de San Antonio	Possible	Possible	Not Likely	Not Likely
Yellow Larkspur 4: Tomales	Possible	Possible	Possible	Not Likely

Source: EPS analysis

97. Because very few populations of both larkspur species are believed to remain, the number of future consultations and project modifications that involve jeopardy provisions of section 7 is likely to be very small. In contrast, habitat protections provide the plants with areas they may colonize in the future, and will establish the need for future consultations and project modifications. Hence, most of the benefits discussed above arise primarily from the protection afforded to the larkspurs under the section 7 adverse modification provisions, and are attributable to critical habitat designation rather than the listing of the species.

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