

(Outdated information has been updated)

**Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825**

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September 19, 1996

Mr. Tom Coe
Regulatory Branch
Department of the Army
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, CA 95814-2922

Subject: Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California (Corps File #199600065)

Dear Mr. Coe:

This document is in response to your request for formal consultation pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act), regarding actions that the U.S. Army Corps of Engineers (Corps) may take on projects with limited impacts on the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle) or its habitat. Your February 23, 1996, request for formal consultation was received on February 27, 1996. This consultation addresses the effects of these projects on the federally threatened beetle and its elderberry host-plant (*Sambucus* species). The geographic scope of this consultation is the area within the jurisdiction of the Sacramento Field Office of the U.S. Fish and Wildlife Service (Service). This consultation document has been prepared pursuant to 50 CFR §402 of our interagency regulations governing section 7 of the Act.

The purpose of this programmatic document is to expedite consultations on proposed projects with relatively small impacts on the beetle. Future projects that meet the conditions specified below, or that the Service determines will have similar impacts, may be appended to this programmatic consultation.

This consultation document is based on information provided in biological assessments and biological reports provided to the Service by the Corps and other project applicants and consultants. Information obtained by members of my staff during site visits and at meetings with other agency personnel, applicants, and consultants has also been used. Natural history museums, universities, and the scientific literature have also contributed to knowledge of the beetle and its habitat. This information aided the development of appropriate mitigation measures, which are discussed in the Mitigation Guidelines for the beetle (Appendix).

The Service will re-evaluate this programmatic consultation at least every six (6) months to ensure that its continued application will not result in unacceptable effects on the beetle or its ecosystem. Restricting this programmatic consultation to projects with small impacts will limit the effects of the programmatic process on the beetle and its habitat. Tracking and restricting project impacts over time will serve to minimize cumulative effects at local and regional levels.

BIOLOGICAL OPINION

Description of the Proposed Action

This consultation collectively covers projects with small effects on the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) or its host plant, elderberry (*Sambucus* species), in or along the margins of the Sacramento and San Joaquin valleys (Central Valley) of California (Figure 1). The area mapped roughly follows the 3000-foot elevation contour on the east and the watershed of the Central Valley on the west. All or portions of 31 counties are included: Alameda, Amador, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Madera, Mariposa, Merced, Napa, Nevada, Placer, Sacramento, San Benito, San Joaquin, San Luis Obispo, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba. The Service may treat individual projects from outside this area under this programmatic consultation at its discretion.

All projects implemented under this programmatic consultation will meet the following four criteria, or will be determined by the Service to have impacts similar in nature:

1. no designated critical habitat [50 CFR §17.95(i)] will be affected,
2. twenty-five (25) or fewer elderberry **plants**, each with at least one stem measuring 1.0 inch or greater in diameter at ground level, exist in the action area (action area is defined under 50 CFR §402.02 as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action), *and*
3. between one (1) and two hundred (200) elderberry **stems** measuring 1.0 inch or greater in diameter at ground level exist in the action area, *and*
4. less than 250 linear feet (76 m) of undeveloped watercourse exists in the action area, measured down the centerline. An undeveloped watercourse is one without human-made levees, channelization, rip-rap, or other artificial alteration, and may be either permanent or seasonal. This requirement may be waived if no elderberry plants occur in the vicinity of the watercourse(s).

In order to be considered for inclusion under this programmatic document, the biological assessment for the project (50 CFR §402.12), or equivalent document(s) provided to the Service, will include a description of the project, a vicinity map, a legal location description, and the results of a survey for the beetle and for elderberry plants, performed by a qualified biologist. The written report on the survey will include at least the following information:

1. a map showing the boundaries of the project site on a U. S. Geological Survey 7.5 minute quadrangle and identifying the county or counties in which the project is to occur,
2. a map (scale 1" = 100' or 1" = 200') delineating the major vegetation communities present on the site,
3. the acreage to be affected by the project that:
 - a. lies within 50 feet of any elderberry plant,
 - b. lies within riparian vegetation of any kind, and
 - c. lies outside of riparian vegetation but within 50 feet of an elderberry plant.

If the project lies in more than one county, these figures will be provided for each county separately as well as in total,

4. a map showing the precise location of all elderberry plants on-site, and the precise or estimated location of other elderberry plants that may be affected by the project,
5. an accounting of the number of elderberry plants present in the action area, and an accounting for each plant that will include the estimated height, number of stems greater than 1.0 inch in diameter at ground level, and presence or absence of exit holes of the beetle,
6. an assessment of potential habitat for the beetle within 2000 feet of the site boundary if accessible; if not accessible, an estimate of potential habitat for the beetle and a general description of the unaccessible area(s),
7. an analysis of the effects of the project on the beetle and its habitat, including cumulative effects as defined under 50 CFR §402.02 as those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation, and,
8. a similar analysis of effects of the alternate actions considered.

The information provided in the biological assessment will be used by the Service to assess and monitor the local, county-level, and regional impacts of the programmatic consultation on the beetle. Projects that are not consistent with these conditions may be appended to this biological opinion only as the Service deems appropriate. For example, the Service may elect to treat under this programmatic consultation a project that affects 40 elderberry plants, but has effects similar in nature and scope to those analyzed here, and is implemented in a manner consistent with the process described in this biological opinion. Projects with other listed or proposed species present will undergo individual review, but, upon determination by the Service, may have the beetle included as part of this consultation.

The following process will be used when proposed projects are presented for inclusion under this programmatic biological opinion:

1. After reviewing the proposed action, the Corps will forward to the Service's Sacramento Field Office:
 - a. a letter requesting that the proposed project be appended to this biological opinion; and
 - b. the biological assessment for the project, or equivalent document(s), along with all other pertinent information, including a complete description of the project, the field survey report, and maps, as described above. Any other threatened, endangered, or proposed species that may be affected by the project will be included in the biological assessment.
2. The Service will designate a staff biologist to serve as the contact and lead. The Service will review the proposed project. If the effects of the proposed project do not meet the criteria for inclusion in this programmatic biological opinion, the Service will inform the Corps within 15 days of the date the request for initiation of consultation was received by the Service, and the Service will recommend a separate consultation. Otherwise;
3. The Service will take one of three actions:
 - a. If the proposed mitigation is adequate, the Service will deliver to the Corps a letter approving the proposed mitigation and appending the proposed project to this programmatic consultation.

- b. If the proposed mitigation is inadequate, the Service may deliver to the Corps a letter appending the proposed project to this programmatic consultation, provided that additional measures (terms and conditions) specified in the Service's letter are undertaken by the applicant in order to adequately mitigate the effects of the proposed action; or,
 - c. if the proposed mitigation is inadequate, the Service may deliver to the Corps a letter instructing the applicant to contact the Service's staff biologist (identified in the letter) for assistance in determining the applicant's mitigation responsibilities.
4. The Corps will forward the above letter to the applicant. If the proposed mitigation has not been approved, the Corps will instruct the applicant to contact the Service's staff biologist (identified in the Service's letter) for assistance in determining the applicant's mitigation responsibilities.

Appropriate measures have been developed to reduce the impacts of a variety of projects on the beetle. These measures have been implemented and tested in the form of Mitigation Guidelines for the Valley Elderberry Longhorn Beetle, issued and revised periodically by the Service (USFWS 1996) (Guidelines). Projects that will be authorized under this biological opinion will minimize impacts to the valley elderberry longhorn beetle by following these Guidelines or by otherwise mitigating in a manner acceptable to the Service. These Guidelines are attached (Appendix). These Guidelines are also available from this office as a separate document with examples.

Tracking and Reassessment of the Programmatic Process by the Service

To ensure that incremental losses of habitat are not so great that they jeopardize the continued existence of the valley elderberry longhorn beetle in any county, the Service will implement a system to track the effects of this programmatic consultation. Every six (6) months from the date of this biological opinion, the Service will re-evaluate the impacts and effectiveness of the programmatic process.

It is not possible to accurately assess the amount of existing habitat that remains (i.e., the number and location of all elderberry plants within the beetle's range). Therefore, to assess the effects of this programmatic consultation, the Service will track, for each county, the total amount of potential habitat (i.e., the number of acres, elderberry shrubs, and stems) for the beetle that is affected by projects permitted under this biological opinion and the total amount of habitat that is created and restored as a result of mitigation for these effects. Potential habitat acres will be defined as all area within 50 feet of any elderberry plant, or within riparian areas suitable for the growth of elderberry plants.

Mitigation may be on-site or off-site with Service approval. To the extent practical and when it contributes to the recovery of the beetle, mitigation will occur in the same general areas as impacts. Mitigation may be coordinated with local planning efforts with Service approval. Mitigation responsibilities may also be met by purchasing the appropriate number of acres in a mitigation bank that meets the compensation requirements (i.e., meets or exceeds the required number of plantings and provides for transplantation of effected elderberry shrubs) identified in the Guidelines.

Because precise information on the existing environmental baseline (number of elderberry plants occurring in the Central Valley and adjacent foothills) cannot be assessed at this time, the amount of incidental take that will be allowed under this programmatic consultation has been determined based on the amount of incidental take that has been permitted during the last two years. The Service has determined that this amount of take has not jeopardized the continued existence of the valley elderberry longhorn beetle. Based on this information, effects of all projects permitted under this programmatic consultation within a six-month period will be limited to no more than 250 elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level or no more than 2000 stems measuring 1.0 inch or greater in diameter at ground level, whichever number is smaller.

A comprehensive review of the effects and mitigation (i.e., the number and location of acres, shrubs, and stems destroyed and created/restored within each county) will be conducted at the end of each six-month period. As a result of these reviews, it may be determined that: (1) small projects effecting the beetle may continue to be appended to this programmatic consultation for another six-month period with the current mitigation process in place, (2) proposed project effects may need to be limited in specific areas, (3) changes in the mitigation process are needed, or (4) further impacts in specific areas may jeopardize the beetle or other listed species, and use of this programmatic consultation is not appropriate for these areas. The Service will work closely with recovery efforts to ensure that created and restored areas are distributed across the landscape in such a manner as to allow them to function effectively and contribute to the recovery of the beetle.

Status of the Species

On August 8, 1980, the valley elderberry longhorn beetle was listed as a threatened species (45 FR 52803). Two areas along the American River in the Sacramento metropolitan area have been designated as critical habitat for the beetle. In addition, an area along Putah Creek, Solano County, and the area east of Nimbus Dam along the American River Parkway, Sacramento County, are considered essential habitat, according to the Recovery Plan for the beetle (USFWS 1984). These areas support large numbers of mature elderberry shrubs with extensive evidence of use by the beetle.

The valley elderberry longhorn beetle is dependent on its host plant, elderberry (*Sambucus* species), which is a common component of the remaining riparian forests of the Central Valley. Use of the plants by the animal, a wood borer, is rarely apparent. Frequently, the only exterior evidence of the shrub's use by the beetle is an exit hole created by the larva just prior to the pupal stage. Recent field work along the Cosumnes River and in the Folsom Lake area indicates that larval galleries can be found in elderberry stems with no evidence of exit holes; the larvae either succumb prior to constructing an exit hole or are not far enough along in the developmental process to construct an exit hole. Larvae appear to be distributed in stems which are 1.0 inch or greater in diameter at ground level. The Valley Elderberry Longhorn Beetle Recovery Plan (USFWS 1984) and Barr (1991) contain further details on the beetle's life history.

Population densities of the beetle are probably naturally low (USFWS 1984); and it has been suggested, based on the spatial distribution of occupied shrubs (Barr 1991), that the beetle is a poor disperser. Low density and limited dispersal capability may cause the beetle to be vulnerable to the negative effects of the isolation of small subpopulations due to habitat fragmentation.

Environmental Baseline

Extensive destruction of California's Central Valley riparian forests has occurred during the last 150 years due to agricultural and urban development (Katibah 1984, Katibah et al. 1984, Smith 1977, Thompson 1961). Based on a 1979 aerial survey, only about 102,000 acres out of an estimated 922,000 acres of Central Valley riparian forest remain (Katibah et al. 1981). More extreme figures were given by Frayer et al. (1989), who reported that approximately 85% of all wetland acreage in the Central Valley was lost before 1939; and that from 1939 to the mid-1980's, the acreage of wetlands dominated by forests and other woody vegetation declined from 65,400 acres to 34,600 acres. Differences in methodology may explain the differences between the studies. In any case, the historical loss of riparian habitat in the Central Valley strongly suggests that the range of the beetle has been reduced and its distribution greatly fragmented. Loss of non-riparian habitat where elderberry occurs (e.g. savanna and grassland adjacent to riparian areas, oak woodland, mixed chaparral-woodland), and where the beetle has been recorded (Barr 1991), suggests further reduction of the beetle's range and increased fragmentation of its upland habitat.

The beetle's current distribution is patchy throughout the remaining habitat of the Central Valley from Redding to Bakersfield. Surveys conducted in 1991 (Barr 1991) found evidence of beetle activity at 28

percent of the 230 sites with elderberry. The beetle appears to be only locally common, i.e., found in population clusters which are not evenly distributed across available elderberry shrubs. Frequently only particular clumps or trees in the study areas were found to harbor the beetle. Plants used by the beetle usually show evidence of repeated use over a period of several years, but sometimes only one or two exit holes are present. Similar observations on the clustered distribution of exit holes were made by Jones and Stokes (1987). Barr (1991) noted that elderberry shrubs and trees with many exit holes were most often large, mature plants; young stands were seldom occupied.

The action area of this programmatic consultation covers the known range of the beetle, since projects that may be authorized under this biological opinion are likely to exist throughout its range. Therefore, the environmental baseline for the beetle in the action area is equivalent to the rangewide status of the beetle, which is addressed above. To summarize, the Service believes that the valley elderberry longhorn beetle, though wide-ranging, is in long-term decline due to widespread alteration and fragmentation of its riparian, and to a lesser extent, its upland, habitats by human activities.

Effects of the Proposed Action

The proposed action may affect all valley elderberry longhorn beetles inhabiting as many as 250 elderberry plants with at least one stem measuring 1.0 inch or greater in diameter at ground level or as many as 2000 elderberry stems measuring 1.0 inch or greater in diameter at ground level in or adjacent to the Central Valley within a six-month period. This action will adversely affect the valley elderberry longhorn beetle. Any beetle larvae occupying these plants are likely to be killed when the plants are removed.

To mitigate for these effects, projects permitted under this programmatic consultation would relocate (transplant) elderberry shrubs that have one or more stems measuring 1.0 inch or greater in diameter at ground level and would plant additional elderberry, in the form of seedlings or cuttings, and associated native species in accordance with Mitigation Guidelines for the Valley Elderberry Longhorn Beetle (Appendix).

Transplantation of elderberry shrubs that are or could be used by beetle larvae is expected to adversely affect the beetle. Beetle larvae may be killed or the beetles' life cycle interrupted during or after the transplanting process. For example:

1. Transplanted elderberry shrubs may experience stress or become unhealthy due to changes in soil, hydrology, microclimate, or associated vegetation. This may reduce their quality as habitat for the beetle, or impair their production of habitat-quality stems in the future.
2. Elderberry shrubs may die as a result of transplantation.
3. Branches containing larvae may be cut, broken, or crushed as a result of the transplantation process.

Elderberry plants which are too small to be likely to support larval beetles (i.e., consist of no stems measuring 1.0 inch or greater in diameter at ground level) may be destroyed without transplantation or compensation. However, were they not destroyed, such small plants could potentially grow larger and produce stems capable of serving as habitat for the beetle.

Temporal loss of habitat will occur. Although mitigation for impacts on the beetle involve creation or restoration of habitat, it generally takes five or more years for elderberry plants to become large enough to support beetles, and it generally takes 25 years or longer for riparian habitats to reach their full value (USFWS 1994). Temporal loss of habitat will temporarily reduce the amount of habitat available to beetles and may cause fragmentation of habitat and isolation of subpopulations.

The construction and operation of proposed projects which may be appended to this programmatic may have indirect effects on the beetle. Impacts to the beetle from construction and operation of the projects, in relative proximity to elderberry host plants, may include but are not limited to: fragmentation of habitat, altered hydrology, leaching or drift of fertilizers or pesticides (including herbicides), trampling by increased pedestrian traffic, disturbance of mating or dispersal by increased artificial lighting, and increased fungal parasitism due to elevated humidity near irrigated areas. Also, accidental grading in areas designated as avoidance areas, or other careless handling of heavy equipment during construction, could destroy or injure elderberry plants used by the beetle.

The Mitigation Guidelines provided by the Service (Appendix), which will be followed by projects approved under this programmatic consultation, are intended to take into account and offset these adverse effects, in part by incorporating elevated habitat replacement ratios. Elderberry plants will be transplanted whenever possible and habitat will be created or restored for the beetle to offset these adverse effects.

Cumulative Effects

Cumulative effects are those effects of future State, local, or private actions on endangered and threatened species or critical habitat that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The Service is not aware of specific projects that might affect the beetle or its critical habitat that are currently under review by State, county, and local authorities. Nevertheless, continued human population growth in the Central Valley and other parts of California is expected to drive further development of agriculture, cities, industry, transportation, and water resources in the foreseeable future. Some of these future activities will not be subject to Federal jurisdiction (and thus are considered to enter into cumulative effects), and are likely to result in loss of the riparian and other habitats where elderberry plants and the beetle live. On the other hand, this programmatic consultation is intended to have a somewhat positive net effect on the survival and recovery of the beetle, achieved either through the present or revised compensation measures. Thus, at the present time, the Service neither foresees with certainty any effects cumulative to this consultation that might endanger the beetle, nor anticipates that the net effect of this consultation will worsen any unforeseen cumulative effects.

Conclusion

After reviewing the current status of the valley elderberry longhorn beetle, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the projects to be permitted under this programmatic biological opinion, as proposed, are not likely to jeopardize the continued existence of the threatened valley elderberry longhorn beetle. Although critical habitat has been designated for the beetle, the proposed action would not affect critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act prohibits take (i.e. to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harass is defined as intentional or negligent acts that create the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Incidental take is any taking of listed animal species which results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided

that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and must be implemented by the Corps so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps: (1) fails to require applicants to adhere to the terms and conditions of this incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Incidental Take

The Service has determined that implementation of the programmatic process authorized by this biological opinion will result in the loss of all valley elderberry longhorn beetles inhabiting as many as, but no more than, 250 elderberry plants, each with at least one stem measuring 1.0 inch or greater in diameter at ground level, or 2000 elderberry stems measuring 1.0 inch or greater in diameter at ground level in or adjacent to the Central Valley within a six-month period.

Effect of the Take

In the accompanying biological opinion, the Service has determined that this level of anticipated take is not likely to result in jeopardy to the valley elderberry longhorn beetle or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the valley elderberry longhorn beetle:

Minimize the effects of project impacts to the valley elderberry longhorn beetle and to elderberry plants (habitat) on all proposed project sites.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Corps will ensure implementation of the following term and condition, which implements the reasonable and prudent measure described above. This term and condition is non-discretionary.

All applicants shall comply with the Mitigation Guidelines for the Valley Elderberry Longhorn Beetle (Appendix).

The reasonable and prudent measure, with its implementing term and condition, is designed to minimize incidental take that might otherwise result from the proposed action. With implementation of this measure the Service believes that no more than 25 elderberry plants, each with at least one stem measuring 1.0 inch or greater in diameter at ground level, or 200 elderberry stems measuring 1.0 inch or greater in diameter at ground level, which provide habitat for the threatened valley elderberry longhorn beetle, will be incidentally taken as a result of each project appended to this programmatic consultation. And, with implementation of this measure, the Service believes that the programmatic process, as described, will result in the incidental taking of no more than 250 elderberry plants, each with at least one stem measuring 1.0 inch or greater in diameter at ground level, or 2000 elderberry stems measuring 1.0 inch or greater in diameter at ground level, which provide habitat for the threatened valley elderberry longhorn beetle, in and adjacent to the Central Valley within a six-month period. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring review of the reasonable and prudent measures provided. The Corps must immediately provide an explanation

of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measure or the suitability of the proposed project for inclusion under this programmatic consultation.

Reporting Requirements

The Service's Sacramento Field Office is to be notified within three working days of the finding of any dead, sick, or injured valley elderberry longhorn beetles or any unanticipated harm to beetles or elderberry plants associated with projects authorized under this incidental take statement. The Service contact person for this information is the entomologist for the Sacramento Valley Branch, Endangered Species Division, at (916) 414-6600. Any dead or severely injured beetles found (adults, pupae, or larvae) that are not required for pesticide analysis shall be deposited in the Entomology Department of the California Academy of Sciences. The Academy's contact is the Senior Curator of Coleoptera at (415) 750-7239. All observations of valley elderberry longhorn beetles—live, injured, or dead—or fresh beetle exit holes shall be recorded on California Natural Diversity Data Base (NDDb) field sheets and sent to the California Department of Fish and Game, 1220 S Street, Sacramento, California 95814.

Any other federally listed or proposed species found on or adjacent to the site must be reported within three working days of its finding. The Service contact for this information is the Assistant Field Supervisor, Endangered Species Division, at (916) 414-6600.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service recommends that the Corps assist in the recovery of the valley elderberry longhorn beetle by supporting an assessment of where beetle habitat is most needed along riparian corridors within its range (e.g. where gaps in suitable habitat occur along riparian courses). This information should then be made available to the Service, other agencies, project applicants, and conservation organizations, in an effort to coordinate the needs of both the development and environmental conservation communities. In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of this recommendation.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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