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**FINAL DRAFT ECONOMIC ANALYSIS OF CRITICAL
HABITAT DESIGNATION FOR THE PURPLE AMOLE
AND THE CAMATTA CANYON AMOLE**

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PREFACE

The U.S. Fish and Wildlife Service has added this preface to all economic analyses of critical habitat designations:

"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.'

"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).

"In *New Mexico Cattle Growers Ass'n v. U.S.F.W.S.*, 248 F.3d 1277 (10th 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.'

"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 nationwide history of consultations on critical habitat is not broad, and, in any particular case, there may be considerable 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.

"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.'

"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

1. INTRODUCTION AND BACKGROUND

1. On November 8, 2001, the U.S. Fish and Wildlife Service (Service) proposed designation of critical habitat for two varieties of a lily species: the purple amole (*Chlorogalum purpureum* var. *purpureum*) and the Camatta Canyon amole (*Chlorogalum purpureum* var. *reductum*). The total proposed critical habitat area encompasses approximately 21,980 acres of land in Monterey and San Luis Obispo counties, California. The purpose of this report is to identify and analyze the potential economic impacts that could result from this designation. This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service's Division of Economics.
2. 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.
3. 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 defined as any direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.

1.1 Description of Species and Habitat

4. Both varieties of the amole are low-growing lilies that form rosettes at the base of the plants.¹ Each rosette is made up of linear, flat bright green leaves. The inflorescence produces bluish-purple flowers that open during daytime hours. The Camatta Canyon amole variety has an inflorescence that is six to eight inches shorter than the purple amole variety. Based on field surveys and research, the Service has identified physical and biological habitat features, referred to as

¹ Information on the purple amole and its habitat comes from the *Proposed Designation of Critical Habitat for the Purple Amole*, November 8, 2001 (66 FR 56508).

primary constituent elements, that are essential for the survival and recovery of this species. The primary constituent elements for the purple amole (*Chlorogalum purpureum* var. *purpureum*) include: (1) mostly gravelly to sandy soil that is well drained on the surface and underlain by clay soils that are frequently cryptogamic; (2) plant communities supporting associated species, including valley and foothill grassland, blue oak woodland or oak savannahs, and open areas within shrubland communities; and (3) areas of sufficient size and configuration to maintain ecosystem functions and processes. The primary constituent elements for the Camatta Canyon amole (*Chlorogalum purpureum* var. *reductum*) include: (1) well-drained, red clay soils that are frequently cryptogamic and have a large component of gravel and pebbles on the upper soil surface; (2) plant communities supporting associated species, including grassland, blue oak woodland or oak savannahs, oak woodlands, oak savannahs, and open areas within shrubland communities; and (3) areas of sufficient size and configuration to maintain ecosystem functions and processes.

1.2 Proposed Critical Habitat

5. The Service has proposed three units of critical habitat for the purple amole and the Camatta Canyon amole on approximately 21,980 acres of land in Monterey and San Luis Obispo counties, California. The proposed critical habitat comprises 14,940 acres of Federal land, 7,020 acres of privately held land, and 20 acres of state land. A more detailed description of each critical habitat unit is provided below:

- **Unit 1, Fort Hunter Liggett**, consists of two subunits, totaling 14,805 acres. Unit 1A covers 14,660 acres and Unit 1B covers 145 acres. Approximately 11,840 acres of this unit fall within the boundaries of Fort Hunter Liggett, a U.S. Army Reserve facility. The remaining 2,965 acres are privately owned. Small patches of the species are scattered throughout the unit.
- **Unit 2, Camp Roberts**, comprises 2,405 acres of land. Approximately 1,930 acres fall within the boundaries of Camp Roberts, a California Army National Guard facility. The remaining 475 acres belong to private landowners. The species exists in the central part of this unit in one large patch.
- **Unit 3, Camatta Canyon**, consists of 4,770 acres. Approximately 1,170 acres fall within the boundaries of Los Padres National Forest. The California Department of Transportation manages 20 acres, and

3,580 acres belong to private landowners. This unit supports the only known population of the Camatta Canyon amole.

2. **FRAMEWORK, METHODOLOGY, AND IMPACTS**

2.1 **Framework for Analysis**

6. 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 a discretionary 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.
7. 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 currently afforded the species under the Act, absent section 7 protective measures, which includes 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.
8. 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 critical habitat 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.

9. 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 *critical habitat* 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.

10. The critical habitat designation for the purple amole and Camatta Canyon encompasses land under private, State, and Federal ownership. For private and State 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.

11. 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.

2.2 **Methodological Approach**

12. 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 the 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.

2.3 Information Sources

13. The methodology outlined above relies on information supplied by staff from the Service, the U.S. Army Reserve, the California Army National Guard, the U.S. Forest Service, California Department of Transportation, and the San Luis Obispo County Department of Planning and Building. Information on current and potential land uses was not available from all landowners, so this analysis uses information from the Service and the San Luis Obispo County Department of Planning and Building to address activities occurring on private land, including the likelihood of Federal nexuses being associated with these activities.

2.4 Categories of Costs

14. 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 for the purple amole and Camatta Canyon amole are assumed to involve a low level of complexity. Formal consultations are assumed to involve a medium level of complexity. Programmatic formal consultations are assumed to involve a high level of complexity in terms of both the administrative effort for the Service and the Federal Action Agency and the completion of a biological assessment by the Federal Action Agency. These 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 and biological opinion.

15. Technical assistance costs represent the estimated economic costs of informational conversations, letters, and meetings between private landowners and the Service regarding the designation of critical habitat for the purple amole and Camatta Canyon Amole. Most likely, such communication will occur private property owners and the Service regarding areas designated as critical habitat or lands adjacent to critical habitat. Technical assistance efforts are assumed to involve the same level of involvement as an informal consultation.

16. Estimated administrative costs associated with section 7 consultations and technical assistance efforts are presented in Exhibit 1 (these are per effort estimates).

Exhibit 1			
ESTIMATED ADMINISTRATIVE COSTS OF CONSULTATION AND TECHNICAL ASSISTANCE EFFORTS FOR THE PURPLE AMOLE (PER EFFORT)			
Critical Habitat Impact	Service	Federal Action Agency	Third Party
Technical Assistance Effort	\$1,000	NA	\$1,000
Informal Consultation	\$1,000	\$1,000	\$2,000
Formal Consultation	\$3,000	\$8,000	\$7,000
Programmatic Formal Consultation	\$6,000	\$30,000	NA
Notes: Values presented include costs associated with the preparation of a biological assessment or other biological project evaluation.			
Sources: IEc analysis based on data from the Federal Government General Schedule Rates, 1999, Office of Personnel Management, 2000, and level of effort information from a review of consultation records from several Service field offices across the county and from conversations with Biologists in the U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office.			

2.5 Economic Impacts

2.5.1 Unit 1, Fort Hunter Liggett

Fort Hunter Liggett Lands

17. As a U.S. Army Reserve installation, Fort Hunter Liggett supports various military training activities, including field maneuvers (bivouacking, weapons testing, constructing defense positions, mobilization of large vehicles and equipment, parachute exercises, etc.), fixed-range firing, live fire exercises, aviation training, and testing activities.² These activities often require land disturbances such as grading, digging, scraping, and other methods that may have adverse effects on the purple amole and its habitat.
18. Currently, Fort Hunter Liggett is in the process of drafting a biological assessment as part of a programmatic formal consultation. This programmatic biological assessment will address regularly occurring activities that affect threatened or endangered species, including the purple amole. In addition, to comply with Federal statutory requirements, biologists at Fort Hunter Liggett have developed a draft Integrated Natural Resource Management Plan for the installation. This plan intends to reduce the likelihood of harmful activities taking place in areas critical to the purple amole, allowing for the long-term survival and recovery of the species.
19. The Service expects that the majority of future activities at Fort Hunter Liggett will be covered by the programmatic consultation. Therefore, the Army would likely not have to consult frequently with the Service to address individual activities. Based on information from staff at Fort Hunter Liggett, the Service expects the biological assessment to be completed by the summer of 2002. As indicated in Exhibit 1, development of a programmatic consultation is expected to result in costs of approximately \$30,000 to the

² Information regarding activities and the potential for section 7 consultations within proposed critical habitat on Fort Hunter Liggett comes from personal communications with Biologist, U.S. Fish and Wildlife Service, Ventura Office, December 31, 2001 and Biologist, U.S. Army Reserve, Fort Hunter Liggett, February 14, 2002. Due to recent staffing turnover at Fort Hunter Liggett, this report relies primarily on information from the Service. The Army Reserve is expected to comment more fully on the proposed critical habitat designation after this document has been made available for public comment.

Army Reserve and \$6,000 to the Service.³ The programmatic consultation may need to be revised through formal consultation five years after completion. Administrative costs for a future revision are estimated at \$8,000 to the Army Reserve and \$3,000 to the Service.

20. As a result of the current programmatic consultation, the Army Reserve may modify its activities at Fort Hunter Liggett in order to protect the purple amole. Based on a past formal consultation experience with the purple amole at Fort Hunter Liggett, the Service anticipates that the Army Reserve may undertake protective measures such as, but not limited to: (1) not using tent stakes when bivouacking to preserve seeds and bulbs in the upper soil surface; (2) conducting little to no road grading except under emergency situations; (3) keeping vehicles on existing roads where possible; and (4) using mobile kitchens or portable latrines to avoid digging. The cost for implementing these measures is not expected to exceed \$50,000 over the next ten years.⁴
21. Because Fort Hunter Liggett supports known populations of the purple amole and the programmatic consultation was slated to address this species prior to the critical habitat proposal, the programmatic consultation and associated protective measures would be addressed absent the designation of critical habitat for the purple amole. Therefore, costs stemming from the current programmatic consultation will not result from designation of critical habitat for the purple amole.
22. Since the programmatic consultation is not expected to be completed until the end of 2002, the Service anticipates conducting up to two formal consultations with the Army Reserve for activities taking place during the summer and or fall of 2002. In addition, the Service expects some future activities at Fort Hunter Liggett to lie outside the scope of the programmatic consultation. Therefore, the Service anticipates that up to six additional formal consultations may be necessary over the next ten years. As indicated in Exhibit 1, the cost for each of these anticipated formal consultations is expected to be approximately

³ Cost estimates for 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. See Section 2.4 of this document for full details.

⁴ Costs stemming from modifications of projects are estimated based on the time required to develop appropriate measures, labor to implement those measures, and supplies. For the programmatic consultation, it is not possible to predict accurately how many protective measures will have to be implemented. The stated cost figure represents a reasonable upper bound on the total cost of implementing multiple protective measures over the next ten years.

\$8,000 for the Army Reserve and \$3,000 for the Service, with total costs of approximately \$48,000 to the Army Reserve and \$18,000 to the Service.⁵

23. These individual formal consultations could cause the Army Reserve to modify its activities at Fort Hunter Liggett in order to protect the purple amole. For the two formal consultations likely to occur before completion of the programmatic consultation in 2002, protective measures may include, but not be limited to, not using tent stakes when bivouacking, little to no grading of roads, keeping vehicles on existing roads when possible, and use of portable kitchens and latrines. The cost for such protective measures is expected to be on the order of \$10,000 for each formal consultation.⁶ For the four formal consultations that may take place after completion of the programmatic consultation, the exact nature of project modifications cannot be predicted at this time because specific information about these consultations is not known. However, based on types of project modifications implemented for other plant species, the cost for implementing protective measures is also not expected to exceed \$10,000 per formal consultation. Therefore, the total cost of implementing protective measures as a result of these six formal consultations should be approximately \$60,000 over the next ten years.
24. Because Fort Hunter Liggett supports known populations of the purple amole and the Army Reserve has consulted (informally and formally) on activities affecting this species, these additional formal consultations and associated protective measures would likely be needed absent the designation of critical habitat for the purple amole. Therefore, costs stemming from these formal consultations will not result from designation of critical habitat.
25. The Service also anticipates that the Army Reserve will engage in a number of informal consultations for activities taking place on Fort Hunter Liggett. It is estimated that a total of approximately 20 informal consultations will occur over the next ten years. An informal consultation, as indicated in Exhibit 1, would result in costs of approximately \$1,000 to the Army Reserve, and \$1,000 to the Service, for total costs of approximately \$20,000 to the Army Reserve and \$20,000 to the Service.⁷ Informal consultations do not typically result in the need for project modifications or protective measures.

⁵ See footnote 3.

⁶ Costs stemming from modifications of projects are estimated based on the time required to develop appropriate measures, labor to implement those measures, and supplies.

⁷ See footnote 3.

26. The Service indicates that approximately ten out of the 20 potential informal consultations could occur over the next ten years absent critical habitat designation. Therefore, ten additional informal consultations, at a cost of \$20,000 to both parties, will result from the designation of critical habitat.

Private Lands

27. The privately owned land in Unit 1 principally supports cattle ranching and grazing.⁸ A project involving a Federal nexus is unlikely to occur for these activities.⁹ Therefore, it is expected that no consultations will occur for activities on private land within Unit 1 after the designation of critical habitat for the purple amole. However, critical habitat designation could result in the need for the Service to provide technical assistance to private landowners in Unit 1. The purpose of these technical assistance inquiries will likely be to clarify the requirements that critical habitat might impose on these landowners. It is estimated that 12 landowners may request technical assistance from the Service.¹⁰ The cost to a private landowner for seeking technical assistance, as indicated in Exhibit 1, is not expected to exceed \$1,000 and will likely be considerably less. The cost to the

⁸ Information regarding activities and the potential for section 7 consultations on private land within proposed critical habitat Unit 1 comes from personal communication with Biologist, U.S. Fish and Wildlife Service, Ventura Field Office, December 31, 2001 and with Planner, County of Monterey Planning Department, April 5, 2002.

⁹ In general, activities on private land will only have a Federal nexus through wetlands permitting with the Army Corps of Engineers under section 404 of the Clean Water Act. Because the purple amole is an upland plant species, any wetlands within the proposed critical habitat in this unit would not likely contain the primary constituent elements necessary to require a section 7 consultation when section 404 permitting is required for an activity.

¹⁰ Estimates of the number of technical assistance inquiries for private land owners are based on consideration of critical habitat designation for other plant species. Specifically, this analysis estimates that critical habitat designation will result in technical assistance inquiries at a rate of one inquiry per 250 acres of rural land.

Service should not exceed \$1,000.¹¹ Therefore, the total cost for provision of technical assistance to private landowners in Unit 1 is not expected to be greater than \$12,000 for the landowners and \$12,000 for the Service.

2.5.2 Unit 2, Camp Roberts

Camp Roberts Lands

28. Most of the land in Unit 2 falls within the boundaries of Camp Roberts, a California Army National Guard installation. Land uses at Camp Roberts include field training activities (bivouacking, vehicle maneuvers, foot maneuvers, and aircraft operations) and live fire exercises (direct fire and indirect fire).¹² The California Army National Guard has closed a firing point near the population of purple amole, and plans to keep this firing point closed. They have also installed and continue to maintain 2.4 miles of Siber stakes around the known purple amole population to delineate a restricted use area. Other conservation measures that the California Army National Guard has proposed for occupied habitat include: (1) limiting use of training exercises until seed set has occurred; (2) preventing activities (except under emergency or maintenance/repair situations) that involve intentional soil movement; (3) preventing equine-related activities from occurring; (4) preventing hunting until seed set has occurred; (5) preventing bivouacking activities within Siber-staked areas; (6) preventing establishment of new trails, roads, and firebreaks in occupied habitat; and (7) allowing fires to burn without additional suppression activities. To comply with Federal statutory requirements, biologists at Camp Roberts are in the process of developing an Integrated Natural Resource Management Plan for the installation. This plan intends to reduce the likelihood of harmful activities taking place in areas critical to the purple amole, allowing for the species long-term survival and recovery.
29. Currently, the California Army National Guard is preparing a biological assessment for activities conducted within purple amole habitat. This formal consultation, as indicated

¹¹ Costs associated with technical assistance include, but are not limited to, the opportunity cost of time spent in conversation or in preparing correspondence for the municipal or private property owner, as well as staff costs for the Service.

¹² Information regarding activities and the potential for section 7 consultations on proposed critical habitat within Camp Roberts comes from personal communication with Biologist, U.S. Fish and Wildlife Service, Ventura Field Office, December 31, 2001 and Fax communication with Associate Biologist, California Army National Guard, Camp Roberts, March 11, 2002.

in Exhibit 1, is expected to result in costs of \$8,000 to the California Army National Guard and costs of \$3,000 to the Service.¹³ No project modifications are expected to result from this consultation because the California Army National Guard is undertaking activities beneficial to the purple amole. Because the area traditionally used for bivouacking activities supports a known population of the purple amole and the consultation was initiated prior to the proposed designation of critical habitat, this formal consultation would likely have occurred absent critical habitat designation. Therefore, this analysis estimates that the costs associated with this formal consultation will not result from designation of critical habitat for the purple amole.

30. The Service estimates that activities at Camp Roberts may require as many as four additional formal consultations over the next ten years. As indicated in Exhibit 1, each formal consultation is expected to result in approximate costs of \$8,000 to the California Army National Guard and \$3,000 to the Service, for a total cost of \$32,000 to the California Army National Guard and \$12,000 to the Service.¹⁴ Given the lower level of activity in areas of proposed critical habitat compared to other areas on the installation and the implementation of the Integrated Natural Resources Management Plan, the Service expects that these formal consultations would likely not lead to any additional protective measures or project modifications. Because Camp Roberts supports known populations of the purple amole and the California Army National Guard is already consulting with the Service for activities affecting the purple amole, this analysis estimates that these formal consultations would likely occur absent critical habitat designation.

31. The Service anticipates that the California Army National Guard may engage in some informal consultations regarding the amole for activities taking place on Camp Roberts. It is estimated that approximately ten informal consultations will occur over the next ten years. An informal consultation, as indicated in Exhibit 1, would result in costs of approximately \$1,000 to the California Army National Guard and \$1,000 to the Service, for total costs of \$10,000 to the California Army National Guard and \$10,000 to the Service.¹⁵ Informal consultations do not typically result in the need for project modifications or protective measures.

¹³ See footnote 3.

¹⁴ See footnote 3.

¹⁵ See footnote 3.

32. The Service indicates that approximately five out of the ten potential informal consultations would occur over the next ten years absent critical habitat designation for the purple amole. Therefore, five additional informal consultations, at a cost of \$10,000 to each involved party, will result from the designation of critical habitat.
33. Despite the above discussion, staff at Camp Roberts have expressed concerns about the potential effect of critical habitat designation for the purple amole on their ability to fulfill their mission, including achieving military readiness of armed forces at the installation. A comment received from Camp Roberts points out that, for example, this area contains the only dedicated “impact area” for field artillery in north-central California.¹⁶ However, because these concerns relate primarily to national security and preparedness issues, they are difficult to quantify in the context of an economic analysis and are considered to be beyond the scope of this analysis.

Private Lands

34. The privately owned land in Unit 2 is zoned primarily as Rural, a designation that allows only low development densities so as to maximize preservation of open space, watershed and wildlife habitat areas.¹⁷ Currently, no plans have been identified for future projects likely to involve nexuses on private land within Unit 2. The private lands are mainly used for cattle ranching and grazing, and it is unlikely that a Federal nexus will exist for these activities.¹⁸ Therefore, the Service does not anticipate future consultations on activities involving these lands. Critical habitat designation could result in the need for the Service to provide technical assistance to two private landowners in Unit 2.¹⁹ The purpose of these technical assistance inquiries will likely be to clarify the requirements that critical

¹⁶ Fax communication with Associate Biologist, California Army National Guard, Camp Roberts, March 11, 2002.

¹⁷ Information regarding activities and the potential for section 7 consultations on private land within proposed critical habitat Unit 2 comes from personal communication with Biologist, U.S. Fish and Wildlife Service, Ventura Field Office, December 31, 2000; Planner, San Luis Obispo County Department of Planning and Building, February 21, 2002; and Planner, County of Monterey Planning Department, April 5, 2002.

¹⁸ See footnote 9.

¹⁹ See footnote 10.

habitat might impose on these landowners. The cost to a private landowner for seeking technical assistance, as indicated in Exhibit 1, is not expected to exceed \$1,000 and will likely be considerably less. The cost to the Service should not exceed \$1,000.²⁰ Therefore, the total cost for provision of technical assistance is not expected to be greater than \$2,000 for private landowners and \$2,000 for the Service.

2.5.3 Unit 3, Camatta Canyon

Los Padres National Forest

35. In general, little activity takes place within areas proposed as critical habitat at Los Padres National Forest.²¹ The Service and the U.S. Forest Service (Forest Service) have recently conducted a programmatic consultation regarding the Forest Service's Land and Resource Management Plan for four southern California National Forests, including Los Padres National Forest. The Land and Resource Management Plan creates a baseline level of protection for threatened and endangered species, including the Camatta Canyon amole, and reduces the likelihood that harmful activities will take place in areas critical to the plant's survival. Any future activities that do occur within the Camatta Canyon amole critical habitat in Los Padres National Forest would likely be covered by the programmatic consultation and would likely not require an additional consultation.
36. The Service anticipates that the Forest Service may engage in some informal consultations for activities taking place in Los Padres National Forest. It is estimated that approximately five informal consultations may occur over the next ten years. An informal consultation, as indicated in Exhibit 1, would result in costs of approximately \$1,000 to the Forest Service and \$1,000 to the Service, for total costs of \$5,000 to the Forest Service and \$5,000 to the Service.²² Informal consultations do not typically result in the need for project modifications or protective measures. The Service asserts that these five informal consultations would not likely occur absent designation of critical habitat.

²⁰ See footnote 11.

²¹ Information on proposed critical habitat within Los Padres National Forest comes from personal communications with Biologist, U.S. Fish and Wildlife Service, Ventura Field Office, December 31, 2001 and Biologist, U.S. Forest Service, Los Padres National Forest, January, 2002.

²² See footnote 3.

California Department of Transportation

37. The California Department of Transportation (Caltrans) maintains 20 acres of right-of-way along Highway 58 in Unit 3. Caltrans reports that the right-of-way is maintained in a manner that is not harmful to the Camatta Canyon amole or its habitat.²³ At this time, Caltrans does not have plans for any projects on its land within proposed critical habitat. Therefore, it is expected that critical habitat designation in Unit 3 for the Camatta Canyon amole will not lead to any costs for Caltrans.

Private Lands

38. Private land in Unit 3 consists of tracts of land north of Highway 58 as well as some private inholdings within Los Padres National Forest. These areas are zoned as Rural and Agricultural.²⁴ At this time no known projects involving a Federal nexus are planned for these areas. Land uses include cattle ranching and residential housing. For the most part, little activity takes place on this land and it is unlikely that a Federal nexus would exist for any activity that does take place.²⁵ Therefore, the Service does not anticipate future consultations for activities on private land in Unit 3. Critical habitat designation may result in the need for the Service to provide technical assistance to the private landowners in Unit 3. The purpose of these technical assistance inquiries will likely be to clarify the requirements that critical habitat might impose on these landowners. It is estimated that the Service may provide technical assistance to 14 private landowners.²⁶ The cost to a private landowner seeking technical assistance is not expected to exceed \$1,000 and will likely

²³ Information regarding activities and the potential for section 7 consultations on California Department of Transportation land within proposed critical habitat Unit 3 comes from personal communications with personnel from California Department of Transportation, San Luis Obispo Office, March 12, 2002.

²⁴ Information regarding activities and the potential for section 7 consultations on private land within proposed critical habitat Unit 3 comes from personal communication with Biologist, U.S. Fish and Wildlife Service, Ventura Field Office, December 31, 2001 and with Planner, San Luis Obispo County Department of Planning and Building, February 21, 2002.

²⁵ See footnote 9.

²⁶ See footnote 10.

be considerably less. The cost to the Service should not exceed \$1,000.²⁷ Therefore, the total cost for provision of technical assistance is not expected to be greater than \$14,000 for private landowners and \$14,000 for the Service.

2.6 Summary of Impacts

39. The largest costs are expected for Unit 1, at approximately \$317,000 to all affected parties, though only \$44,000 would be due to critical habitat designation. The costs in this unit result from the following activities:

- \$216,000 to the Army Reserve for development of a programmatic consultation for Fort Hunter Liggett and conducting various military exercises (\$10,000 due to critical habitat designation);
- \$47,000 to the Service for conducting formal consultations for various military activities at Fort Hunter Liggett (\$10,000 due to critical habitat designation);
- \$12,000 to private landowners for increased technical assistance inquiries (all due to critical habitat designation); and
- \$12,000 to the Service for increased technical assistance to private landowners (all due to critical habitat designation).

40. Lesser costs are expected for the other two units:

- Unit 2- \$79,000 total to all parties, \$14,000 due to critical habitat designation; and
- Unit 3- \$38,000 total to all parties, all due to critical habitat designation.

41. Exhibit 2 summarizes the activities that could lead to new consultations and project modifications and the expected costs incurred after critical habitat designation for the purple amole and the Camatta Canyon amole.

²⁷ See footnote 11.

Exhibit 2

**SUMMARY OF POTENTIAL SECTION 7 RELATED ECONOMIC IMPACTS
WITHIN PROPOSED CRITICAL HABITAT FOR THE PURPLE AMOLE
(2002 TO 2012)**

Critical Habitat Unit	Affected Party	Potentially Affected Activity	Estimated Section 7 Costs	Cost Due to Critical Habitat
Unit 1, Fort Hunter Liggett	U.S. Army Reserve- Fort Hunter Liggett	Programmatic consultation and various military exercises	\$216,000	\$10,000
	U.S. Fish and Wildlife Service	Programmatic consultation and consultations for various military exercises	\$47,000	\$10,000
	Private landowner	Technical assistance	\$12,000	\$12,000
	U.S. Fish and Wildlife Service	Technical assistance	\$12,000	\$12,000
Unit 1 Total			\$317,000	\$44,000
Unit 2, Camp Roberts	California Army National Guard- Camp Roberts	Various military exercises	\$50,000	\$5,000
	U.S. Fish and Wildlife Service	Consultations for various military exercises	\$25,000	\$5,000
	Private landowner	Technical assistance	\$2,000	\$2,000
	U.S. Fish and Wildlife Service	Technical assistance	\$2,000	\$2,000
Unit 2 Total			\$79,000	\$14,000
Unit 3, Camatta Canyon	U.S. Forest Service- Los Padres National Forest	Various activities	\$5,000	\$5,000
	U.S. Fish and Wildlife Service	Various informal consultations	\$5,000	\$5,000
	California Department of Transportation	None	None	None
	Private landowner	Technical Assistance	\$14,000	\$14,000
	U.S. Fish and Wildlife Service	Technical Assistance	\$14,000	\$14,000
Unit 3 Total			\$38,000	\$38,000
DESIGNATION TOTAL			\$434,000	\$96,000

Source: IEC analysis based on conversations with personnel from U.S. Fish and Wildlife Service, the U.S. Army Reserve, the California Army National Guard, the U.S. Forest Service, California Department of Transportation, and the San Luis Obispo County Department of Planning and Building.

2.7 Potential Impacts to Small Businesses

42. 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).²⁸ 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.²⁹ 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.
43. This analysis determines whether this critical habitat designation potentially affects a "substantial number" of small entities in counties supporting critical habitat areas. It 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.³⁰
44. The designation of critical habitat for the purple amole and the Camatta Canyon amole is not expected to result in any consultations for activities undertaken by any small entities. Therefore, this analysis concludes that the designation of critical habitat will not result in a significant economic impact to a substantial number of small entities from.

²⁸ Regulatory Flexibility Act, 5 U.S.C. 601 et. seq.

²⁹ 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).

³⁰ See U.S. Small Business Administration, The Regulatory Flexibility Act: An Implementation Guide for Federal Agencies, 1998. Accessed at: www.sba.gov/advo/laws/rfaguide.pdf on December 3, 2001.

2.8 Benefits

45. To determine the benefits of the critical habitat designation of the purple amole, this report considers those categories of benefit that will be enhanced as a result of the listing of the species and the proposed critical habitat designation.
46. The primary goal of listing a species as endangered is to preserve the species from extinction. However, various economic benefits, measured in terms of enhanced national social welfare, result from species preservation as well. National social welfare values reflect both use and non-use (i.e., existence) values, and can reflect various categories of value. For example, use values might include the opportunity to see a purple amole or Camatta Canyon amole plant while on a hike, or the recreational use of habitat area preserved as a result of the purple amole and the Camatta Canyon amole. Existence values are not derived from direct use of the species, but instead reflect the satisfaction and utility people derive from the knowledge that a species exists.
47. The following examples represent benefits derived from the listing of both varieties of the amole and, potentially, critical habitat:
- **Ecosystem health.** Absent the species, other natural organisms may suffer. Actions to protect the purple amole and Camatta Canyon amole may also benefit other organisms. Each one of these organisms may provide some level of direct or indirect benefit to people.
 - **Real estate value effects.** Real estate values may be enhanced by critical habitat designation. For example, such enhancement may occur if open space is preserved or if allowable densities are reduced or kept at current levels as a result of critical habitat designation.
 - **Flood control.** Preserving natural environments can also reduce FEMA and county expenditure on bank stabilization and other flood control programs.
48. The benefits identified above arise primarily from the protection afforded to the purple amole and Camatta Canyon amole under the Federal listing. Critical habitat designation may provide some incremental benefits beyond the listing benefits. Critical habitat designation provides some educational benefit by increasing awareness of the extent of purple amole and Camatta Canyon amole habitat. Incremental surveys, consultations, and project modifications conducted as a result of the designation of critical habitat are likely to increase the probability that purple amole and Camatta Canyon amole will recover. Critical habitat also provides a legal definition of

the extent of the species habitat. This reduces the amount of uncertainty Federal agencies face when determining if a section 7 consultation is necessary for an activity with a Federal nexus.

49. The quantification of total economic benefits attributable to the designation of critical habitat is, at best, difficult. Without knowing the exact nature of future consultations and associated project modifications, it is difficult to predict the incremental increase in the probability that the species will recover as a result of critical habitat designation. A single project modification associated with the designation of critical habitat has the potential to protect the purple amole or Camatta Canyon amole. While such a scenario is unlikely, such a hypothetical project modification would bear the entire economic value of the listing of the species as mentioned above. Alternatively, additional consultations attributable to the designation of critical habitat may not in any way increase the probability of recovery for the species. In this case, the incremental benefits of designating critical habitat for the purple amole and Camatta Canyon amole would be limited to the educational benefits, increased support for existing conservation efforts, and reduced uncertainty regarding the extent of the species habitat. In all likelihood, the actual benefits of the designation of critical habitat for the purple amole and Camatta Canyon amole will lie between the benefits presented in these extreme examples.