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Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Peck's Cave Amphipod, Comal Springs Dryopid Beetle, and Comal Springs Riffle Beetle; Final Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

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RIN 1018–AU75

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Peck's Cave Amphipod, Comal Springs Dryopid Beetle, and Comal Springs Riffle Beetle

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), are designating critical habitat for the Peck's cave amphipod (*Stygobromus pecki*), Comal Springs dryopid beetle (*Stygoparnus comalensis*), and Comal Springs riffle beetle (*Heterelmis comalensis*) in areas of occupied, spring-related aquatic habitat in Texas under the Endangered Species Act of 1973, as amended (Act). The three listed species are known only from four spring systems in central Texas: Comal Springs and Hueco Springs in Comal County, and Fern Bank Springs and San Marcos Springs in Hays County. The total area designated as critical habitat for the amphipod is about 38.5 acres (ac) (15.6 hectares (ha)), for the dryopid beetle it is about 39.5 ac (16.0 ha), and for the riffle beetle it is about 30.3 ac (12.3 ha).

DATES: This rule becomes effective on August 16, 2007.

FOR FURTHER INFORMATION CONTACT: Adam Zerrenner, Field Supervisor, Austin Ecological Services Office, 10711 Burnet Road, Suite 200, Austin, TX 78758 (telephone 512–490–0057; facsimile 512–490–0974).

SUPPLEMENTARY INFORMATION:

Background

It is our intent to discuss only those topics directly relevant to the designation of critical habitat in this rule. For more information on these species, refer to the final rule listing the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle that was published in the **Federal Register** on December 18, 1997 (62 FR 66295).

All three of the listed species included in this final rule for critical habitat designation are freshwater invertebrates. The Peck's cave amphipod is an eyeless, subterranean (below ground) arthropod that has been found in Comal Springs and Hueco Springs (also spelled Waco Springs). Both spring systems are located in Comal County, Texas. The Comal Springs dryopid beetle is a subterranean insect with vestigial (poorly developed, non-functional) eyes. The species has been found in two spring systems, Comal Springs and Fern Bank Springs, that are located in Comal and Hays Counties, respectively. The Comal Springs riffle beetle is an aquatic insect that is found in and primarily restricted to surface water associated with Comal Springs in Comal County and with San Marcos Springs in Hays County.

The four spring systems (Comal, Fern Bank, Hueco, and San Marcos) designated as critical habitat units are produced by discharge of aquifer spring water along the Balcones fault zone at the edge of the Edwards Plateau in central Texas. The source of water flows for Comal Springs and San Marcos Springs is the San Antonio segment of the Edwards Aquifer. This aquifer is characterized by highly varied, below ground spaces that have been hollowed out within limestone bedrock through dissolution by rainwater. Groundwater is held and conveyed within these hollowed-out spaces, which range in size from honeycomb-like pores to large caverns. The San Antonio segment of the aquifer occurs in a crescent-shaped section over a distance of 176 miles (mi) (283 kilometers (km)), from the town of Brackettville in Kinney County on the segment's west side over to the town of Kyle in Hays County at the segment's northeast side. Groundwater generally moves from recharge areas in the southwest part of the San Antonio segment and travels toward discharge areas in the northeast part of the segment, which includes Comal Springs and San Marcos Springs. The area that recharges groundwater coming to Comal Springs may occur as much as 62 mi (100 km) away from the springs (Brune 1981, p. 130). Hueco Springs is recharged locally from the local watershed basin and possibly by the San Antonio segment of the Edwards Aquifer (Guyton and Associates 1979, p. 2). The source of water for Fern Bank Springs has not been determined. Fern Bank Springs discharges water from the upper member of the Glen Rose Formation, and its flow could originate primarily from that unit; however, water discharged from the springs could also be (1) Drainage from the nearby Edwards Aquifer recharge zone, (2) water lost from the Blanco River, or (3) a combination of all three sources (Veni 2006, p.1).

Comal Springs and San Marcos Springs are the two largest spring systems in Texas with respective mean annual flows of 284 and 170 cubic feet per second (8 and 5 cubic meters per second) (Fahlquist and Slattery 1997, p. 1; Slattery and Fahlquist 1997, p. 1). Both spring systems emerge as a series of spring outlets along the Balcones fault that follows the edge of the Edwards Plateau in Texas. Fern Bank Springs and Hueco Springs have considerably smaller flows and consist of one main spring with several satellite springs or seep areas.

The four spring systems designated for critical habitat are characterized by high water quality and relatively constant water flows, with temperatures that range from 68 to 75 °F (Fahrenheit) (20 to 24 °C (Celsius)). Due to the underlying limestone aquifer, discharged water from these springs has a carbonate chemistry (Ogden *et al.* 1986, p. 103). Although flows from San Marcos Springs can vary according to fluctuations in the source aquifer, records indicate that this spring system has never ceased flowing. San Marcos Springs has been monitored since 1894, and has exhibited the greatest flow dependability of any major spring system in central Texas (Puente 1976, p. 27). Comal Springs has a flow record nearly comparable to that of San Marcos Springs; however, Comal Springs ceased flowing from June 13 to November 3, 1956, during a severe drought (U.S. Army Corps of Engineers 1965, p. 59). Water pumping from the aquifer contributed to cessation of flow at Comal Springs during the drought period (U.S. Army Corps of Engineers 1965, p. 59). Hueco Springs has gone dry a number of times in the past during drought periods (Puente 1976, p. 27; Guyton and Associates 1979, p. 46). Although flow records are unavailable for Fern Bank Springs, the spring system is considered to be perennial (Barr 1993, p. 39).

Each of the four spring systems and related subterranean aquifers typically provide adequate resources to sustain life cycle functions for resident populations of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. However, a primary threat to the three invertebrate species is the potential failure of spring flow due to drought or excessive groundwater pumping, which could result in loss of aquatic habitat for the species. Although these invertebrate species persisted at Comal Springs in the 1950s despite drought conditions (Bowles *et al.* 2003, p. 379), all three species are aquatic and require water to complete their individual life cycles.

Bowles *et al.* (2003, p. 379) pointed out that the mechanism by which the Comal Springs riffle beetle survived the drought and the extent to which its population was negatively impacted are

uncertain. Bowles *et al.* (2003, p. 379) speculated that the riffle beetle may be able to retreat back into spring openings or burrow down to wet areas below the surface of the streambed.

Barr (1993, p. 55) found Comal Springs dryopid beetles in spring flows with low volume discharge as well as high volume discharge and suggested that presence of the species did not necessarily depend on a high spring flow. However, Barr (1993, p. 61) noted that effects on both subterranean species (dryopid beetle and amphipod) from extended loss of spring flow and low aquifer levels could not be predicted due to limited knowledge about their life cycles.

Previous Federal Actions

Information about previous Federal actions for Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle can be found in our proposal to designate critical habitat for these species published in the **Federal Register** on July 17, 2006 (71 FR 40588). On March 16, 2007, we announced the availability of our draft economic analysis, and we reopened the public comment period on the proposed rule (72 FR 12585). The reopened public comment period ended on April 16, 2007.

Summary of Comments and Recommendations

We requested written comments from the public on the proposed designation of critical habitat for Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle in the proposed rule published on July 17, 2006 (71 FR 40588) and in our March 16, 2007, **Federal Register** notice (72 FR 12585). We also contacted appropriate Federal, State, and local agencies; scientific organizations; and other interested parties and invited them to comment on the proposed rule.

During the comment period that opened on July 17, 2006, and closed on September 15, 2006, we received eight responses directly addressing the proposed critical habitat designation: four from peer reviewers, one from a State agency, and three from organizations or individuals. The response we received from the State agency, the Texas Department of Transportation, indicated that the proposed critical habitat designations for these species were ''prudently identified'' by the Service. However, that agency did not offer any other comments. After completing the draft economic analysis, we reopened the comment period between March 16, 2007, and April 16, 2007 (72 FR 12585). During the second comment period, we received one comment from a peer reviewer and four from organizations; two of which included comments on the economic analysis. Responses to all comments were grouped by those from peer reviewers, followed by public comments. These comments are addressed in the following summary and incorporated into the final rule as appropriate. We did not receive any requests for a public hearing and thus no public hearing was held.

Peer Review

In accordance with our policy published on July 1, 1994 (59 FR 34270), we solicited expert opinions from nine knowledgeable individuals with scientific expertise that included familiarity with the species, the geographic region in which the species occur, and conservation biology principles. We received responses from four of the peer reviewers. Although none of the peer reviewers disagreed with our methods in designating critical habitat for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle, three of the responses indicated that the critical habitat designation failed to address the broader issue of maintaining spring flows, ecosystem functioning, and groundwater levels within the Edwards Aquifer. Also, two of the peer reviewers disagreed with the reasoning we presented in our determination of Primary Constituent Element (PCE) 4. Three of the peer reviewers' responses provided additional information, clarifications, and suggestions to improve the final critical habitat rule. We address peer reviewer comments in the following summary and have incorporated them into the final rule as appropriate.

We reviewed all comments received from the peer reviewers and the public for substantive issues and new information regarding critical habitat for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle, and address them in the following summary.

Peer Reviewer Comments

1. *Comment:* One of the critical factors affecting the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle is continued natural spring flows. Adequate or minimum spring flows should be included as a PCE.

Our Response: We agree that adequate water quantity is necessary for the survival of the three invertebrate species. We indicated that availability and access to water at the spring sites are important factors in maintaining the life history functions of the Peck's cave amphipod, the Comal Springs dryopid beetle, and the Comal Springs riffle beetle by highlighting the role of water in the descriptions of PCEs 1, 2, and 3 of this final rule. We clarified the language for PCE 3 to highlight the importance of spring flows in maintaining adequate dissolved oxygen levels. We also state in the Special Management Considerations section of this rule that prolonged cessation of spring flows as a result of the loss of hydrological connectivity within the aquifer may require special management considerations, such as maintenance of sustainable groundwater use and subsurface flows.

2. *Comment:* PCE 5 should be corrected to indicate that the substrate habitat of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle should also be free of sand and silt.

Our Response: We incorporated this suggestion into PCE 5.

3. *Comment:* Riparian vegetation in the immediate vicinity of the spring openings are likely not the food source for any of the three invertebrate species, as described in PCE 4. Aquatic invertebrates typically feed on plant material well after it has been mechanically broken down. Flow in the vicinity of spring openings would quickly carry away leaf litter and other plant material before it could become mechanically broken down. The detritus that comprises the food source for the Comal Springs dryopid beetle is most likely introduced into the aquifer at recharge points far upstream of the spring openings (*i.e.*, within the recharge area of the aquifer). Similarly, the food source for the Peck's cave amphipod is likely found within the Edwards Aquifer. Specifically, the food source may be composed of material that enters through the recharge area of the aquifer and the many other organisms that co-occur within the aquifer. Aquatic macrophyte (*i.e.*, large plant) roots may be a source of detritus for invertebrates in a spring-run downstream of a spring opening. However, the roots are likely not the food sources for the Peck's cave amphipod, because the amphipod is found only near the spring openings and within the aquifer. Because the riparian habitats around the springs are likely not influencing these three species, the critical habitat designations only represent the smallest part of their habitats or range.

Our Response: The Comal Springs dryopid beetle has only been observed near spring outlets. Adults have been

found on rocks and cotton cloth lures in spring openings. They have also been observed on rotting wood above spring upwellings near tree roots growing just under the gravel substrate more than 16 feet (ft) (5 meters (m)) from the shore of Landa Lake (Gibson *et al.* 2006, p. 3). Larvae of this species do not have gills and are considered terrestrial, as they typically inhabit moist soil along stream banks (Brown 1987, p. 253; Ulrich 1986, p. 325). Because of these characteristics, we believe Comal Springs dryopid beetle larvae feed on roots and decaying vegetation in areas just above the aquifer (*i.e.*, subsurface area) water line. We believe the Peck's cave amphipod likely consumes both animals and plants, and feeds both within the aquifer and on detritus in areas near spring outlets where plant roots interface with spring water (Gibson 2006, p. 1). Therefore, we believe critical habitat should include the riparian vegetation as a food source for the Peck's cave amphipod and Comal Springs dryopid beetle.

4. *Comment:* The designation of 50–ft distances around spring openings seems reasonable to protect and maintain the subsurface vegetation profile in the immediate area of the springs; however, the detrital food base could come from sources at greater distances.

Our Response: Although there may be some contribution of detrital food sources from greater distances within the aquifer, we are unaware of any data that indicate this. As explained in our response to Comment 3 above, there is available information that suggests that riparian vegetation near the spring openings is an important habitat component for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle, and may provide a source of food for these species.

5. *Comment:* Under PCE 1, the pesticides mentioned only refer to classes such as organochlorines, organophosphates, and chlorinated hydrocarbons. The Service should consider pesticide classes such as insect growth regulators as well as pharmaceuticals that could enter groundwater sources. The Service should clarify the differences between these compounds and their potential effects on the listed species.

Our Response: We have added pharmaceuticals to the list of potential pollutants discussed under PCE 1 in response to this comment. There are no scientific studies available on the potential effects that each of these pollutants have on the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle, so we are unable to address the potential effects of these pollutants in the final rule. We acknowledge the importance of maintaining high water quality within the Edwards Aquifer, and we will work to evaluate and address the effects of pollutants during the recovery planning and implementation processes for these species.

6. *Comment:* With regard to PCE 1, Hueco Springs and Fern Bank Springs may be influenced by storm water. Can the claim be made that the spring systems are characterized by high water quality?

Our Response: Spring systems in general may have some short-term changes in water quality after storm events. Hueco Springs and Fern Bank Springs are smaller in size and may have more local recharge features than Comal Springs and San Marcos Springs. Although these characteristics may make them more susceptible to short-term changes in water quality after storm events, the Service has no data to indicate that these temporary changes negatively affect the species that occur near the spring openings. Comal and San Marcos Springs may also be affected by local runoff from storm events based on tracer tests by the Edwards Aquifer Authority. We consider all of the spring systems occupied by the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle to have high water quality.

7. *Comment:* There is a strong likelihood that additional populations of the Comal Springs riffle beetle occur in or around the various spring outlets in the bottoms of Spring Lake and Landa Lake, where substrate is sufficiently coarse to serve as habitat.

Our Response: We believe this is addressed through the designation of all aquatic habitat within Landa Lake where springs are present and PCEs are known to exist for the Peck's cave amphipod and Comal Springs dryopid beetle. However, this point was clarified in the Critical Habitat Designation section of this final rule describing the designated critical habitat areas within Landa Lake for the Comal Springs Unit in Comal County, Texas.

8. *Comment:* Paragraph 8 under ''Adverse Modification Standard'' states that ''ongoing human activities that occur outside the proposed critical habitat are unlikely to threaten the physical and biological features of the proposed critical habitat.'' However, if there is an increase in pumping water from the aquifer prior to the ruling on critical habitat, then that new pumping may impact PCEs 2, 3, and 5.

Our Response: We agree with the commenter and have clarified the language in the Effects of Critical Habitat Designation section that groundwater pumping from the Edwards Aquifer may affect critical habitat and require section 7 consultation.

9. *Comment:* The critical habitat designations may provide benefits to the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle on a local scale (*i.e.*, in the immediate area of the spring openings), but they do not offer protections to the Edwards Aquifer ecosystem. Critical habitat for these species should be extended to include the entire Edwards Aquifer, including subsurface areas. Until parts of the Edwards Aquifer can be shown to not have populations of these two species, the most sensible solution is to assume that the entire aquifer is critical habitat. Also, there are ecosystem processes (*e.g.*, organic matter inputs, interactions with other species, nutrient availability) that are not addressed by the PCEs and may be addressed by designating the entire Edwards Aquifer.

Our Response: Organic matter and nutrient availability are addressed in PCE 4. We recognize the importance of maintaining ecosystem integrity and functionality and implementing strategies to protect the entire Edwards Aquifer. However, we reviewed all available information that pertains to the occurrence of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. Although the Peck's cave amphipod and the Comal Springs dryopid beetle are believed to be subterranean, we have no information available to show that the entire Edwards Aquifer ecosystem is occupied by the species. Nor do we believe the PCEs are found throughout the aquifer. We cannot demonstrate that the entire aquifer is essential to the conservation of the species. Although the entire aquifer has not been designated as critical habitat, Federal activities outside of designated critical habitat areas are subject to review under section 7 of the Act if these activities may adversely affect the PCEs within the critical habitat designation.

10. *Comment:* The PCEs do nothing to safeguard the source of the water—the Edwards Aquifer, upon which the invertebrates depend. A comprehensive plan for the Edwards Aquifer with constraints on groundwater pumping and pollution of recharge should be developed.

Our Response: Designating critical habitat is only one means to aid in the habitat conservation of listed species. Efforts to address threats to the Edwards Aquifer can be undertaken through the

recovery implementation process for these and the other federally-listed species that depend on the aquifer for their survival. For example, we are working with a large number of partner agencies and organizations, including the Edwards Aquifer Authority, to develop an Edwards Aquifer Recovery Implementation Program (RIP) to address threats to the Edwards Aquifer. The Edwards Aquifer Authority (EAA) is the agency with the responsibility to manage, enhance, and protect the Edwards Aquifer system through a variety of mechanisms including the issuing of pumping permits for use of water from the aquifer. We intend to continue our close work with the EAA and others for conservation of the springs that flow from the Edwards Aquifer.

Public Comments

11. *Comment:* It seems imprudent to designate critical habitat for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle, when this would provide no benefit to the species beyond that provided by listing of the species and any subsequent evaluation of activities in light of section 7 consultation requirements.

Our Response: The Role of Critical Habitat in Actual Practice of Administering and Implementing the Act section in the proposed rule has been removed from this final rule. We recognize some benefits to critical habitat designations. Federal activities outside of designated critical habitat areas are subject to review under section 7 of the Act if these activities may adversely affect the PCEs within the critical habitat designation. The Ninth Circuit Court's decision in *Gifford Pinchot Task Force* v. *United States Fish and Wildlife Service*, 378 F.3d 1059 (9th Cir 2004) (hereinafter *Gifford Pinchot*) requires consideration of the recovery of species. Thus, under this court ruling, and our implementation of Section 7 of the Act, critical habitat designations may provide greater benefits to the recovery of a species. Also, we have found that critical habitat designations serve to educate landowners, State and local governments, and the public regarding the potential conservation value of the areas designated.

12. *Comment:* This critical habitat designation is not beneficial, especially in light of a recent initiation of a RIP for the endangered species of the Edwards Aquifer under the encouragement of the Service.

Our Response: In designating critical habitat areas, we have reviewed the overall approach to the conservation of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle undertaken by local, Federal, and State agencies; and by private organizations operating within the species' range since their listing. As noted above, we are very supportive of the RIP process; however, this process is in its initial stages of development, and therefore we were not able to consider the potential conservation benefits of the RIP to these species in our critical habitat determination. Also, as stated in our response to Comment 11 above, we recognize several benefits to designating critical habitat.

13. *Comment:* In the Critical Habitat section of the proposed rule, the Service understates the extent to which critical habitat designations provide additional protection for species above and beyond the prohibition of take that comes with federally listing species as endangered or threatened. This approach is legally and scientifically unsubstantiated, and it shortchanges the goals of the Act to provide for the conservation and recovery of listed species.

Our Response: As discussed above, we agree that the designation of critical habitat can serve positive purposes, but we also believe it is only one tool for managing listed species' habitat. In addition to the designation of critical habitat, we have determined that other conservation mechanisms, including the recovery planning process, section 6 funding to States, section 7 consultations, management plans, Safe Harbor agreements, and other on-the-ground strategies, contribute to species' conservation. We will continue to work with local partner organizations (such as the Edwards Aquifer Authority, San Antonio Water System, local municipalities, Texas Parks and Wildlife Department, and others) through the RIP, to develop means for voluntary conservation of habitats for these listed species. We believe these other conservation measures often provide incentives for project planners and greater conservation benefits than critical habitat designation.

14. *Comment:* There does not appear to be a clear correlation between the needs of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle and particular spring flow conditions to require such special management considerations.

Our Response: There is information to indicate that availability and access to water at the spring sites are important factors in maintaining the life history functions (*i.e.*, those functions that are dependent on high water quality, adequate water temperature, and adequate dissolved oxygen levels) of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle, as described under PCEs 1, 2, and 3. We believe that prolonged cessation of spring flows as a result of the loss of hydrological connectivity within the aquifer may require special management considerations, such as maintenance of sustainable groundwater use and subsurface flows.

15. *Comment:* The proposed rule only designates as critical habitat the aquatic areas where the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle are found, plus a 50-ft distance from the spring outlets. The proposed rule does nothing to control water quality impacts from activities occurring in the contributing and recharge zones of the aquifer, limiting the critical habitat to only a 50-ft buffer beyond the spring outlets to protect the species' food sources. Such a buffer would fail to protect the water quality in the aquatic habitat. Typical buffers to protect water quality tend to be at least 100 ft on each side of sensitive waters. The critical habitat should likewise at least accommodate such extended buffers to help protect water quality in the aquatic habitat.

Our Response: We proposed designating critical habitat in areas that we have determined are occupied by the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle; contain sufficient PCEs to support life-history functions essential for the conservation of the species; and require special management or protection. The 50-ft (15.2-m) distances define the lateral extent of critical habitat that contains PCEs with respect to food sources in root/water interfaces. Use of a 100-ft (30.4-m) buffer for this critical habitat designation would extend the boundary to include areas not known to contain the PCEs; therefore, use of this larger buffer is not consistent with the criteria used to identify critical habitat.

The designation of critical habitat requires Federal agencies to consult with us when activities they fund, authorize, or carry out may affect the critical habitat of a listed species. Consultation is required where projects may (indirectly or directly) adversely affect critical habitat, even if those projects occur outside designated critical habitat (e.g., the contributing and recharge zones of the aquifer).

16. *Comment:* The final rule should include the minimal spring flow rates provided in the EAA's 2005 Draft Habitat Conservation Plan.

Our Response: The EAA's 2005 Draft Habitat Conservation Plan (HCP) has not

been finalized, nor have we issued a permit for the EAA. We have not analyzed spring flow rates from the 2005 Draft HCP for effects to the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. In addition, flow from Fern Bank Springs is from the Trinity Aquifer, not the Edwards Aquifer. Thus, the draft EAA HCP does not address the maintenance of Fern Bank Springs habitat and that population of the Comal Springs dryopid beetle.

17. *Comment:* The economic analysis should include the benefits of designating critical habitat for the invertebrate species. Without estimating the benefits to designation, the costs seem unreasonably high, and therefore paint the conservation effort in a negative light. A full benefits analysis should include direct, indirect, and non-use benefits.

Our Response: As stated in Chapter 1 of the final economic analysis, a potential direct benefit of the rulemaking is the potential to enhance conservation of the species. The published economics literature has documented that social welfare benefits can result from the conservation and recovery of endangered and threatened species. However, in its guidance for implementing Executive Order 12866, OMB acknowledges that it may not be feasible to monetize, or even quantify, the benefits of environmental regulations due to either an absence of defensible, relevant studies or a lack of resources on the implementing agency's part to conduct new research. Rather than rely on economic measures, we believe that the direct benefits of the proposed rule are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.

Where data are available, the economic analysis does discuss and attempt to measure the net economic impacts of this rulemaking. For example, Chapter 2 discusses the reduction in net economic benefit to municipal and industrial water users that may occur with pumping restrictions. The analysis also discusses the fact that higher springflow levels are anticipated to contribute to river flows downstream of the aquifer, which will make more water available to municipalities, industries, and farmers who use river water. Whether the users will use the water to an economic benefit depends on a myriad of factors that are beyond the scope of the economic analysis; however, the analysis notes that increased springflows are likely to generate potentially significant ecological and/or recreational benefits.

18. *Comment:* Section 1.34(c) of the EAA Act of 1993, as amended, notes that a ''holder of a permit for irrigation use may not lease more than 50 percent of the irrigation rights initially permitted. The user's remaining irrigation water rights must be used in accordance with the original permit and must pass with transfer of the irrigated land.'' Paragraph 83 of the economic analysis makes it unclear whether this restriction on irrigation transfers was considered in the analysis.

Our Response: The analysis predicts that water users, when faced with lowered water permit availability, will sell or lease their water rights to higher-valued uses. The value of water in the planning area is assumed to rise faster than the profitability of irrigated crops, and thus agricultural water will be traded from agriculture to municipal and industrial use, as has been common in the western United States. Despite the current restriction on the sale and lease of irrigation rights in the Edwards Aquifer, the analysis assumes that the Edwards Aquifer Authority will be able to purchase and retire sufficient agricultural water rights for the purposes of maintaining aquifer levels in the future. While this assumption was implicit in the draft economic analysis, it is now stated explicitly in the final economic analysis.

19. *Comment:* PCE 5 concludes that a gravel substrate is necessary for the Comal Springs riffle beetle because specimens were not found in Spring Run 4 where the substrate was primarily sand and not gravel. The Service has drawn this conclusion from a preliminary correlation reported in a study done by Bowles *et al.* (2003), and therefore, a definitive conclusion may inaccurately represent the findings. A number of abiotic and biotic factors, including flow rates, competition with other species, and other life-history traits may all have been contributing factors to the absence of the beetle in Spring Run 4.

Our Response: In reviewing the best available information, we found that additional searches for the Comal Springs riffle beetle in Spring Run 3 and the western shoreline habitat of Landa Lake yielded results similar to those found by Bowles *et al.* (2003) with regard to the occurrence of this species on gravel, cobble, and rock substrates outside of areas with sedimentation or silt buildup (BIO–WEST 2002a, p. 11). We included this additional reference within the discussion of PCE 5. By referencing the survey results of Bowles *et al.* (2003), it was not our intention to imply that the Comal Springs riffle beetle could never be found in smaller sized substrates. Although we cannot determine the full scope of substrate habitat restrictions for the Comal Springs riffle beetle from the information provided in the above referenced reports, it does indicate that gravel, cobble, and rock substrates that are free of silt and sedimentation are essential features of the habitat for this species.

20. *Comment:* ''Global warming'' is another impact to consider in protecting water quantity in the habitat of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. At least one science team has predicted higher temperatures, and thus, higher evaporation rates, and reduced rainfall for central Texas as a result of global warming.

Our Response: We recognize that global climate change may affect global temperatures, and that this in turn can cause other climatic changes, such as changes in the amount and pattern of precipitation. However, the consequences of such changes to the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle are unknown. We therefore believe this issue to be outside the scope of the critical habitat designation for these species.

Summary of Changes From Proposed Rule

Based upon our review of the peer review and public comments, economic analysis, and any new relevant information that may have become available since the publication of the proposal, we reevaluated our proposed critical habitat designation for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. We made no changes to the critical habitat designation as described in the proposed rule. Other than minor clarifications and incorporation of additional information on the species' biology, status, and threats, this final rule differs from the proposal by the following:

(1) We modified the primary constituent elements for clarity and to reflect additional information received during the public comment period. Specifically we added, ''other compounds containing surfactants'' and ''pharmaceuticals and veterinary medicines,'' under the list of potential pollutants under PCE 1. Under PCE 3, we added the phrase, ''that allows for adequate spring flows'' to clarify the intent of the hydrologic regime. For PCE 4, we added, ''living plant material, algae, fungi, bacteria and other

microorganisms,'' to the list of potential food items.

(2) We made technical corrections to some of the information found in the Primary Constituent Elements, Background, and Criteria Used to Identify Critical Habitat sections of this rule.

Critical Habitat

Critical habitat is defined in section 3 of the Act as—(i) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) Essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. Conservation, as defined under section 3 of the Act means to use and the use of all methods and procedures that are necessary to bring any endangered species or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the prohibition against destruction or adverse modification of critical habitat with regard to actions carried out, funded, or authorized by a Federal agency. Section 7 of the Act requires consultation on Federal actions that are likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow government or public access to private lands. Section 7 of the Act is a purely protective measure and does not require implementation of restoration, recovery, or enhancement measures.

To be included in a critical habitat designation, the habitat within the area occupied by the species must first have features that are essential to the conservation of the species. Critical habitat designations identify, to the extent known using the best scientific data available, habitat areas that provide essential life cycle needs of the species (*i.e.*, areas on which are found the primary constituent elements (PCEs), as defined at 50 CFR 424.12(b)).

Occupied habitat may be included in critical habitat only if the essential features thereon may require special management or protection. Furthermore, when the best available scientific data do not demonstrate that the conservation needs of the species require additional areas, we cannot designate critical habitat in areas outside the geographical area occupied by the species at the time of listing. However, an area currently occupied by the species but not occupied at the time of listing, will likely be essential to the conservation of the species and, therefore, may be included in the critical habitat designation.

The Service's Policy on Information Standards Under the Endangered Species Act, published in the **Federal Register** on July 1, 1994 (59 FR 34271), and Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658) and the associated Information Quality Guidelines issued by the Service, provide criteria, establish procedures, and provide guidance to ensure that decisions made by the Service represent the best scientific data available. They require Service biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat. When determining which areas are critical habitat, a primary source of information is generally the listing package for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, or other unpublished materials and expert opinion or personal knowledge. All information is used in accordance with the provisions of Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658) and the associated Information Quality Guidelines issued by the Service.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific and commercial data available. Habitat is often dynamic, and species may move from one area to another over time. Furthermore, we recognize that designation of critical habitat may not include all of the habitat areas that may eventually be determined to be necessary for the recovery of the species. For these reasons, critical habitat designations do not signal that habitat outside the designation is unimportant or may not be required for recovery.

Areas that support populations, but are outside the critical habitat designation, will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act and to the regulatory protections afforded by the section 7(a)(2) jeopardy standard, as determined on the basis of the best available information at the time of the action. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans, or other species conservation planning efforts if new information available to these planning efforts calls for a different outcome.

Primary Constituent Elements

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to designate as critical habitat, we consider those physical and biological features (known as primary constituent elements) that are essential to the conservation of the species, and within areas occupied by the species at the time of listing, that may require special management considerations or protection. These include, but are not limited to: (1) Space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, and rearing (or development) of offspring; and (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

The specific primary constituent elements required for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle are derived from the biological needs of these species as described in the Background section of this final rule and in the December 18, 1997, final rule listing these species (62 FR 66295).

Pursuant to the Act and its implementing regulations, we are required to identify the known physical

and biological features (PCEs) within the geographical area occupied at the time of listing that are essential to the conservation of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle, which may require special management considerations or protections. All areas designated as critical habitat for Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle are occupied, within the species' historic geographic ranges, and contain sufficient PCEs to support at least one life history function.

Based on our current knowledge of the life history, biology, and ecology of these species, and the habitat requirements for sustaining the essential life history functions of these species, we have determined that the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle require the PCEs described below. The PCEs apply to all three species unless otherwise noted.

PCE 1. High-quality water with no or minimal levels of pollutants, such as soaps and detergents (Brown 1987, p. 261) and other compounds containing surfactants, heavy metals, pesticides, fertilizer nutrients, petroleum hydrocarbons, pharmaceuticals and veterinary medicines, and semi-volatile compounds, such as industrial cleaning agents, and including:

(a) Low salinity with total dissolved solids that generally range from about 307 to 368 milligrams per liter (mg/L); and

(b) Low turbidity that generally is less than 5 nephelometric (measurement of turbidity in a water sample by passing light through the sample and measuring the amount of the light that is deflected) turbidity units (NTUs).

These spring-adapted aquatic species live in high-quality unpolluted groundwater and spring outflows that have low levels of salinity and turbidity. High-quality discharge water from springs and adjacent subterranean areas also help sustain habitat components, such as riparian vegetation, that are essential to the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. The two beetle species are thought to require water with adequate levels of dissolved oxygen for respiration (Brown 1987, p. 260; Arsuffi 1993, p. 18). Amphipods generally require relatively high concentrations of oxygen and may serve as an indicator of good water quality (Arsuffi 1993, p. 15). While definitive studies on the limits of tolerance and preference for these aquatic invertebrates have not been completed, the aquatic invertebrates are exclusively found in aquatic habitats with constant temperature, low salinity, low turbidity, and extremely low levels of pollutants. In particular, respiration in the riffle beetle may be inhibited by pollutants such as soaps and detergents that can affect its respiratory mechanism (Brown 1987, p. 261). The dryopid beetle may also be affected by these particular pollutants, since this species shares a similar respiratory structure (Arsuffi 1993, p. 18). However, biological tolerances for this species are not understood due to its existence within a subterranean habitat.

Based on available literature, we believe that the PCE for high water quality in the critical habitat for these species should have an approximate range of salinity of about 307 to 368 mg/L and a turbidity of less than 5 NTUs. Fahlquist and Slattery (1997, p. 3) reported a low salinity (as measured by total dissolved solids) as low as 307 mg/L at Comal Springs, and Slattery and Fahlquist (1997, p. 4) found that San Marcos Springs had a low salinity of 328 mg/L. The two springs also have a low turbidity of less than 5 NTUs (Fahlquist and Slattery 1997, p. 3; Slattery and Fahlquist 1997, p. 4). Brune (1975, p. 94) reported a salinity for Hueco Springs of 322 mg/L. The highest salinity (as determined by analysis of total dissolved solids) that we have found associated with any of these invertebrates was 368 mg/L, which was reported from Fern Bank Springs on April 28, 2005 (Texas Water Development Board 2006, p. 1).

PCE 2. Aquifer water temperatures that range from approximately 68 to 75 °F (20 to 24 °C).

The three listed invertebrate species complete their life cycle functions within a relatively narrow temperature range; water temperatures outside of this range could be harmful to these invertebrates. The temperature of spring water emerging from the Edwards Aquifer at Comal Springs and San Marcos Springs ordinarily occurs within a narrow range of approximately 72 to 75 °F (22 to 24 °C) (Fahlquist and Slattery 1997, pp. 3–4; Groeger *et al.* 1997, pp. 282–283). Hueco Springs and Fern Bank Springs have temperature records of 68 to 71 °F (20 to 22 °C) (George 1952, p. 52; Brune 1975, p. 94; Texas Water Development Board 2006, p. 1).

PCE 3. A hydrologic regime that allows for adequate spring flows that provide levels of dissolved oxygen in the approximate range of 4.0 to 10.0 mg/L for respiration of the Comal Springs riffle beetle and Comal Springs dryopid beetle.

Respiration in most beetle species belonging to the family Elmidae (which includes the Comal Springs riffle beetle) typically requires flowing waters highly saturated with dissolved oxygen (Brown 1987, p. 260). As a consequence, riffle beetles are most commonly associated with flowing water that has shallow riffles (small waves) or rapids (Brown 1987, p. 253). Although there are not available data to support a correlation between minimum spring flows and survival or other sublethal, adverse effects of low or no spring flows on these species, there is information to indicate that availability and access to water at the spring sites are important factors in their respiration. For example, riffle beetles are known to be restricted to waters with high dissolved oxygen due to their reliance on a plastron (a thin sheet of air) that is held next to the underside of the body surface by a mass of minute, hydrophobic (tending to repel and not absorb water) hairs. The plastron functions as a gill by allowing oxygen to diffuse passively from water into the plastron and replace oxygen absorbed during respiration (Brown 1987, p. 260). Beetle species in the Elmidae family are generally limited to well-aerated water environments since gaseous exchange with a plastron can actually be reversed in oxygen-depleted waters (Brown 1987, p. 260; Ward 1992, p. 130). The Comal Springs dryopid beetle also relies on a plastron for respiration, and this beetle species may also be affected by changes in oxygen levels caused by habitat modification (Arsuffi 1993, pp. 17–18).

PCE 4. Food supply that includes detritus (decomposed materials), leaf litter, living plant material, algae, fungi, bacteria and other microorganisms, and decaying roots.

Feeding ecology in the Elmidae family varies among species, but most riffle beetles, as larvae and adults, feed on algae and detritus scraped from the substrates within their habitat (Brown 1987, p. 262). Specific food requirements for each of the three invertebrate species are unknown. However, the Peck's cave amphipod and dryopid beetle are most commonly found in areas where plant roots are inundated or otherwise influenced by aquifer water. Potential food sources for all three species in these areas include detritus (decomposed materials), leaf litter, and decaying roots; however, it is possible that these species feed on bacteria and fungi associated with decaying plant material. Both beetle species may be detritivores (detritus-feeding animals) that consume detrital materials in spring-influenced riparian zones (Brown 1987, p. 262; Randy

Gibson 2006, pp. 1–2). The best information available indicates the Peck's cave amphipod is an omnivore (a species capable of consuming both animals and plants), which would enable the amphipod to exist as a scavenger or predator inside the aquifer in addition to using detritus in areas near spring outlets where plant roots interface with spring water (Gibson 2006, p. 1).

Trees and shrubs in riparian areas adjacent to the spring system may provide plant growth necessary to maintain food sources such as decaying material for these invertebrates. Roots from trees and shrubs in proximity to spring outlets are most likely to penetrate underground down to the water pools, where these roots can serve as habitat for the amphipod and dryopid beetle. We believe relatively intact riparian areas with trees and shrubs may provide an important function within areas designated for critical habitat of the two subterranean species. According to patterns of plant canopies as determined from aerial photographs, trees and shrubs (and their root systems) are generally within 50 ft (15.2 m) of the edge of water in these spring systems.

PCE 5. Bottom substrate in surface water habitat of the Comal Springs riffle beetle that is free of sand and silt, and is composed of gravel and cobble ranging in size between 0.3 to 5.0 inches (in) (8–128 millimeters (mm)).

Although Comal Springs riffle beetles occur in conjunction with a variety of bottom substrates in surface water habitat, Bowles *et al.* (2003, p. 372) found that these beetles mainly occurred in areas with gravel and cobble ranging between 0.3 to 5.0 in (8–128 mm). Collection efforts in areas of high sedimentation generally do not yield riffle beetles (Bowles *et al.* 2003, p. 376). Similarly, BIO-WEST (2002, p. 11) conducted surveys for the Comal Springs riffle beetle in the Comal system and found that individuals of this species were restricted to habitat areas that consisted of rocks and gravel. They also observed that riffle beetles were only found in areas that were largely silt-free (BIO-WEST 2002, p.11).

This designation is designed for the conservation of PCEs necessary to support the life history functions that were the basis for the proposal and the areas containing those PCEs. Because not all life history functions require all of the PCEs, not all of the designated critical habitat may contain all the PCEs.

Units are designated based on sufficient PCEs being present to support at least one of each of the species' life history functions. Some units contain all PCEs and support multiple life processes, while some units contain only a portion of the PCEs necessary to support the species' particular use of that habitat. Where a subset of the PCEs is present at the time of designation, this rule protects those PCEs and thus the conservation function of the habitat.

Special Management Considerations or Protections

When designating critical habitat, we assess whether the areas determined to be occupied at the time of listing contain the features essential to the conservation that may require special management considerations or protections. Primary threats to the spring systems designated as critical habitat for the three invertebrate species that may require special management are summarized in Table 2. The threats for individual springs vary according to the degree of urbanization and availability of aquifer source water, but possible threats generally include prolonged cessation of spring flows (in 1956, Comal Springs at New Braunfels did not flow from mid-June to November (U.S. Army Corps of Engineers 1965)) as a result of the loss of hydrological connectivity within the aquifer (*e.g.*, groundwater pumping, excavation, concrete filling), pollutants (*e.g.*, stormwater drainage, pesticide use), and non-native species (*e.g.*, biological control, sport fish stocking). To address the threats affecting these three invertebrate species, certain special management actions may be required—for example, maintenance of sustainable groundwater use and subsurface flows, use of adequate buffers for water quality protection, selection of appropriate pesticides, and implementation of integrated pest management plans.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(1)(A) of the Act, we use the best scientific and commercial data available in determining areas that contain the features that are essential to the conservation of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle.

We reviewed available information that pertains to the presence and habitat requirements of these three invertebrate species, such as research published in peer-reviewed articles, data in reports submitted during section 7 consultations, contracted surveys, agency reports and databases, and aerial photographs. Information that has been reviewed includes, but is not limited to: Holsinger (1967), Bosse *et al.* (1988), Barr and Spangler (1992), Arsuffi (1993), Barr (1993), BIO-WEST (2001, 2002a, 2002b, 2003, 2004), Bowles *et al.* (2003), Fries *et al.* (2004), and Krejca (2005). As part of the process, we also reviewed the overall approach to conservation of these species undertaken by local, State, and Federal agencies, and private and non-governmental organizations operating within the species' range since their listing in 1997.

Peck's cave amphipod—The Peck's cave amphipod has been found in Comal Springs and Hueco Springs, which are both located in Comal County. While limited data have been collected on the extent to which this subterranean species exists below ground away from outlets of spring systems, other species within the genus *Stygobromus* are known to be widely distributed in groundwaters and cave systems (Holsinger 1972, p. 65). Although this species could possibly range throughout the 4-mile (mi) (8-kilometer (km)) distance between the two habitat spring systems through the ''honeycomb'' pores and conduits of the Edwards Aquifer, it is not known to what extent below-ground connections between Comal Springs and Hueco Springs are inhabited by the amphipod. The only specific location information we have for this species regarding its distribution in the aquifer, aside from where they exit the aquifer via spring openings, is an observation of Peck's cave amphipods at the bottom of a well (Panther Canyon well) that is located approximately 360 ft (110 m) away from the head outlet of Spring Run No. 1 (as designated in Barr and Spangler 1992, Fig. 1 on p. 42) in the Comal Springs complex (Krejca 2005, p. 83).

We are designating critical habitat for the Peck's cave amphipod in aquatic habitat associated with both Comal Springs and Hueco Springs. To include amphipod food sources in root/water interfaces around spring outlets, we also are designating an area consisting of a 50-ft (15.2-m) distance from spring outlets of both Comal Springs and Hueco Springs (including several satellite springs that are located between the main outlet of Hueco Springs and the Guadalupe River). We believe that this 50-ft distance defines the lateral extent of critical habitat that contains PCEs necessary to provide for life functions of the Peck's cave amphipod with respect to roots that can penetrate into the aquifer. Based on the 50-ft distance, the areas designated for the amphipod critical habitat are about 38.1 ac (15.4 ha) at Comal Springs and 0.4 ac (0.2 ha) at Hueco Springs. The acreages were calculated with a computer-based Geographical Information System (GIS). Designated critical habitat does not

include areas where PCEs do not occur for this species, such as buildings, roads, sidewalks, campgrounds, and lawns. Where lakes are designated, critical habitat is only designated in a radius of 50 ft (15.2 m) around springs and does not include other areas of the lake bottom where springs do not occur.

Comal Springs dryopid beetle—The Comal Springs dryopid beetle has been found in only two spring systems, Comal Springs and Fern Bank Springs, located in Comal and Hays Counties, respectively. The subterranean species is primarily collected near spring outlets (Barr and Spangler 1992, p. 41). While the extent to which the dryopid beetle inhabits subterranean areas away from spring outlets is unknown, this species does not swim and may be limited to relatively short ranges within the aquifer. In addition, immature stages of the species are thought to be terrestrial (Barr 1993, p. 56); however, they may also exist in spring outlets and in subterranean, air-filled chambers, such as caves (Barr and Spangler 1992, pp. 51–52). Barr and Spangler (1992, p. 41) collected larvae of the dryopid beetle near spring outlets of Comal Springs and believed that the larvae were associated with ceilings of spring orifices. Extension of the dryopid beetle into the aquifer may also be limited by the lack of food materials associated with decaying plant roots that occur near spring orifices.

For critical habitat of the Comal Springs dryopid beetle, we are designating aquatic habitat and a 50-ft (15.2-m) distance from spring outlets of Comal Springs and Fern Bank Springs. The 50-ft (15.2-m) distance is based on evaluations of aerial photographs showing tree and shrub canopies occurring in proximity to spring outlets at both spring systems. These plant canopies reflect approximate distances where plant root systems interface with water flows of the two spring systems. Based on the 50-ft (15.2-m) distance, the area designated for dryopid beetle critical habitat at Comal Springs is about 38.1 ac (15.4 ha), and 1.4 ac (0.6 ha) at Fern Bank Springs. These acreages include occupied areas that contain PCEs necessary for life history functions of the Comal Springs dryopid beetle. The acreages were calculated with GIS. Designated critical habitat does not include areas where PCEs do not occur for this species, such as lawns, buildings, roads, parking lots, and sidewalks. Where lakes are designated, critical habitat is only designated in a radius of 50 ft (15.2 m) around springs and does not include other areas of the lake bottom where springs do not occur.

Comal Springs riffle beetle—For the Comal Springs riffle beetle, habitat is primarily restricted to surface water in two impounded spring systems that are located within Comal and Hays Counties in central Texas. In Comal County, the aquatic beetle species is found in various spring outlets and seeps of Comal Springs that occur within the spring runs of Landa Lake and within Landa Lake itself, over a linear distance of about 0.9 mi (1.4 km). The species has also been found in outlets of San Marcos Springs in the upstream portion of Spring Lake in Hays County. However, populations of Comal Springs riffle beetles may exist elsewhere in Spring Lake since spring systems within the lake are interconnected, and sampling to date for the species within the lake has been limited.

For critical habitat of the Comal Springs riffle beetle, we are designating an area that encompasses all of the spring outlets that are found within the same lake (excluding a slough (slack water) portion that lacks spring outlets). Apart from the slough portion, the approximate linear distance of Spring Lake at its greatest length is 0.2 mi (0.3 km). We are designating about 19.8 ac (8.0 ha) of aquatic habitat in Landa Lake and about 10.5 ac (4.3 ha) of aquatic habitat in Spring Lake as critical habitat. These areas contain PCEs necessary for life-history functions of the Comal Springs riffle beetle. We did not include the 50-ft (15.2-m) lateral extent around springs because, unlike the other two species, the riffle beetle is believed to occur on the surface and not subterranean. The acreages were estimated by calculating the cross-hatched polygon area in two map figures of these lakes using GIS. Designated critical habitat does not include areas where PCEs do not occur for this species, such as lawns, buildings, roads, parking lots, and sidewalks.

When determining critical habitat boundaries, we made every effort to avoid including within those boundaries of the maps contained within this final rule developed areas such as buildings, paved areas, and other structures that lack PCEs for the Peck's cave amphipod, Comal Springs dryopid beetle, or Comal Springs riffle beetle. These efforts included overlaying critical habitat boundaries onto aerial photos to determine the percentage of buildings, lawns, and paved areas that were located within the critical habitat designations. In the few instances that this occurred, these areas were excluded in the text of the critical habitat unit descriptions in the Critical Habitat Designation section of this final rule. The estimated acreages for these areas were so small (i.e., approximately 2 percent or less of the critical habitat units involved), it was not practical to exclude them from the GIS coordinates provided for the designated critical habitat units in this final rule. We believe that eliminating buildings, lawns, and paved areas in the text of the critical habitat descriptions was the most feasible means of excluding these areas from the designations and provided a clearer indication of the exclusions for the public. The scale of the maps prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed areas. Any such structures and the surface under them inadvertently left inside critical habitat boundaries shown on the maps of this final rule have been excluded by text in the final rule and are not designated as critical habitat. Therefore, Federal actions limited to these areas would not trigger section 7 consultation, unless they may affect the species or PCEs in adjacent critical habitat.

We are designating critical habitat in areas that we have determined were occupied at the time of listing and contain sufficient PCEs to support life-history functions essential for the conservation of the species. Units of Comal Springs, Fern Bank Springs, Hueco Springs, and San Marcos Springs were designated based on sufficient PCEs being present to support at least one life process for the Peck's cave amphipod, Comal Springs dryopid beetle, and/or Comal Springs riffle beetle. A brief discussion of each area designated as critical habitat is provided in the unit descriptions below.

Critical Habitat Designation

We are designating four units as critical habitat for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. The critical habitat areas described below constitute our best assessment of areas determined to be occupied at the time of listing, that contain the PCEs essential for the conservation of these species and may require special management, and those additional areas that were not known to be occupied at the time of listing but were found to be essential to the conservation of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. The four spring systems designated as critical habitat are: (1) The Comal Springs Unit, (2) the Fern Bank Springs Unit, (3) the Hueco Springs Unit, and (4) the San Marcos Springs Unit. Table 1 shows the occupied units,

as well as provides approximate areas (ac/ha) of these spring units that have been determined to meet the definition of critical habitat for the three listed invertebrates.

TABLE 1.—SPRING SYSTEM UNITS, OCCUPANCY, DISTANCES FROM SPRING OUTLETS, AND ACREAGES OF CRITICAL HABITAT DESIGNATED FOR THE PECK'S CAVE AMPHIPOD, COMAL SPRINGS DRYOPID BEETLE, AND COMAL SPRINGS RIFFLE BEETLE IN COMAL AND HAYS COUNTIES, TEXAS

Species	Spring systems designated as critical habitat areas	Occupied at time of listing	Currently occupied	Distance from spring outlets for designated critical habitat ft (m)	Designated critical habitat acreage ac (ha)
Peck's cave amphipod	Comal Springs Unit	Yes	Yes	50 (15.2)	38.1 (15.4)
	Hueco Springs Unit	Yes	Yes	50 (15.2)	0.4 (0.2)
Comal Springs dryopid beetle	Comal Springs Unit	Yes	Yes	50 (15.2)	38.1 (15.4)
	Fern Bank Springs Unit	Yes	Yes	50 (15.2)	1.4 (0.6)
Comal Springs riffle beetle	Comal Springs Unit	Yes	Yes	([1])	19.8 (8.0)
	San Marcos Springs Unit	Yes	Yes	([1])	10.5 (4.3)

[1] Not applicable.

Table 2 summarizes land ownership and threats for the four spring systems designated for critical habitat. Land ownership for these spring systems involves only the State of Texas, municipalities, and private landowners, and does not involve Federal or Tribal holdings. Comal Springs and San Marcos Springs are surrounded, respectively, by the cities of New Braunfels and San Marcos. Both Comal Springs and San Marcos Springs have been impounded with dams to form Landa Lake and Spring Lake, respectively. Possible threats to these urban spring systems include, but are not limited to, water withdrawals, pesticide use, and stormwater runoff of pollutants that have accumulated on impervious cover (paved driveways, parking lots, sidewalks, etc.) in urban areas. A thorough threats discussion is found in the December 18, 1997, final rule listing these species (62 FR 66295).

TABLE 2.—OWNERSHIP AND THREATS TO SPRINGS OR LISTED SPECIES FOR CRITICAL HABITAT UNITS

Designated critical habitat units	Ownership of critical habitat by listed species ac (ha)	Threats to spring system or listed species
Comal Springs Unit, Comal County.	Peck's cave amphipod State—19.8 (8.0) Municipal—7.3 (3.0) Private—11.0 (4.5) Comal Springs dryopid beetle State—19.8 (8.0) Municipal—7.3 (3.0) Private—11.0 (4.5) Comal Springs riffle beetle State—19.8 (8.0)	Water withdrawals, hazardous materials spills, pesticide use, excavation/construction, stormwater pollutants, invasive species, and well entrainment.
Fern Bank Springs Unit, Hays County.	Comal Springs dryopid beetle Private—1.4 (0.6)	Water withdrawals, excavation/construction, and pesticide use.
Hueco Springs Unit, Comal County.	Peck's cave amphipod Private—0.4 (0.2)	Water withdrawals, hazardous materials spills, pesticide use, excavation/construction, stormwater pollutants, and well entrainment.
San Marcos Springs Unit, Hays County.	Comal Springs riffle beetle State—10.5 (4.3)	Water withdrawals, hazardous materials spills, pesticide use, excavation/construction, stormwater pollutants, and invasive species.

We present brief descriptions of all units and reasons why they meet the definition of critical habitat for Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle below. Maps of the designated critical habitat units are provided in the Regulation Promulgation section of this rule.

Comal Springs Unit—Comal County, Texas

The Comal Springs system provides habitat for all three listed invertebrate species, along with a federally listed fish, the endangered fountain darter (*Etheostoma fonticola*). No other critical habitat has been designated at this spring system. Comal Springs provides all of the PCEs necessary for conservation of the three invertebrate species. The spring system primarily occurs as a series of spring outlets that lie along the west shoreline of Landa Lake and within the lake itself. This nearly L-shaped lake is surrounded by the City of New Braunfels. Practically all of the spring outlets and spring runs associated with Comal Springs occur within the upper part of the lake above the confluence of Spring Run No. 1 with the lake. The land ownership of Comal Springs consists of private, municipal, and State holdings. The surface water and bottom of Landa Lake are State-owned. The City of New Braunfels owns approximately 40 percent of the land surface adjacent to the lake, and private landowners own approximately 60 percent. Approximate acreages of surface land ownership within the designated critical habitat unit and

threats to the unit are shown in Table 2.

Critical habitat for the three listed invertebrate species in the Comal Springs Unit is as follows:

(1) Landa Lake (Comal Springs riffle beetle only)—aquatic habitat within the lake and outlying spring runs that occur from the confluence of Blieders Creek at the upstream end of Landa Lake down to the lake's lowermost point of confluence with Spring Run No. 1. The part of Landa Lake that lies below the confluence with Spring Run No. 1 down to the impounding dams at the downstream end of the lake is not included.

(2) Aquatic habitat and shoreline areas of Landa Lake (Peck's cave amphipod and Comal Springs dryopid beetle only)—aquatic habitat within the lake and outlying spring runs that occur from the confluence of Blieders Creek at the upstream end of Landa Lake down to the lake's lowermost point of confluence with Spring Run No. 1. The part of Landa Lake that lies below the confluence with Spring Run No. 1 down to the impounding dams at the downstream end of the lake is not included. Land areas along the shoreline of Landa Lake and on small islands inside the lake that are within a 50-ft (15.2-m) distance from habitat spring outlets are included in the critical habitat. These shoreline areas in proximity to spring outlets provide trees and shrubs with roots that penetrate underground to serve as habitat for the Peck's cave amphipod and Comal Springs dryopid beetle. The critical habitat designated for the Peck's cave amphipod and Comal Springs dryopid beetle includes only aquatic and shoreline areas where PCEs exist for these two species and does not include areas where these features do not occur, such as lawns, buildings, roads, parking lots, and sidewalks. Where lakes are included, critical habitat is only designated for areas within a radius of 50 ft (15.2 m) around springs and does not include other areas of the lake bottom in areas where springs are absent.

Fern Bank Springs Unit—Hays County, Texas

The Fern Bank Springs system provides habitat for only the Comal Springs dryopid beetle. No other critical habitat has been designated at this spring system. Fern Bank Springs provides all of the PCEs necessary for conservation of this species. The spring system is located approximately 0.2 mi (0.4 km) east of the junction of Sycamore Creek with the Blanco River in Hays County. This spring system occurs in a rural area and is relatively unaffected by current urban activities in the vicinity of the springs. It consists of a main outlet and a number of seep springs that occur at the base of a high bluff overlooking the Blanco River. This spring system is located entirely on land that is privately owned. Approximate acreages of land ownership encompassed within the designated critical habitat unit and threats to the unit are shown in Table 2.

Critical habitat for the Comal Springs dryopid beetle in the Fern Bank Springs Unit as follows: Fern Bank Springs—aquatic habitat and land areas that are within a 50-ft (15.2-m) distance from spring outlets, including the main outlet of Fern Bank Springs and its associated seep springs. These land areas in proximity to spring outlets provide trees and shrubs with roots that penetrate underground to serve as habitat for the Comal Springs dryopid beetle. The critical habitat designated for the Comal Springs dryopid beetle includes only areas where PCEs exist for this species and does not include areas where these features do not occur, such as buildings, lawns, or paved areas.

Hueco Springs Unit—Comal County, Texas

The Hueco Springs system provides habitat for only the Peck's cave amphipod. No other critical habitat has been designated at this spring system. Hueco Springs provides all of the PCEs necessary for conservation of this species. This spring system occurs in a rural area and is relatively unaffected by current urban activities in the vicinity of the springs. It has a main outlet that is located approximately 0.1 mi (0.2 km) south of the junction of Elm Creek with the Guadalupe River in Comal County. The main outlet itself lies approximately 500 ft (152 m) from the west bank of the Guadalupe River. Several satellite springs lie further south between the main outlet and the river. This spring system is located entirely on private land. The main outlet of Hueco Springs is located on undeveloped land, but the satellite springs occur within undeveloped areas of a privately owned campground. Approximate acreages of land ownership encompassed within the designated critical habitat unit and threats to the unit are indicated in Table 2.

We designate critical habitat for the Peck's cave amphipod within the Hueco Springs Unit as follows:

(1) Hueco Springs—aquatic habitat and land areas that are within 50 ft (15.2 m) from habitat spring outlets, including the main outlet of Hueco Springs and its associated satellite springs. These land areas in proximity to spring outlets provide trees and shrubs with roots that penetrate underground to serve as habitat for the Peck's cave amphipod. The critical habitat designated for the Peck's cave amphipod includes only aquatic habitat and land areas where PCEs exist for this species. Areas consisting of buildings, roads, sidewalks, campgrounds, and lawns are excluded from this designation.

San Marcos Springs Unit—Hays County, Texas

The San Marcos Springs system provides habitat only for the Comal Springs riffle beetle. However, the San Marcos Springs system provides habitat for five other federally listed species: (1) The endangered fountain darter, (2) the endangered San Marcos gambusia (*Gambusia georgei*), (3) the threatened San Marcos salamander (*Eurycea nana*), (4) the endangered Texas blind salamander (*Eurycea* (formerly *Typhlomolge*) *rathbuni*), and (5) endangered Texas wild-rice (*Zizania texana*) (Service 1996, p. 6). However, the San Marcos gambusia has not been found in surveys during recent years and is presumed to be extinct (Edwards 1999, p. 3). Critical habitat has been designated for the fountain darter, San Marcos gambusia, San Marcos salamander, and Texas wild-rice within Spring Lake and portions of the San Marcos River that lie downstream from Spring Lake (45 FR 47355, July 14, 1980). The San Marcos Springs unit provides all of the PCEs necessary for conservation of the Comal Springs riffle beetle. The spring system primarily occurs as a series of spring outlets that lie at the bottom of Spring Lake and along its shoreline. The lake is surrounded by the City of San Marcos in Hays County. The spring outlets associated with San Marcos Springs occur within the main part of the lake, excluding the slough portion that exists as an arm of the lake. The land ownership involving San Marcos Springs consists entirely of State holdings. The surface water and bottom of Spring Lake are State-owned; the State-affiliated Texas State University owns the adjacent land surface. Approximate acreages of surface land ownership in the designated critical habitat unit and threats to the unit are shown in Table 2.

We designate critical habitat for the Comal Springs riffle beetle in the San Marcos Springs unit as: Spring Lake—aquatic habitat areas within the lake upstream of Spring Lake dam, with the exception of the slough portion of the lake upstream of its confluence with the main body.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7 of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to destroy or adversely modify critical habitat. In our regulations at 50 CFR 402.02, we define destruction or adverse modification as ''a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.'' However, recent decisions by the 5th and 9th Circuit Courts of Appeal have invalidated this definition. Pursuant to current national policy and the statutory provisions of the Act, destruction or adverse modification is determined on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional (or retain the current ability for the PCEs to be functionally established) to serve the intended conservation role for the species.

Section 7(a) of the Act requires Federal agencies, including the Service, to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is proposed or designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402.

If a species is listed or critical habitat is designated, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. As a result of this consultation, compliance with the requirements of section 7(a)(2) will be documented through the Service's issuance of: (1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or (2) a biological opinion for Federal actions that may affect, but are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to result in jeopardy to a listed species or the destruction or adverse modification of critical habitat, we also provide reasonable and prudent alternatives to the project, if any are identifiable. ''Reasonable and prudent alternatives'' are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid jeopardy to the listed species or destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where a new species is listed or critical habitat is subsequently designated that may be affected and the Federal agency has retained discretionary involvement or control over the action or such discretionary involvement or control is authorized by law. Consequently, some Federal agencies may request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions may affect subsequently listed species or designated critical habitat or adversely modify or destroy proposed critical habitat.

Federal activities that may affect the Peck's cave amphipod, Comal Springs dryopid beetle, or Comal Springs riffle beetle or their designated critical habitat will require section 7 consultation under the Act. Activities on State, Tribal, local, or private lands requiring a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act or a permit under section 10(a)(1)(B) of the Act from the Service) or involving some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or Federal Emergency Management Agency) will also be subject to the section 7 consultation process. Federal actions requiring section 7 consultation also include pumping of Edwards Aquifer water by Federal agencies, such as the Department of Defense or Service. Federal actions not affecting listed species or critical habitat, and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or permitted, do not require section 7 consultations.

Application of the Jeopardy and Adverse Modification Standards for Actions Involving Effects to the Peck's Cave Amphipod, Comal Springs Dryopid Beetle, and Comal Springs Riffle Beetle and Their Critical Habitat

Jeopardy Standard

The Service has applied an analytical framework for jeopardy analyses of Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle that relies heavily on the importance of habitat conditions to the survival and recovery of these species. The section 7(a)(2) analysis is focused on the habitat conditions necessary to support them.

The jeopardy analysis usually expresses the survival and recovery needs of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle in a qualitative fashion without making distinctions between what is necessary for survival and what is necessary for recovery. Generally, if a proposed Federal action is incompatible with the viability of the affected species, inclusive of associated habitat conditions, a jeopardy finding is warranted because of the relationship of each core area population to the survival and recovery of the species as a whole.

Adverse Modification Standard

For the reasons described in the Director's December 9, 2004, memorandum, the key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional (or retain the current ability for the PCEs to be functionally established) to serve the intended conservation role for the species. Generally, the conservation role of critical habitat units for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle is to have each unit support viable populations.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe in any proposed or final regulation that designates critical habitat those activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation. Activities that may destroy or adversely modify critical habitat may also jeopardize the continued existence of the species.

Activities that may destroy or adversely modify critical habitat are

those that alter the PCEs to an extent that the conservation value of critical habitat for Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle is appreciably reduced. Activities that, when carried out, funded, or authorized by a Federal agency, may affect critical habitat and, therefore, should result in consultation for these listed species include, but are not limited to:

(1) Actions that can negatively affect the PCEs of the Peck's cave amphipod, Comal Springs dryopid beetle, or Comal Springs riffle beetle;

(2) Activities that would significantly and detrimentally alter the water quality in any of the spring systems listed above and would thereby destroy or adversely modify the critical habitat for any of theses species. These activities include, but are not limited to, sedimentation from construction or release of chemical or biological pollutants into the surface water or connected groundwater at a point source or by dispersed release (non-point source); such activities could also alter water conditions to a point that negatively affects these invertebrate species;

(3) Actions that change the existing and historic flow regimes and would thereby significantly and detrimentally alter the PCEs necessary for conservation of these species. Such activities could include, but are not limited to, water withdrawal, impoundment, and water diversions. These activities could eliminate or reduce the habitat necessary for the growth, reproduction, or survival of these invertebrate species; and

(4) Actions that remove hydraulic connectivity of the aquifer and the spring areas where it exists and would thereby negatively affect the PCEs of the designated critical habitat of these species and the population dynamics of the species. Alteration of subsurface water flows through destruction of geologic features (for example, excavation) or creation of impediments to flow (for example, concrete filling), especially in proximity to spring outlets, could negatively alter the hydraulic connectivity necessary to sustain these species. It is necessary for subsurface habitat to remain intact with sufficient hydraulic connectivity of flow paths and conduits to ensure that PCEs (water quality, water quantity, and food supply) for the designated critical habitat remain adequate for all three listed invertebrates.

Due in large part to the nature of the aquifer and spring systems, ongoing human activities that occur outside the designated critical habitat may threaten the physical and biological features of the designated critical habitat. While we are only designating critical habitat in occupied areas where PCEs exist and are in need of special management (*i.e.*, areas meeting the Service's criteria for defining critical habitat), consultation may also be needed outside of designated areas in order to avoid adverse modification of the PCEs within the designation. Federal activities outside of critical habitat (such as groundwater pumping, pollution, issuance of a section 10(a)(1)(B) permit, highway construction, etc.) are subject to review under section 7 of the Act if they may affect these species or adversely affect their critical habitat.

We consider all of the units designated as critical habitat to contain features essential to the conservation of the Peck's cave amphipod, Comal Springs dryopid beetle, or Comal Springs riffle beetle. All units are within the geographic range of the species, all were occupied by the species at the time of listing (based on observations made within the last 9 years), and are likely to be used by these listed invertebrates. Federal agencies already consult with us on activities in areas currently occupied by these listed invertebrates, or if the species may be affected by the action, to ensure that their actions do not jeopardize the continued existence of the Peck's cave amphipod, Comal Springs dryopid beetle, or Comal Springs riffle beetle.

Application of Section 4(a)(3) of the Act—Approved Integrated Natural Resource Management Plans

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete, by November 17, 2001, an Integrated Natural Resource Management Plan (INRMP). An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.

There are no Department of Defense lands within the designated critical habitat that have completed an INRMP.

Application of Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that critical habitat shall be designated, and revised, on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact, of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the Secretary is afforded broad discretion, and the Congressional record is clear that, in making a determination under the section, the Secretary has discretion as to which factors and how much weight will be given to any factor.

Under section 4(b)(2), in considering whether to exclude a particular area from the designation, we must identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, determine whether the benefits of exclusion outweigh the benefits of inclusion. If an exclusion is contemplated, then we must determine whether excluding the area would result in the extinction of the species. In the following sections, we address a number of general issues that are relevant to the exclusions we considered.

Pursuant to section 4(b)(2) of the Act, we must consider relevant impacts in addition to economic ones. We determined that the lands within the designation of critical habitat for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle are not owned or managed by the Department of Defense; there are currently no habitat conservation plans for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle; and the designation does not include any Tribal lands or trust resources.

We have considered a number of programs that exist at the State and local levels (*e.g.*, EAA and Texas Commission for Environmental Quality) to protect the Edwards Aquifer and manage spring flows. As a result of a ruling in a 1991 court case (*Sierra Club* v. *Secretary of the Interior, No. MO–91–CA–069*), we

identified minimum spring flows from Comal and San Marcos springs likely to cause take, jeopardy, and adverse modification of critical habitat for other listed aquatic species. As a result of the Sierra Club lawsuit, the State legislature created the EAA through Senate Bill 1477 to regulate groundwater withdrawals. The EAA has issued withdrawal permits and created drought response plans that help protect the PCEs related to water quantity and temperature. The EAA has prepared a draft Habitat Conservation Plan (HCP) to provide for water quantity in the aquifer and protect spring dependent species. If finalized and permitted, the HCP is expected to help protect the aquifer. However, at this time the HCP has not been completed and the EAA is continuing to develop aquifer management strategies to permit appropriate pumping levels and conserve downstream spring flows. The full effects of future pumping strategies on spring flows remain uncertain and do not allow us to exclude any areas from critical habitat based on the benefits of the Edwards Aquifer management.

Other programs that provide some aquifer protection are Edwards Aquifer Rules and Phase I optional water quality measures of the Texas Commission on Environmental Quality (TCEQ). The Edwards Aquifer Rules provide protection for drinking water, and the Phase I measures provide protection for fountain darter, Texas wild-rice, San Marcos salamander, and San Marcos gambusia. The Edwards Aquifer Rules protect water quality by reducing pollutant loading through the implementation of best management practices that can help prevent degradation of groundwater. The Phase I optional water quality measures include enhanced best management practices that protect sensitive karst features. These measures also contain other protective actions that can be applied to many types of new projects. The Edwards Aquifer Rules and Phase I optional measures provide some benefits for the three Comal Springs invertebrates. However, the Phase I optional measures are not mandated for every project. Therefore we have considered excluding but have not excluded any lands from this designation based on the potential benefits from these planned or existing aquifer and water quality management initiatives.

We anticipate no impact to national security, Tribal lands, partnerships, or habitat conservation plans from this critical habitat designation. Based on the best available information, including the prepared economic analysis, we believe that all of these units contain the features that are essential for the conservation of the species. Our economic analysis does not indicate any areas within the critical habitat designation will bear a disproportionate cost of the designation. Therefore, we have found no areas for which the benefits of exclusion outweigh the benefits of inclusion, and so have not excluded any areas from this designation of critical habitat for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle based on economic impacts. As such, we have considered but not excluded any lands from this designation based on the potential impacts to economic factors.

Economics

Section 4(b)(2) of the Act requires us to designate critical habitat on the basis of the best scientific information available and to consider the economic and other relevant impacts of designating a particular area as critical habitat. We may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the benefits of specifying such areas as critical habitat. We cannot exclude such areas from critical habitat when such exclusion will result in the extinction of the species concerned.

Following the publication of the proposed critical habitat designation, we conducted an economic analysis to estimate the potential economic effect of the designation. The draft analysis was made available for public review on March 16, 2007 (72 FR 12585). We accepted comments on the draft analysis until April 16, 2007.

The primary purpose of the economic analysis is to estimate the potential economic impacts associated with the conservation of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. This economic analysis considers the economic efficiency effects that may result from the designation, including habitat protections that may be co-extensive with the listing of the species. It also addresses distribution of impacts, including an assessment of the potential effects on small entities and the energy industry. This information can be used by the Secretary to assess whether the effects of the designation might unduly burden a particular group or economic sector.

This analysis focuses on the direct and indirect costs of the rule. However, economic impacts to land use activities can exist in the absence of critical habitat. These impacts may result from, for example, section 7 consultations under the jeopardy standard, local zoning laws, State and natural resource laws, and enforceable management plans and best management practices applied by other State and Federal agencies.

Under scenarios 1 and 2 in the draft economic analysis, impacts associated with water use changes comprised the vast majority, or between 91 and 99 percent, of the total quantified impacts in the areas we proposed for designation. Economic impacts were based on the total permitted withdrawals from the Edwards Aquifer that are planned to be reduced in part to provide spring flows that were identified in a 1993 lawsuit concerning five endangered species in the Edwards Aquifer that share habitat with the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. The analysis considered that as soon as 2008, total permitted water withdrawals in the Edwards Aquifer may be further limited from the present 549,000 acre-feet per year to 400,000 acre-feet per year (scenario 1). It is also possible that, in dry years, additional restrictions may be imposed that will further limit aquifer withdrawals to 340,000 acre-feet (scenario 2). The draft economic analysis examined social welfare and regional economic impacts that could result from these limits to water withdrawals in the aquifer. It should be noted that the majority of economic impacts quantified in the draft economic analysis are jointly caused by eight endangered species, including the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. Because all of these species reside in the same habitat, separating future impacts of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle from those of the other listed species in the aquifer was not attempted.

We estimated costs related to conservation activities for the area proposed for designation of critical habitat for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle under sections 4, 7, and 10 of the Act to be approximately $24.5 million over the next 20 years under scenario 1, or $154.3 million under scenario 2 in undiscounted dollars (annualized dollars are estimated to be $1.2 million under scenario 1 and $7.7 million under scenario 2). Future economic impacts associated with conservation activities in areas designated as critical habitat at a 3 percent discount rate are estimated to be $18 million over the next 20 years

under scenario 1, or $113 million under scenario 2 (annualized dollars are estimated to be $1.2 million under scenario 1 and $7.6 million under scenario 2). Future economic impacts associated with conservation efforts in areas proposed as critical habitat at a 7 percent discount rate were estimated to be $12.5 million over the next 20 years under scenario 1, or $78.5 million under scenario 2 (annualized dollars are estimated to be $1.3 million under scenario 1 and $7.4 million under scenario 2). No areas were excluded from this designation as a result of the economic analysis. The economic analysis did not consider recent changes to the Edwards Aquifer Authority passed by the Texas Legislature in May 2007 (Senate Bill 3).

A copy of the final economic analysis with supporting documents may be obtained by contacting U.S. Fish and Wildlife Service, Branch of Endangered Species (see **FOR FURTHER INFORMATION CONTACT**) or by download from the Internet at *http://www.fws.gov/southwest/es/Library/.*

Required Determinations

Regulatory Planning and Review

In accordance with Executive Order (E.O.) 12866, this document is a significant rule in that it may raise novel legal and policy issues, but will not have an annual effect on the economy of $100 million or more or affect the economy in a material way. Due to the tight timeline for publication in the **Federal Register**, the Office of Management and Budget (OMB) has not formally reviewed this rule. As explained above, we prepared an economic analysis of this action. We used this analysis to meet the requirement of section 4(b)(2) of the Act to determine the economic consequences of designating the specific areas as critical habitat. We also used it to help determine whether to exclude any area from critical habitat, as provided for under section 4(b)(2) of the Act, if we determine that the benefits of such exclusion outweigh the benefits of specifying an area as part of the critical habitat, unless we determine, based on the best scientific data available, that the failure to designate such an area as critical habitat will result in the extinction of the species.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA) (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an 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 (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a statement of factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA also amended the RFA to require a certification statement.

Small entities include small organizations, such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; as well as small businesses. Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine if potential economic impacts to these small entities are significant, we consider the types of activities that might trigger regulatory impacts under this rule, as well as the types of project modifications that may result. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

To determine if the rule could significantly affect a substantial number of small entities, we consider the number of small entities affected within particular types of economic activities (such as housing development, grazing, oil and gas production, timber harvesting). We apply the ''substantial number'' test individually to each industry to determine if certification is appropriate. However, the SBREFA does not explicitly define ''substantial number'' or ''significant economic impact.'' Consequently, to assess whether a ''substantial number'' of small entities is affected by this designation, this analysis considers the relative number of small entities likely to be impacted in an area. In some circumstances, especially with critical habitat designations of limited extent, we may aggregate across all industries and consider whether the total number of small entities affected is substantial. In estimating the number of small entities potentially affected, we also consider whether their activities have any Federal involvement.

Designation of critical habitat only affects activities conducted, funded, or permitted by Federal agencies. Some kinds of activities are unlikely to have any Federal involvement and so will not be affected by critical habitat designation. In areas where the species is present, Federal agencies already are required to consult with us under section 7 of the Act on activities they fund, permit, or implement that may affect the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. Federal agencies also must consult with us if their activities may affect critical habitat. Designation of critical habitat, therefore, could result in an additional economic impact on small entities due to the requirement to reinitiate consultation for ongoing Federal activities.

The draft economic analysis examined the potential for Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle conservation efforts to affect small entities. This analysis was based on the estimated impacts associated with the proposed critical habitat designation and evaluated the potential for economic impacts related to water use for agricultural activities, construction or development, and aquatic restoration. Aquatic restoration activities were not anticipated to affect small entities, as these activities will be carried out by a Federal agency (U.S. Army Corps of Engineers). Accordingly, the small business analysis focused on economic impacts resulting from potential water use changes for agricultural activities and construction or development activities. Future restrictions on groundwater pumping are expected to cause irrigated crop acreage to shift to dryland production. Under Scenario 1, where future groundwater pumping is restricted to 400,000 acre-feet per year, approximately 33,000 acres of irrigated cropland are expected to shift to dryland production, and 507 farms are likely to experience a reduction in output valued between $8,000 and $44,000. Under Scenario 2, where future groundwater pumping is restricted to 340,000 acre-feet per year, approximately 35,000 acres of irrigated cropland are expected to shift to dryland production, and 532 farms are likely to experience a reduction in

output valued between $9,000 and $45,000. However, these costs are associated with the conservation of the species, and may result from desirable management, but not necessarily management that can be required under the Act. For those development projects likely to be undertaken by a small entity, Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle conservation costs are estimated to be between $1,340 and $1,710. Assuming the annual revenues of an average small developer are $18.0 million, the average annualized cost per project is about 0.1 percent of typical annual sales.

In general, two different mechanisms in section 7 consultations could lead to additional regulatory requirements for the approximately four small businesses, on average, that may be required to consult with us each year regarding their project's impact on the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle and its habitat. First, if we conclude, in a biological opinion, that a proposed action is likely to jeopardize the continued existence of a species or adversely modify its critical habitat, we can offer ''reasonable and prudent alternatives.'' Reasonable and prudent alternatives are alternative actions that can be implemented in a manner consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that would avoid jeopardizing the continued existence of listed species or result in adverse modification of critical habitat. A Federal agency and an applicant may elect to implement a reasonable and prudent alternative associated with a biological opinion that has found jeopardy or adverse modification of critical habitat. An agency or applicant could alternatively choose to seek an exemption from the requirements of the Act or proceed without implementing the reasonable and prudent alternative. However, unless an exemption were obtained, the Federal agency or applicant would be at risk of violating section 7(a)(2) of the Act if it chose to proceed without implementing the reasonable and prudent alternatives.

Second, if we find that a proposed action is not likely to jeopardize the continued existence of a listed animal or plant species, we may identify reasonable and prudent measures designed to minimize the amount or extent of take and require the Federal agency or applicant to implement such measures through non-discretionary terms and conditions. We may also identify discretionary conservation recommendations designed to minimize or avoid the adverse effects of a proposed action on listed species or critical habitat, help implement recovery plans, or to develop information that could contribute to the recovery of the species.

Based on our experience with consultations pursuant to section 7 of the Act for all listed species, virtually all projects—including those that, in their initial proposed form, would result in jeopardy or adverse modification determinations in section 7 consultations—can be implemented successfully with, at most, the adoption of reasonable and prudent alternatives. These measures, by definition, must be economically feasible and within the scope of authority of the Federal agency involved in the consultation. We can only describe the general kinds of actions that may be identified in future reasonable and prudent alternatives. These are based on our understanding of the needs of the species and the threats it faces, as described in the final listing rule and this critical habitat designation. Within the final critical habitat units, the types of Federal actions or authorized activities that we have identified as potential concerns are:

(1) Regulation of activities affecting waters of the United States by the U.S. Army Corps of Engineers under section 404 of the Clean Water Act;

(2) Regulation of water flows, damming, diversion, and channelization implemented or licensed by Federal agencies;

(3) Activities that may lead to storm water runoff that are regulated under the National Pollution Discharge Elimination System of the Clean Water Act by the Environmental Protection Agency;

(4) Activities authorized, carried out, or funded by any Federal agency that may result in point source storm water pollutant discharges, including excavation, site development, construction, and other surface disturbing activities;

(5) Activities authorized, carried out, or funded by the Federal Highway Administration that could lead to the introduction of pollutants into receiving waters from highway runoff; and

(6) Activities authorized, carried out, or funded by any Federal agency that could result in a reduction of groundwater supplies that support the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle.

It is likely that a developer or other project proponent could modify a project or take measures to protect the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. The kinds of actions that may be included if future reasonable and prudent alternatives become necessary include conservation set-asides, management of competing nonnative species, restoration of degraded habitat, and regular monitoring. These are based on our understanding of the needs of the species and the threats it faces, as described in the final listing rule and proposed critical habitat designation. These measures are not likely to result in a significant economic impact to project proponents.

In summary, we have considered whether this would result in a significant economic effect on a substantial number of small entities. We have determined, for the above reasons and based on currently available information, that it is not likely to affect a substantial number of small entities. Federal involvement, and thus section 7 consultations, would be limited to a subset of the area designated. The most likely Federal involvement could include actions needing a section 404 permit under the Clean Water Act, actions receiving Federal Highway Administration funding, and actions needing a section 10(a)(1)(B) permit under the Endangered Species Act of 1973, as amended. A regulatory flexibility analysis is not required.

Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 801 et seq.)

Under SBREFA, this rule is not a major rule. Our detailed assessment of the economic effects of this designation is described in the economic analysis. Based on the effects identified in the economic analysis, we believe that this rule will not have an annual effect on the economy of $100 million or more, will not cause a major increase in costs or prices for consumers, and will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. Refer to the final economic analysis for a discussion of the effects of this determination.

Executive Order 13211

On May 18, 2001, the President issued Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This final rule to designated critical habitat for the

Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following findings:

(a) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or tribal governments,'' with two exceptions. It excludes ''a condition of Federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding'' and the State, local, or tribal governments ''lack authority'' to adjust accordingly. (At the time of enactment, these entitlement programs were: Medicaid; AFDC work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement.) ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) A condition of Federal assistance; or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities who receive Federal funding, assistance, permits or otherwise require approval or authorization from a Federal agency for an action may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above on to State governments.

(b) We do not believe that this rule will significantly or uniquely affect small governments because it will not produce a Federal mandate of $100 million or greater in any year; that is, it is not a ''significant regulatory action'' under the Unfunded Mandates Reform Act. The designation of critical habitat imposes no obligations on State or local governments. As such, a Small Government Agency Plan is not required.

Takings

In accordance with Executive Order 12630 (''Government Actions and Interference with Constitutionally Protected Private Property Rights''), we have analyzed the potential takings implications of designating 38.5 ac (15.6 ha) of lands in Comal County, Texas, as critical habitat for the Peck's cave amphipod, 39.5 ac (16.0 ha) of lands in Comal and Hays Counties, Texas, as critical habitat for the Comal Springs dryopid beetle, and 30.3 ac (12.3 ha) of lands in Comal and Hays counties, Texas, as critical habitat for the Comal Springs riffle beetle in a takings implication assessment. The takings implications assessment concludes that this final designation of critical habitat does not pose significant takings implications for lands within or affected by the designation.

Federalism

In accordance with Executive Order 13132 (Federalism), the rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with the Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, this final critical habitat designation with appropriate State resource agencies in Texas. The designation may have some benefit to these governments in that the areas that contain the features essential to the conservation of the species are more clearly defined, and the primary constituent elements of the habitat necessary to the conservation of the species are specifically identified. While making this definition and identification does not alter where and what federally sponsored activities may occur, it may assist these local governments in long-range planning (rather than waiting for case-by-case section 7 consultations to occur).

Civil Justice Reform

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the Order. We are designating critical habitat in accordance with the provisions of the Endangered Species Act. This final rule uses standard property descriptions and identifies the primary constituent elements within the designated areas to assist the public in understanding the habitat needs of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act. This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the Tenth Federal Circuit, we do not need to prepare environmental analyses as defined by NEPA in connection with designating critical habitat under the Endangered Species Act of 1973, as amended. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This assertion was upheld in the courts of the Ninth Circuit (*Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. Ore. 1995), cert. denied 516 U.S. 1042 (1996)).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, ''Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951), Executive

Order 13175, and the Department of Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997, ''American Indian Tribal Rights, Federal—Tribal Trust Responsibilities, and the Endangered Species Act,'' we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. We have determined that there are no Tribal lands occupied at the time of listing that contain the features essential for the conservation and no Tribal lands that are unoccupied areas that are essential for the conservation of the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. Therefore, we have not designated critical habitat for the Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle on Tribal lands.

References Cited

A complete list of all references cited in this rulemaking is available upon request from the Field Supervisor, Austin Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**).

Author(s)

The primary authors of this final rule are staff of the Ecological Services Office in Austin, Texas (see **FOR FURTHER INFORMATION CONTACT**).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

■ Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

■ 2. Amend § 17.11(h), the List of Endangered and Threatened Wildlife, as follows:

■ a. Under ''INSECTS,'' revise the entries for ''Beetle, Comal Springs dryopid'' and ''Beetle, Comal Springs riffle'' to read as set forth below; and

■ b. Under ''CRUSTACEANS,'' revise the entry for ''Amphipod, Peck's cave'' to read as set forth below.

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*	*	
INSECTS							
*	*	*	*	*	*	*	
Beetle, Comal Springs dryopid.	*Stygoparnus comalensis*	U.S.A. (TX)	NA	E	629	17.95(i)	NA
Beetle, Comal Springs riffle	*Heterelmis comalensis*	U.S.A. (TX)	NA	E	629	17.95(i)	NA
*	*	*	*	*	*	*	
CRUSTACEANS							
*	*	*	*	*	*	*	
Amphipod, Peck's cave	*Stygobromus (=Stygonectes) Pecki.*	U.S.A. (TX)	NA	E	629	17.95(h)	NA
*	*	*	*	*	*	*	

■ 3. Amend § 17.95 as follows:

■ a. In paragraph (h), add an entry for ''Peck's cave amphipod (*Stygobromus pecki*)'', in the same alphabetical order in which the species appears in the table at 50 CFR 17.11(h), to read as set forth below; and

■ b. In paragraph (i), add entries for ''Comal Springs dryopid beetle (*Stygoparnus comalensis*)'' and ''Comal Springs riffle beetle (*Heterelmis comalensis*)'', in the same alphabetical order in which these species appear in the table at 50 CFR 17.11(h), to read as set forth below.

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(h) *Crustaceans.*

* * * * *

Peck's cave amphipod (*Stygobromus pecki*).

(1) Critical habitat units are depicted for Comal County, Texas, on the maps below.

(2) The primary constituent elements of critical habitat for Peck's cave amphipod are:

(i) High-quality water with no or minimal levels of pollutants, such as soaps and detergents (Brown 1987, p. 261) and other compounds containing surfactants, heavy metals, pesticides, fertilizer nutrients, petroleum hydrocarbons, pharmaceuticals and veterinary medicines, and semi-volatile compounds, such as industrial cleaning agents, and including:

(A) Low salinity with total dissolved solids that generally range from 307 to 368 mg/L; and

(B) Low turbidity that generally is less than 5 nephelometric turbity units;

(ii) Aquifer water temperatures that range from approximately 68 to 75 °F (20 to 24 °C); and

(iii) Food supply that includes detritus (decomposed materials), leaf litter, living plant material, algae, fungi,

bacteria and other microorganisms, and decaying roots.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule. Where lakes are designated, critical habitat is only designated for areas where springs occur and does not include areas of the lake bottom beyond a radius of 50 ft (15.2 m) from the spring outlet.

(4) *Critical habitat map units.* Data layers defining map units were created by using ArcGIS. All coordinates are UTM zone 14 coordinate pairs, referenced to North American Horizontal Datum 1983. Coordinates were derived from 2004 digital orthophotographs. All acreage and mileage calculations were performed using GIS.

(5) Note: Index map (Map 1) follows:

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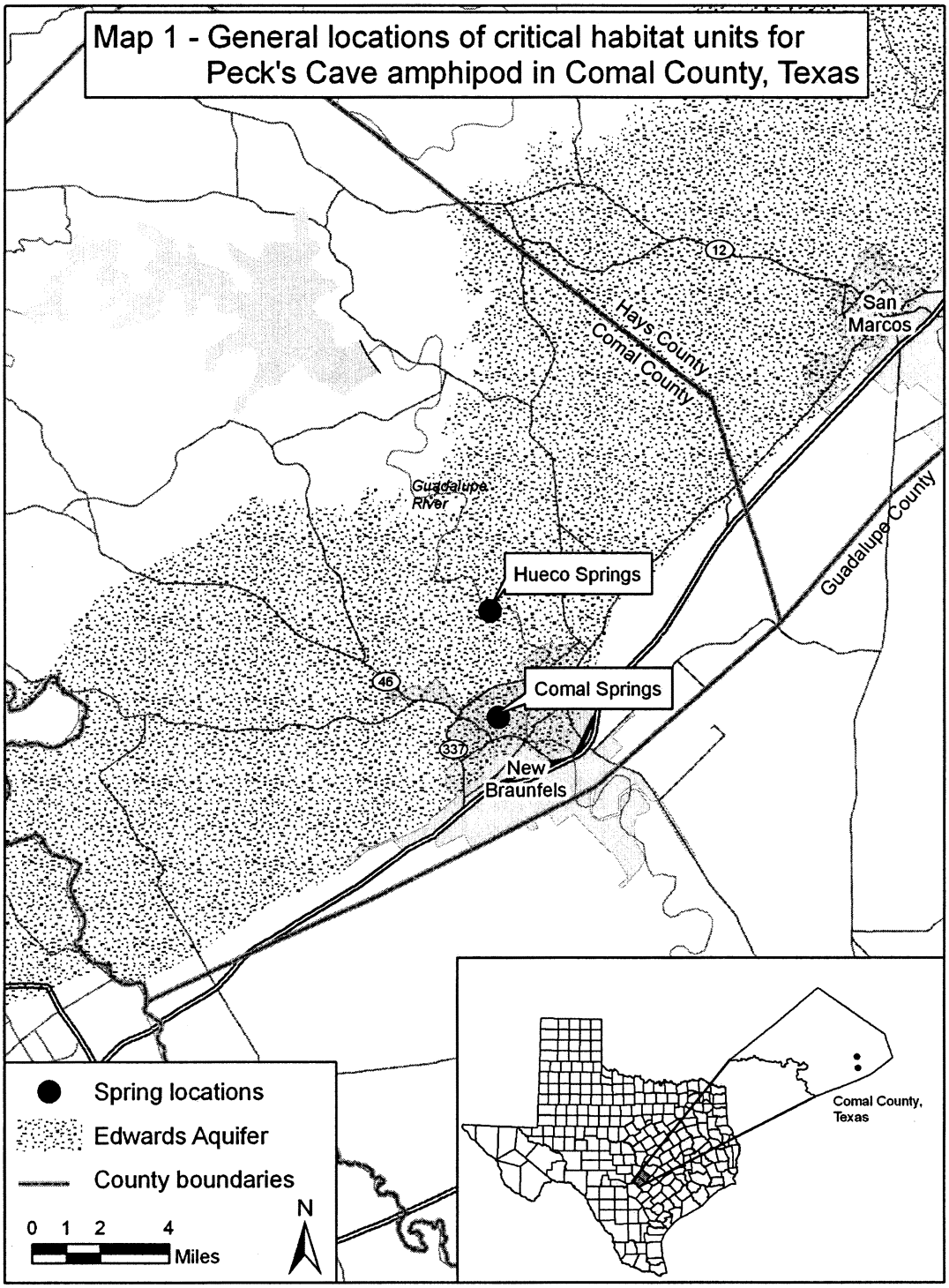
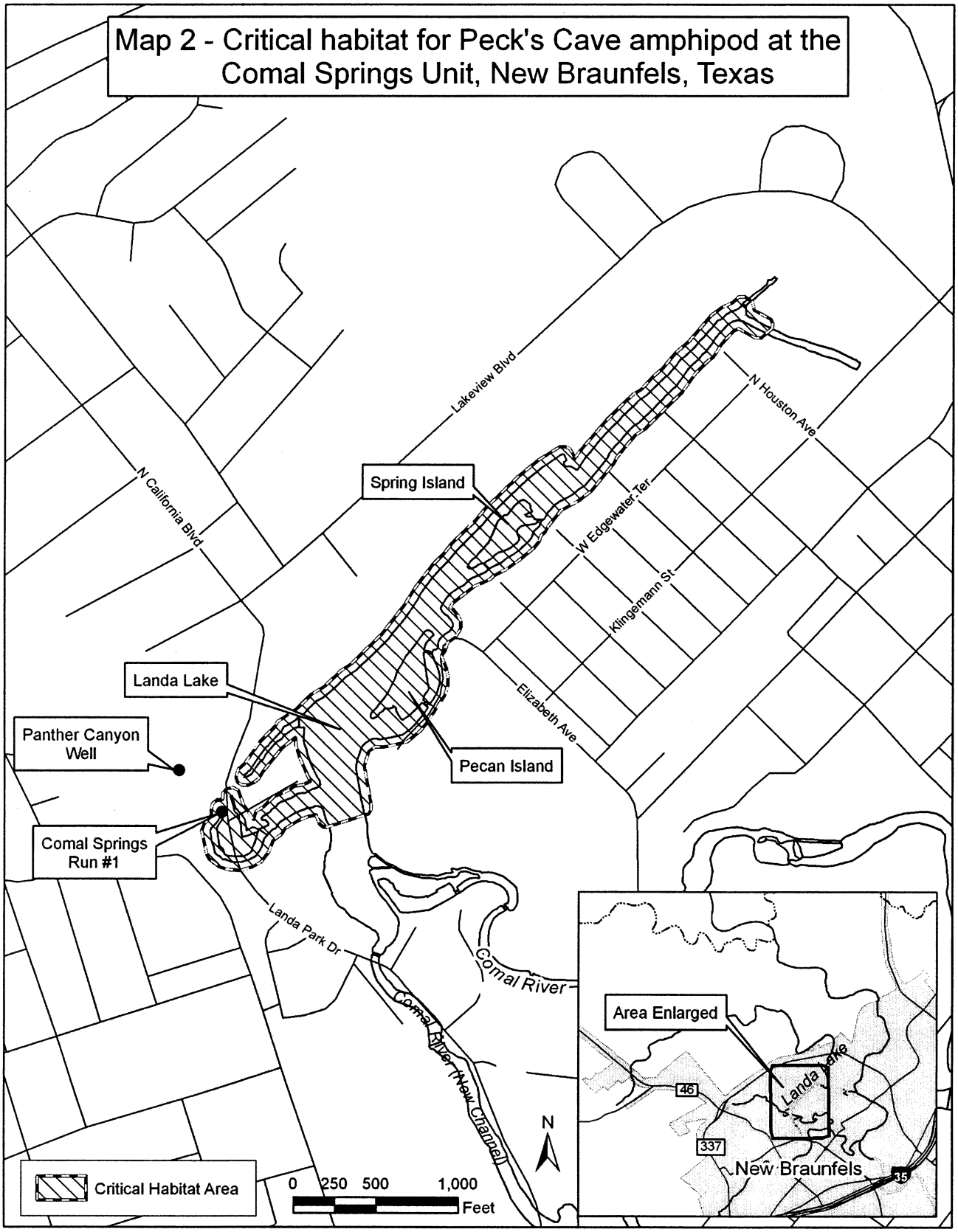


(6) Comal Springs Unit, Comal County, Texas.

(i) Aquatic habitat areas bounded by the UTM Zone 14 NAD 83 coordinates (meters E, meters N): 583387, 3287251; 583392, 3287264; 583405, 3287280; 583404, 3287290; 583407, 3287301; 583414, 3287307; 583425, 3287308; 583425, 3287320; 583433, 3287328; 583444, 3287330; 583454, 3287325; 583463, 3287301; 583482, 3287272; 583486, 3287286; 583501, 3287296; 583520, 3287314; 583547, 3287326; 583557, 3287333; 583572, 3287335; 583586, 3287342; 583567, 3287387; 583560, 3287408; 583559, 3287423; 583534, 3287403; 583499, 3287359; 583491, 3287347; 583484, 3287340; 583471, 3287334; 583461, 3287334; 583452, 3287340; 583450, 3287350; 583454, 3287364; 583465, 3287374; 583494, 3287415; 583521, 3287443; 583526, 3287453; 583563, 3287477; 583589, 3287503; 583613, 3287519; 583643, 3287547; 583662, 3287561; 583719, 3287617; 583759, 3287669; 583780, 3287701; 583811, 3287743; 583833, 3287764; 583848, 3287784; 583892, 3287826; 583911, 3287850; 583970, 3287907; 584008, 3287938; 584047, 3287963; 584055, 3287964; 584065, 3287960; 584073, 3287948; 584074, 3287941; 584081, 3287952; 584131, 3288011; 584164, 3288044; 584183, 3288062; 584197, 3288071; 584216, 3288093; 584236, 3288110; 584258, 3288138; 584284, 3288161; 584325, 3288209; 584343, 3288223; 584364, 3288233; 584375, 3288243; 584386, 3288244; 584401, 3288234; 584403, 3288218; 584433, 3288201; 584437, 3288193; 584436, 3288184; 584416, 3288167; 584405, 3288167; 584375, 3288184; 584365, 3288180; 584344, 3288156; 584329, 3288131; 584320, 3288125; 584298, 3288103; 584273, 3288067; 584204, 3287997; 584187, 3287985; 584176, 3287973; 584152, 3287943; 584147, 3287933; 584105, 3287880; 584080, 3287862; 584049, 3287844; 584026, 3287815; 584021, 3287805; 584013, 3287798; 584009, 3287787; 583999, 3287775; 583971, 3287751; 583947, 3287735; 583927, 3287725; 583920, 3287718; 583890, 3287704; 583850, 3287673; 583845, 3287665; 583851, 3287662; 583860, 3287650; 583865, 3287640; 583865, 3287629; 583863, 3287622; 583854, 3287609; 583840, 3287600; 583836, 3287584; 583829, 3287576; 583838, 3287552; 583841, 3287535; 583841, 3287520; 583835, 3287501; 583804, 3287452; 583790, 3287435; 583766, 3287416; 583727, 3287406; 583706, 3287406; 583695, 3287398; 583686, 3287370; 583699, 3287298; 583698, 3287288; 583694, 3287282; 583617, 3287257; 583610, 3287258; 583605, 3287262; 583597, 3287280; 583584, 3287277; 583565, 3287270; 583541, 3287255; 583534, 3287244; 583518, 3287233; 583510, 3287211; 583496, 3287192; 583480, 3287183; 583459, 3287177; 583436, 3287178; 583419, 3287184; 583400, 3287198; 583396, 3287205; 583387, 3287251.

(ii) Note: Comal Springs Unit (Map 2) follows:



(7) Hueco Springs Unit, Comal County, Texas.

(i) Aquatic habitat areas bounded by the UTM Zone 14 NAD 83 coordinates (meters E, meters N): 583113, 3292498; 583114, 3292498; 583115, 3292498; 583116, 3292498; 583117, 3292498; 583118, 3292497; 583119, 3292497; 583120, 3292497; 583120, 3292496; 583121, 3292496; 583122, 3292495; 583123, 3292495; 583124, 3292494; 583124, 3292493; 583125, 3292493;

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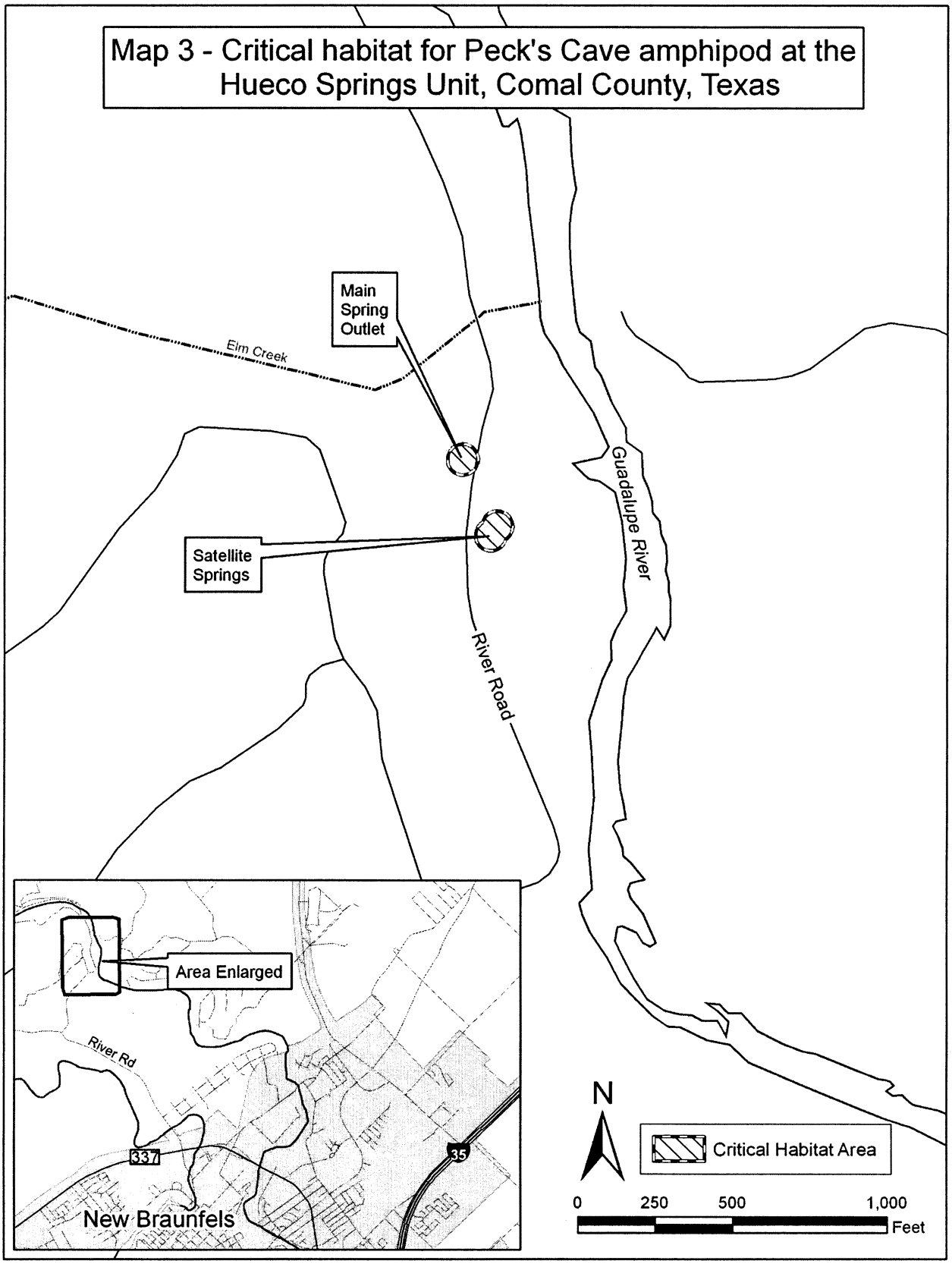
(ii) Aquatic habitat areas bounded by the UTM Zone 14 NAD 83 coordinates (meters E, meters N): 583132, 3292420; 583133, 3292421; 583133, 3292421; 583133, 3292422; 583134, 3292423; 583134, 3292424; 583134, 3292425; 583135, 3292426; 583136, 3292426; 583136, 3292427; 583137, 3292428; 583138, 3292428; 583138, 3292429; 583139, 3292430; 583140, 3292430; 583141, 3292430; 583142, 3292431; 583143, 3292431; 583143, 3292431; 583144, 3292432; 583145, 3292432; 583146, 3292432; 583147, 3292432; 583148, 3292432; 583149, 3292432; 583150, 3292432; 583151, 3292432; 583152, 3292431; 583153, 3292431; 583154, 3292431; 583155, 3292430; 583155, 3292430; 583156, 3292429; 583157, 3292429; 583158, 3292428; 583158, 3292427; 583159, 3292427; 583160, 3292426; 583160, 3292425; 583161, 3292424; 583161, 3292423; 583162, 3292422; 583162, 3292422; 583162, 3292421; 583162, 3292420; 583163, 3292419; 583163, 3292418; 583163, 3292417; 583163, 3292416; 583163, 3292415; 583162, 3292414; 583162, 3292413; 583162, 3292412; 583162, 3292411; 583161, 3292410; 583161, 3292409; 583160, 3292409; 583160, 3292408; 583159, 3292407; 583159, 3292406; 583158, 3292406; 583157, 3292405; 583156, 3292404; 583156, 3292404; 583156, 3292403; 583155, 3292402; 583155, 3292402; 583155, 3292401; 583154, 3292400; 583154, 3292399; 583153, 3292398; 583152, 3292398; 583152, 3292397; 583151, 3292396; 583150, 3292396; 583149, 3292395; 583149, 3292395; 583148, 3292394; 583147, 3292394; 583146, 3292393; 583145, 3292393; 583144, 3292393; 583143, 3292393; 583142, 3292393; 583141, 3292393; 583140, 3292393; 583139, 3292393; 583138, 3292393; 583137, 3292393; 583137, 3292393; 583136, 3292394; 583135, 3292394; 583134, 3292395; 583133, 3292395; 583132, 3292396; 583132, 3292396; 583131, 3292397; 583130, 3292397; 583129, 3292398; 583129, 3292399; 583128, 3292400; 583128, 3292400; 583127, 3292401; 583127, 3292402; 583127, 3292403; 583126, 3292404; 583126, 3292405; 583126, 3292406; 583126, 3292407; 583126, 3292408; 583126, 3292409; 583126, 3292410; 583126, 3292411; 583126, 3292412; 583127, 3292413; 583127, 3292413; 583127, 3292414; 583128, 3292415; 583128, 3292416; 583129, 3292417; 583129, 3292418; 583130, 3292418; 583131, 3292419; 583131, 3292420; 583132, 3292420.

(iii) Note: Hueco Springs Unit (Map 3) follows:



* * * * *

(i) *Insects.*

* * * * *

Comal Springs dryopid beetle (*Stygoparnus comalensis*).

(1) Critical habitat units are depicted for Comal and Hays Counties, Texas, on the maps below.

(2) The primary constituent elements of critical habitat for the Comal Springs dryopid beetle are:

(i) High-quality water with no or minimal levels of pollutants, such as soaps and detergents (Brown 1987, p. 261) and other compounds containing surfactants, heavy metals, pesticides, fertilizer nutrients, petroleum hydrocarbons, pharmaceuticals and veterinary medicines, and semi-volatile compounds, such as industrial cleaning agents, and including:

(A) Low salinity with total dissolved solids that generally range from 307 to 368 mg/L; and

(B) Low turbidity that generally is less than 5 nephelometric turbidity units;

(ii) Aquifer water temperatures that range from approximately 68 to 75 °F (20 to 24 °C);

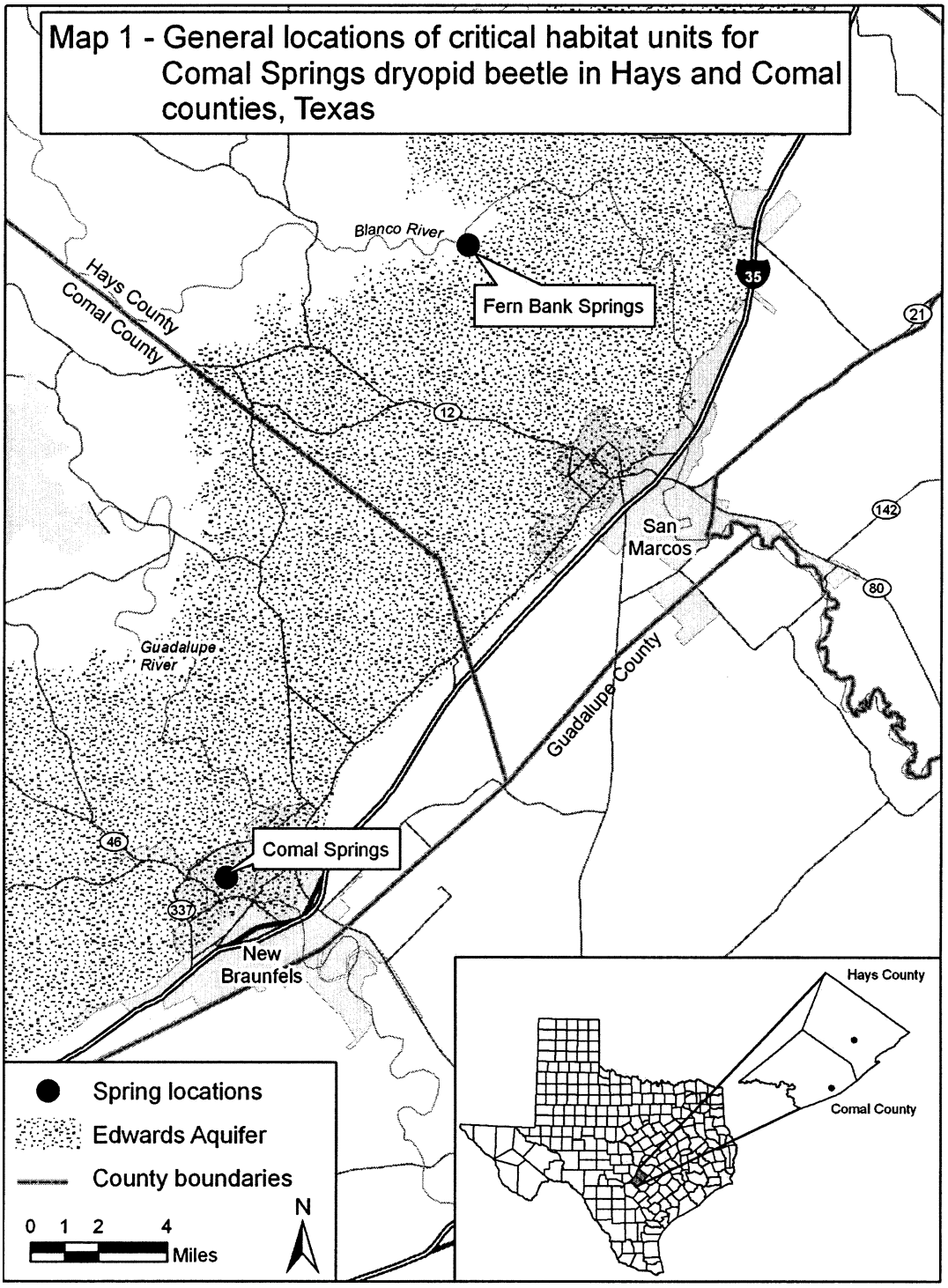
(iii) A hydrologic regime that allows for adequate spring flows that provide levels of dissolved oxygen in the approximate range of 4.0 to 10.0 mg/L for respiration of the Comal Springs dryopid beetle; and

(iv) Food supply that includes detritus (decomposed materials), leaf litter, living plant material, algae, fungi, bacteria and other microorganisms, and decaying roots.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, roads, and other paved areas) and the land on which they are located existing with the legal boundaries on the effective date of this rule. Where lakes are designated, critical habitat is only designated for areas where springs occur and does not include areas of the lake bottom beyond a radius of 50 ft (15.2 m) from the spring outlet.

(4) *Critical habitat map units.* Data layers defining map units were created by using ArcGIS. All coordinates are UTM zone 14 coordinate pairs, referenced to North American Horizontal Datum 1983. Coordinates were derived from 2004 digital orthophotographs. All acreage and mileage calculations were performed using GIS.

(5) Note: Index map of the critical habitat units for Comal Springs dryopid beetle (Map 1) follows:



(6) Comal Springs Unit, Comal County, Texas.

(i) Aquatic habitat areas bounded by the UTM Zone 14 NAD 83 coordinates (meters E, meters N): 583387, 3287251; 583392, 3287264; 583405, 3287280; 583404, 3287290; 583407, 3287301; 583414, 3287307; 583425, 3287308; 583425, 3287320; 583433, 3287328; 583444, 3287330; 583454, 3287325; 583463, 3287301; 583482, 3287272; 583486, 3287286; 583501, 3287296; 583520, 3287314; 583547, 3287326; 583557, 3287333; 583572, 3287335; 583586, 3287342; 583567, 3287387; 583560, 3287408; 583559, 3287423; 583534, 3287403; 583499, 3287359; 583491, 3287347; 583484, 3287340; 583471, 3287334; 583461, 3287334; 583452, 3287340; 583450, 3287350; 583454, 3287364; 583465, 3287374; 583494, 3287415; 583521, 3287443; 583526, 3287453; 583563, 3287477; 583589, 3287503; 583613, 3287519; 583643, 3287547; 583662, 3287561; 583719, 3287617; 583759, 3287669; 583780, 3287701; 583811, 3287743; 583833, 3287764; 583848, 3287784; 583892, 3287826; 583911, 3287850; 583970, 3287907; 584008, 3287938; 584047, 3287963; 584055, 3287964; 584065, 3287960; 584073, 3287948; 584074, 3287941; 584081, 3287952;

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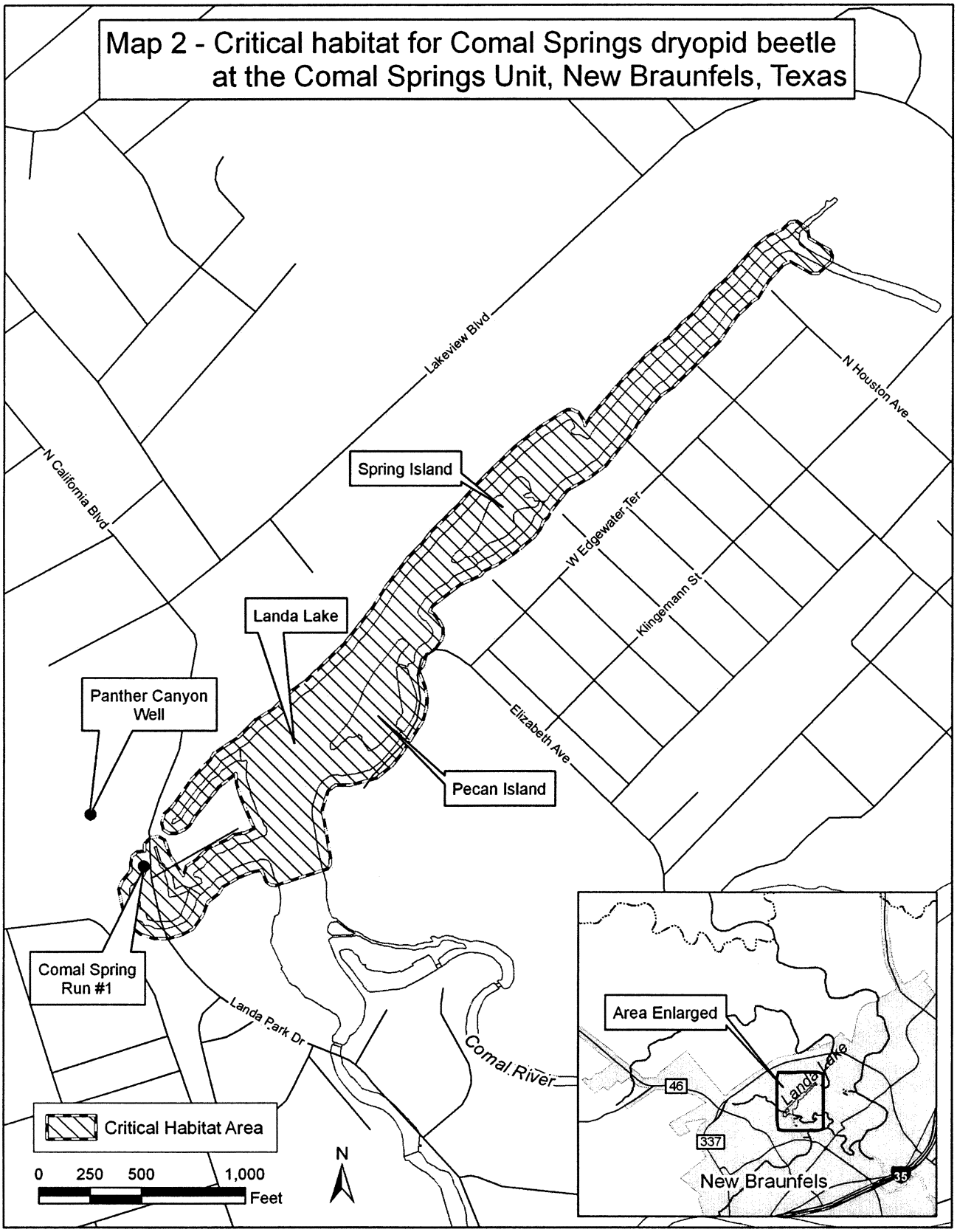
(ii) Note: Comal Springs Unit (Map 2) follows:



(7) Fern Bank Springs Unit, Hays County, Texas.

(i) Aquatic habitat areas bounded by the UTM Zone 14 NAD 83 coordinates (meters E, meters N): 595131, 3317374; 595131, 3317375; 595132, 3317376; 595132, 3317377; 595132, 3317378; 595132, 3317379; 595133, 3317380; 595133, 3317381; 595133, 3317382; 595134, 3317383; 595135, 3317383; 595135, 3317384; 595136, 3317385; 595137, 3317386; 595137, 3317386;

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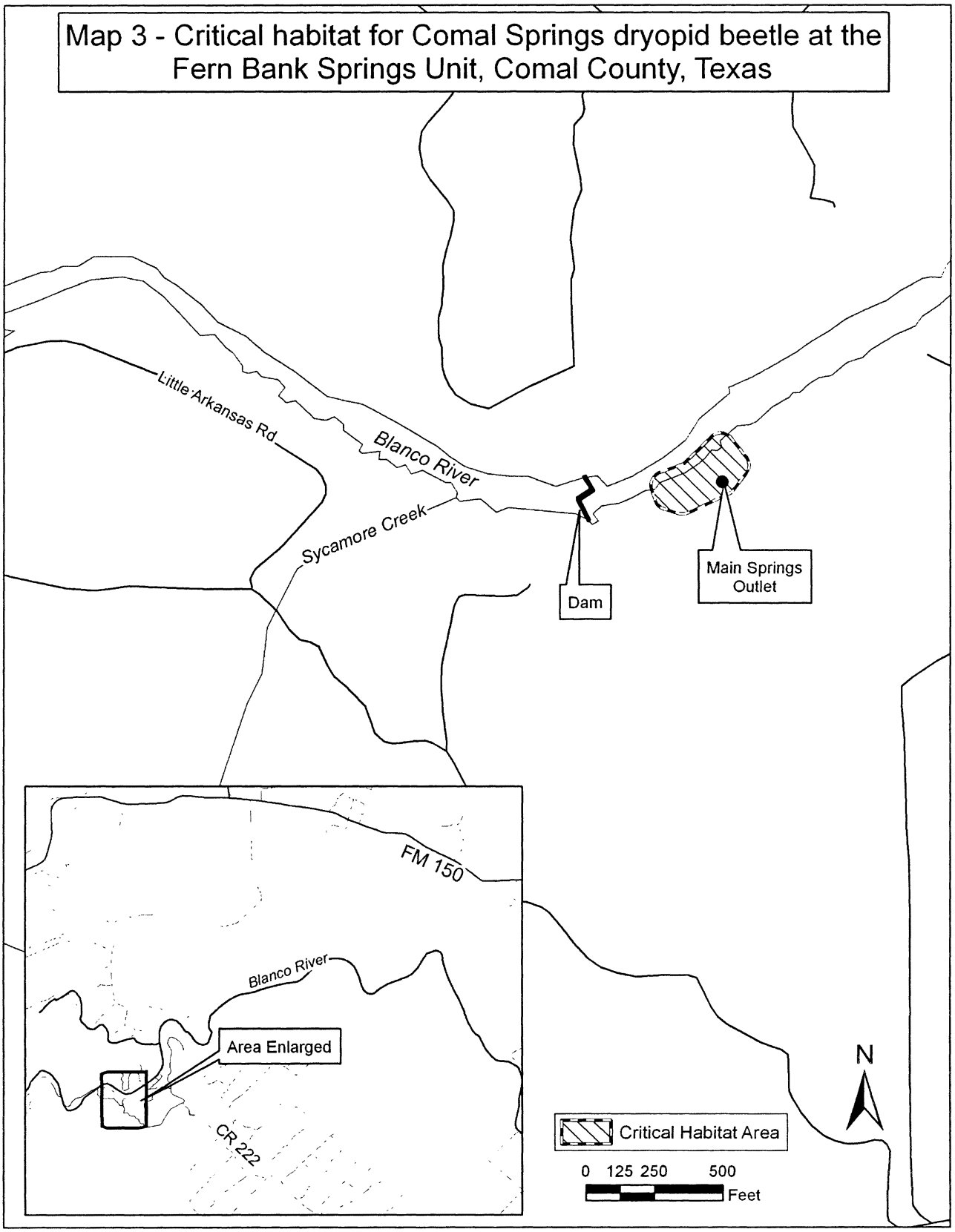
(ii) Note: Fern Bank Springs Unit (Map 3) follows:



* * * * *

Comal Springs riffle beetle (*Heterelmis comalensis*).

(1) Critical habitat units are depicted for Comal and Hays Counties, Texas, on the maps below.

(2) The primary constituent elements of critical habitat for Comal Springs riffle beetle are:

(i) High-quality water with no or minimal levels of pollutants, such as soaps and detergents (Brown 1987, p. 261) and other compounds containing surfactants, heavy metals, pesticides, fertilizer nutrients, petroleum hydrocarbons, pharmaceuticals and veterinary medicines, and semi-volatile compounds, such as industrial cleaning agents, and including:

(A) Low salinity with total dissolved solids that generally range from 307 to 368 mg/L; and

(B) Low turbidity that generally is less than 5 nephelometric turbidity units;

(ii) Aquifer water temperatures that range from approximately 68 to 75 °F (20 to 24 °C);

(iii) A hydrologic regime that allows for adequate spring flows that provide levels of dissolved oxygen in the approximate range of 4.0 to 10.0 mg/L for respiration of the Comal Springs riffle beetle;

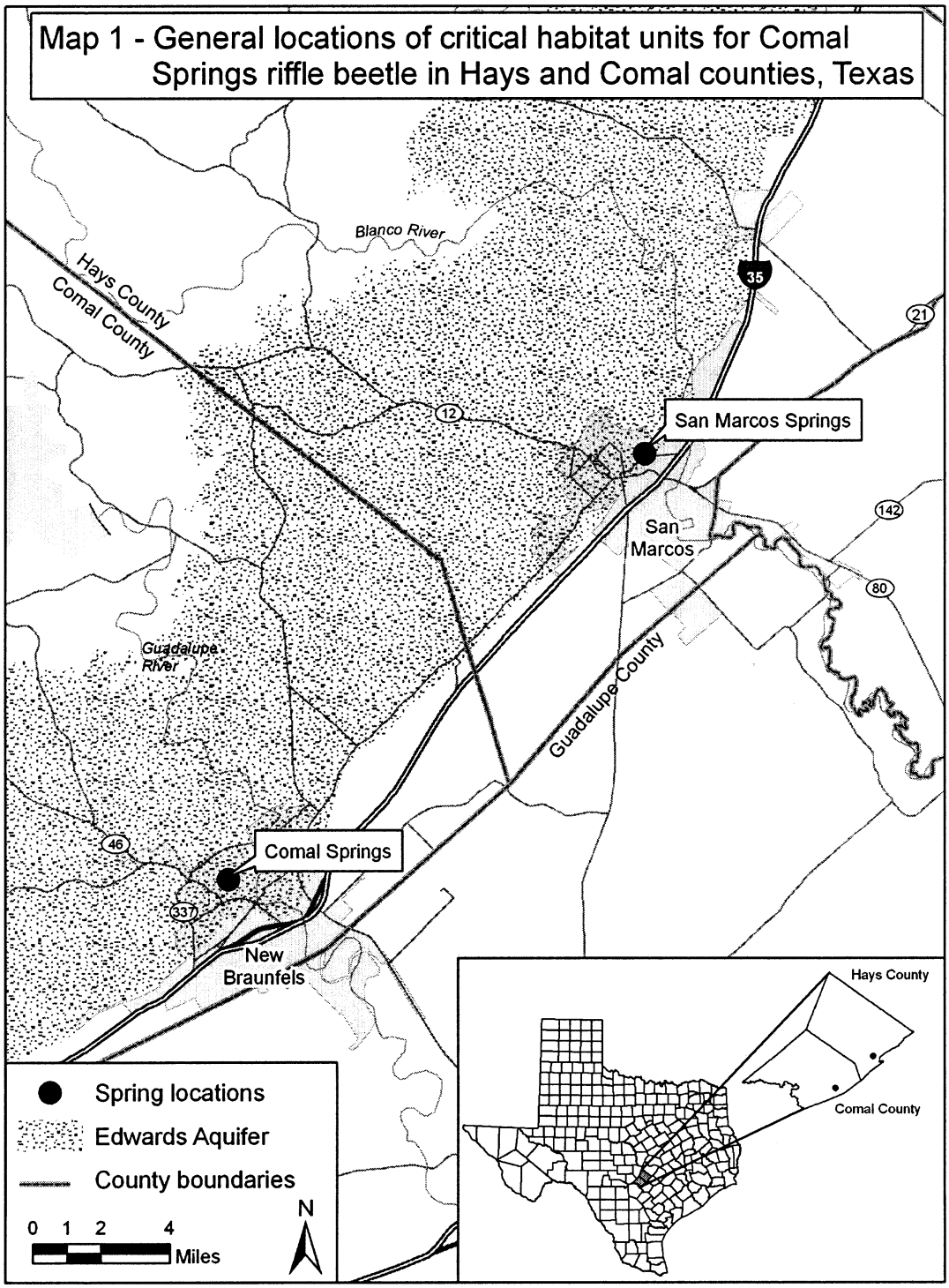
(iv) Food supply that includes detritus (decomposed materials), leaf litter, living plant material, algae, fungi, bacteria and other microorganisms, and decaying roots; and

(v) Bottom substrate in surface water habitat of the Comal Springs riffle beetle that is free of sand and silt, and is composed of gravel and cobble ranging in size from 0.3 to 5.0 inches (8 to 128 millimeters).

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) *Critical habitat map units.* Data layers defining map units were created by using ArcGIS. All coordinates are UTM zone 14 coordinate pairs, referenced to North American Horizontal Datum 1983. Coordinates were derived from 2004 digital orthophotographs. All acreage and mileage calculations were performed using GIS.

(5) Note: Index map of the critical habitat units for Comal Springs riffle beetle (Map 1) follows:



(6) Comal Springs Unit, Comal County, Texas.

(i) Aquatic habitat areas bounded by the UTM Zone 14 NAD 83 coordinates (meters E, meters N): 583420, 3287293; 583423, 3287293; 583426, 3287293; 583428, 3287290; 583429, 3287285; 583428, 3287280; 583426, 3287273; 583422, 3287268; 583416, 3287259; 583415, 3287255; 583415, 3287249; 583417, 3287238; 583418, 3287233; 583419, 3287228; 583418, 3287222; 583421, 3287221; 583427, 3287216; 583429, 3287207; 583435, 3287204; 583442, 3287203; 583455, 3287203; 583464, 3287203; 583468, 3287205; 583475, 3287209; 583479, 3287213; 583479, 3287217; 583483, 3287224; 583486, 3287232; 583490, 3287246; 583491, 3287248; 583485, 3287247; 583481, 3287245; 583476, 3287243; 583471, 3287241; 583461, 3287239; 583460, 3287242; 583460, 3287248; 583459, 3287255; 583459, 3287261; 583458, 3287266; 583455, 3287272; 583455, 3287277; 583452, 3287282; 583449, 3287284; 583446, 3287288; 583445, 3287295; 583441, 3287307; 583439, 3287314; 583443, 3287315; 583444, 3287309; 583446, 3287303; 583449, 3287293; 583450, 3287291; 583453, 3287288; 583457, 3287284; 583461, 3287278; 583466, 3287271; 583468, 3287263; 583469, 3287255; 583470, 3287251; 583480, 3287257; 583484, 3287256; 583488, 3287254;

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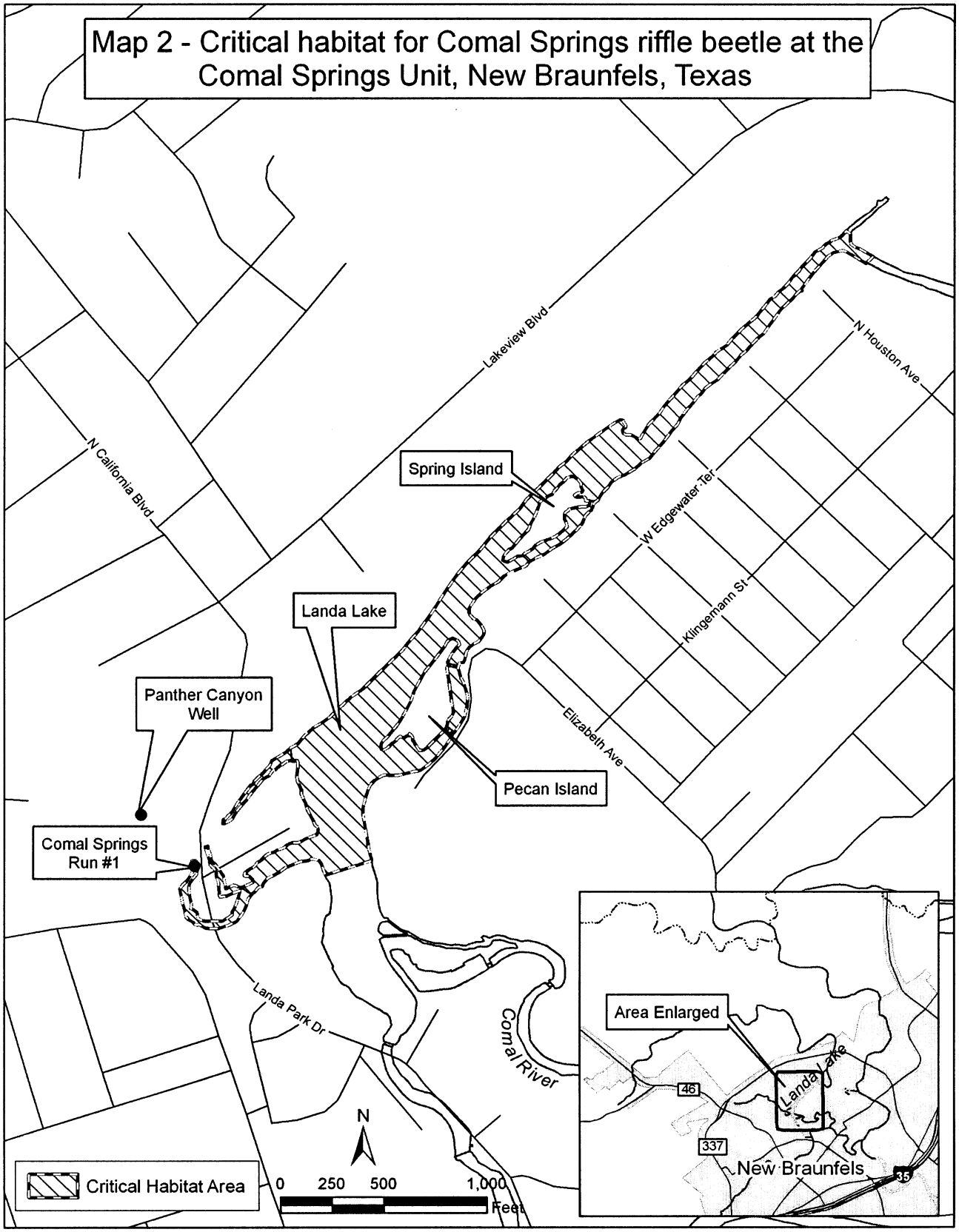
(ii) Note: Comal Springs Unit (Map 2) follows:

BILLING CODE 4310–55–P



(7) San Marcos Springs Unit, Hays County, Texas.

(i) Aquatic habitat areas bounded by the UTM Zone 14 NAD 83 coordinates (meters E, meters N): 602869, 3307092; 602870, 3307100; 602877, 3307131; 602892, 3307172; 602926, 3307215; 602936, 3307229; 602942, 3307237; 602945, 3307243; 602957, 3307286; 603007, 3307329; 603072, 3307386; 603154, 3307462; 603158, 3307463; 603166, 3307466; 603175, 3307465;

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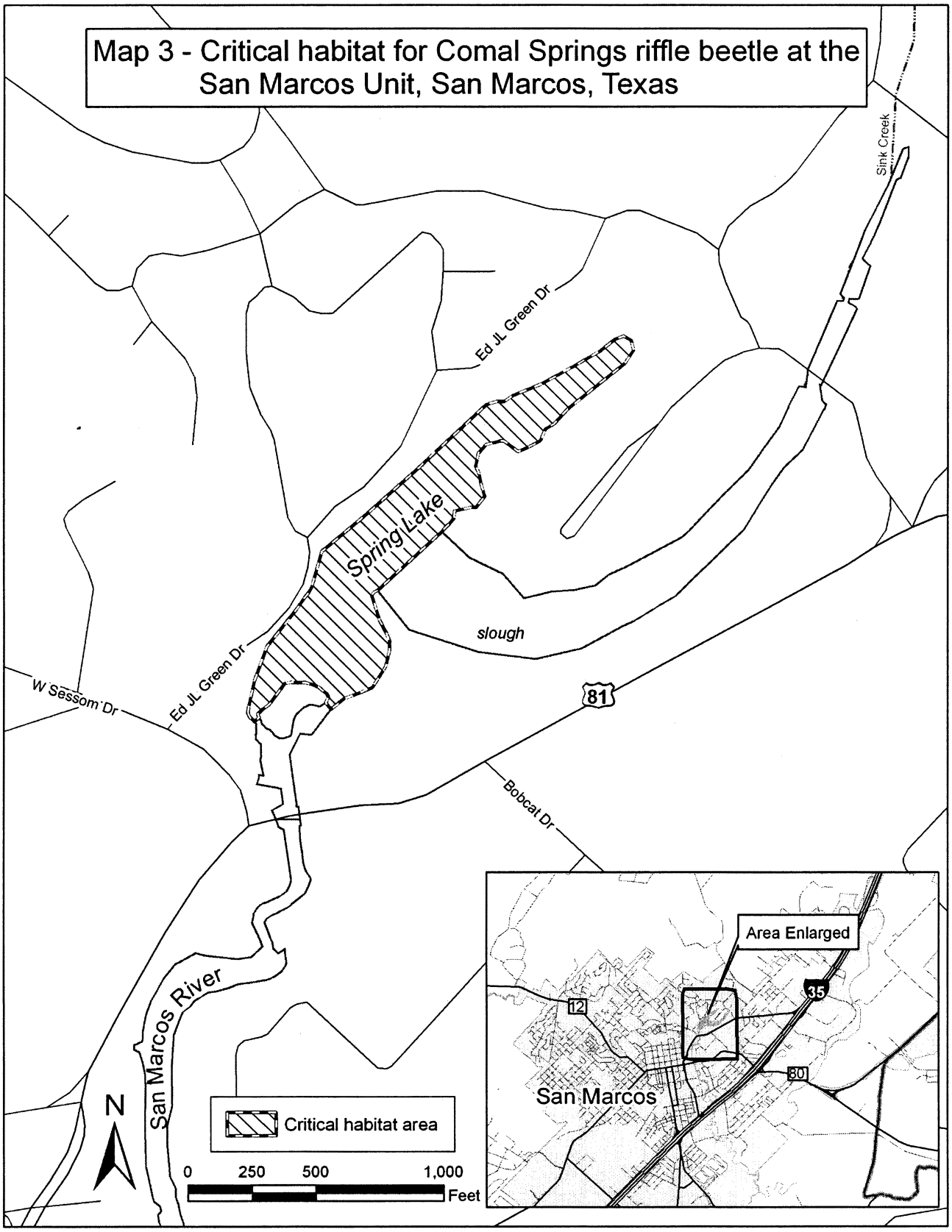
(ii) Note: San Marcos Springs Unit (Map 3) follows:


Map 3 - Critical habitat for Comal Springs riffle beetle at the San Marcos Unit, San Marcos, Texas
Sink Creek
Ed JL Green Dr
Spring Lake
slough
W Sessom Dr
Ed JL Green Dr
81
Bobcat Dr
San Marcos River
N
Critical habitat area
0
250
500
1,000
Feet
Area Enlarged
12
35
80
San Marcos

* * * * *

Dated: June 28, 2007.

David M. Verhey,

Acting Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 07–3267 Filed 7–16–07; 8:45 am]

BILLING CODE 4310–55–C