DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AI68

Endangered and Threatened Wildlife and Plants; Listing of the Central California Distinct Population Segment of the California Tiger Salamander; Reclassification of the Sonoma County and Santa Barbara County Distinct Populations From Endangered to Threatened; Special Rule

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule and notice of public hearing.

SUMMARY: We, the Fish and Wildlife Service (Service), propose threatened status for the Central California distinct population segment (DPS) of the California tiger salamander (*Ambystoma californiense*), pursuant to the Endangered Species Act of 1973, as amended (Act). The Santa Barbara County and Sonoma County DPSs are listed as endangered. We propose reclassifying these populations as threatened. This proposal, if made final, would extend the Federal protection and recovery provisions of the Act to the Central California DPS of this species.

A special rule is also being proposed to exempt existing routine ranching activities from the prohibitions of the Act because these practices have neutral or beneficial effects on the California tiger salamander. We solicit additional data and information that may assist us in making a final decision on this proposed action.

DATES: *Comments:* We must receive comments from all interested parties by 5 p.m. on July 22, 2003.

Public Hearings: We will hold public hearings at the following times:

(1) Tuesday, June 17, 2003—Livermore, California. Two sessions, 1 p.m. until 3 p.m. and 6 p.m. until 8 p.m. Registration will begin at 12:30 p.m. for the afternoon session and at 5:30 p.m. for the evening session.

(2) Wednesday, June 18, 2003—Monterey, California. Two sessions, 1 p.m. until 3 p.m. and 6 p.m. until 8 p.m. Registration will begin at 12:30 p.m. for the afternoon session and at 5:30 p.m. for the evening session.

(3) Thursday, June 19, 2003—Merced, California. Two sessions, 1 p.m. until 3 p.m. and 6 p.m. until 8 p.m. Registration will begin at 12:30 p.m. for the afternoon session and at 5:30 p.m. for the evening session.

Public informational meetings also will be held in California in various locations, with sites and dates publicized through local news media. See **ADDRESSES** section for specific location information of the hearings identified above and *see* ''Public Hearings'' under **SUPPLEMENTARY INFORMATION** for general information.

ADDRESSES: *Comments:* If you wish to comment, you may submit your comments and materials concerning this proposal by any of several methods:

(1) You may submit written comments to the Field Supervisor (Attn: CTS), U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Suite W–2605, Sacramento, CA 95825.

(2) You may send comments by electronic mail (e-mail) to: *catiger@R1.fws.gov*. See the ''Public Comments Solicited'' section below for file format and other information on electronic filing.

(3) You may hand-deliver comments to our Sacramento Fish and Wildlife Office at the address above.

Public Hearings: We will hold public hearings at the following locations:

(1) Hilton Garden Inn, Vineyard Room, 2801 Constitution Drive, Livermore, California.

(2) Hyatt Regency Monterey, Pebble Room, 1 Old Golf Course Rd., Monterey, California.

(3) Fish and Game Building at Lake Yosemite, 5714 North Lake Road, Merced, California.

See the **DATES** section for the specific times these hearings will be held.

FOR FURTHER INFORMATION CONTACT: Sacramento Fish and Wildlife Office, at the address listed above (telephone 916/414–6600; facsimile 916/414–6713).

SUPPLEMENTARY INFORMATION:

Previous Federal Action

On September 18, 1985, we published the Vertebrate Notice of Review (NOR) (50 FR 37958), which included the California tiger salamander as a category 2 candidate species for possible future listing as threatened or endangered. Category 2 candidates were those taxa for which information contained in our files indicated that listing may be appropriate but for which additional data were needed to support a listing proposal. The January 6, 1989, and November 21, 1991, NORs (54 FR 554 and 56 FR 58804, respectively) also included the California tiger salamander as a category 2 candidate and solicited information on the status of the species.

On February 21, 1992, we received a petition to list the California tiger salamander as an endangered species from Dr. H. Bradley Shaffer at University of California, Davis. We published a 90-day petition finding on November 19, 1992 (57 FR 54545), concluding that the petition presented substantial information indicating that listing may be warranted. On April 18, 1994, we published a 12-month petition finding (59 FR 18353) that the listing of the California tiger salamander was warranted but precluded by higher priority listing actions. We elevated the species to category 1 status at that time, which was reflected in the November 15, 1994, NOR (59 FR 58982). Category 1 candidates were those taxa for which we had on file sufficient information on biological vulnerability and threats to support preparation of listing proposals.

We discontinued the use of different categories of candidates in the February 28, 1996, NOR (61 FR 7596), and defined ''candidate species'' as those meeting the definition of former category 1. We maintained the California tiger salamander as a candidate species in that NOR, as well as in subsequent NORs published September 19, 1997 (62 FR 49398), October 25, 1999 (64 FR 57533), and October 30, 2001 (66 FR 54808).

On January 19, 2000, we published an emergency rule to list the Santa Barbara County DPS of the California tiger salamander as endangered (65 FR 3096), concurrently with a proposed rule (65 FR 3110) to list the same DPS as endangered. On September 21, 2000, we listed the Santa Barbara County DPS of the California tiger salamander as endangered (65 FR 57242).

On June 12, 2001, we received a petition dated June 11, 2001, from the Center for Biological Diversity (CBD) and Citizens for a Sustainable Cotati to emergency-list the Sonoma County DPS of the California tiger salamander as an endangered species and to designate critical habitat. On February 27, 2002, the CBD filed a complaint in the Northern District of California for our failure to list the Sonoma County DPS of the California tiger salamander as endangered (*Center for Biological Diversity* v. *U.S. Fish and Wildlife Service* (Case No. C–02–0558)). On June 6, 2002, based on a settlement agreement with the CBD, the court issued an order requiring us to submit for **Federal Register** publication a proposal and/or emergency rule to list the Sonoma County DPS by July 15, 2002. We were also to submit for publication in the **Federal Register** a proposal to list the California tiger salamander throughout the remainder of its range (except for the Santa Barbara County and Sonoma County DPSs) on or before May 15, 2003, and to publish a

final rule on or before May 15, 2004. On July 22, 2002, the Sonoma County DPS was listed as an endangered species under an emergency basis and proposed for listing as endangered (67 FR 47726; 67 FR 47758). The final rule listing the Sonoma County DPS as endangered was published in the **Federal Register** on March 19, 2003 (68 FR 13498). This proposed rule to list the Central California tiger salamander complies with the June 6, 2002, settlement agreement.

Background

The California tiger salamander was first described as *Ambystoma californiense* by Gray in 1853 based on specimens that had been collected in Monterey, California (Grinnell and Camp 1917). Storer (1925) and Bishop (1943) also considered the California tiger salamander to be a distinct species. Dunn (1940), Gehlbach (1967), and Frost (1985) stated the California tiger salamander was a subspecies of the more widespread tiger salamander (*A. tigrinum*). However, based on recent studies of the genetics, geographic distribution, and ecological differences among the members of the *A. tigrinum* complex, the California tiger salamander is now considered to be a distinct species (Shaffer and Stanley 1991; Jones 1993; Shaffer *et al.* 1993; Shaffer and McKnight 1996; Irschick and Shaffer 1997; Petranka 1998). The range of this animal does not naturally overlap with any other species of tiger salamander (Stebbins 1985; Petranka 1998).

The California tiger salamander is a large and stocky terrestrial salamander with small eyes and a broad, rounded snout. Adults may reach a total length of 208 millimeters (mm) (8.2 inches (in)), with males generally averaging about 203 mm (8 in) in total length, and females averaging about 173 mm (6.8 in) in total length. For both sexes, the average snout-vent length is approximately 91 mm (3.6 in). The small eyes have black irises and protrude from the head. Coloration consists of white or pale yellow spots or bars on a black background on the back and sides. The belly varies from almost uniform white or pale yellow to a variegated pattern of white or pale yellow and black. Males can be distinguished from females, especially during the breeding season, by their swollen cloacae (a common chamber into which the intestinal, urinary, and reproductive canals discharge), more-developed tail fins, and larger overall size (Stebbins 1962; Loredo and Van Vuren 1996).

California tiger salamanders are restricted to vernal pools and seasonal ponds in grassland and oak savannah plant communities from sea level to about 460 meters (m) (1,500 feet (ft)) (Stebbins 1989; Shaffer *et al.* 1993; Jennings and Hayes 1994; Petranka 1998; California Natural Diversity Data Base (CNDDB) 2002). Along the coast ranges, the species occurs in the Santa Rosa area of Sonoma County, southern San Mateo County south to central San Luis Obispo County, and the vicinity of northwestern Santa Barbara County. In the Central Valley and surrounding Sierra Nevada foothills, the species occurs from northern Yolo County (Dunnigan) southward to northwestern Kern County and northern Tulare County. A population of salamanders at Grass Lake in Siskiyou County (Mullen and Stebbins 1978) has been identified as the northwestern tiger salamander (*A. t. melanostictum*) (H. Shaffer, University of California, Davis, pers. comm. 1998).

Several gaps exist in the distribution of the California tiger salamander. In the northeastern Sacramento Valley, the species was known from only one site, in southern Butte County on the Gray Lodge Waterfowl Management Area, where it has not been located since 1965 despite subsequent surveys (Stebbins 1989; Shaffer *et al.* 1993). Although the area between Sacramento and the Cosumnes River contains suitable vernal pools, and has been surveyed extensively, the species has only been recorded along the southern edge of Sacramento County (CNDDB 2002). In a survey transect that extended along the west side of the Sacramento Valley from Shasta County to Solano County, and contained 35 kilometers (km) (22 miles (mi)) of vernal pool habitat and over 200 pools, California tiger salamanders were recorded only at the Jepson Prairie in Solano County (Simovich *et al.* 1993). The animal has not been found west of Interstate Highway 680 and north of Interstate Highway 580 in Contra Costa or Alameda Counties (LSA Associates, Inc. 2001; CNDDB 2002). It is likely that the species is uncommon or absent in much of the southernmost San Joaquin Valley from approximately Los Banos in Merced County south, and the foothills of the Sierra Nevada south of Visalia in Tulare County, because of unsuitable habitat (Shaffer *et al.* 1993). The factors that may restrict the California tiger salamander in the northern and southern extent of its range are speculative (H. Shaffer, pers. comm. 2002), but may include low rainfall in the southern San Joaquin Valley and the greater abundance of nonnative predatory fish in the northern Sacramento Valley (Hayes 1977). Jones (1989) suggests that the present pattern of disjunct and widely dispersed populations was caused by the extreme anthropogenic changes in and around the Central Valley, and by the restrictive breeding requirements of the species.

Studies of mitochondrial DNA (mtDNA) indicate that there are six populations of *A. californiense,* which are found in Sonoma County, Santa Barbara County, the Bay Area (central and southern Alameda, Santa Clara, western Stanislaus, western Merced, and the majority of San Benito Counties), Central Valley (Yolo, Sacramento, Solano, eastern Contra Costa, northeast Alameda, San Joaquin, Stanislaus, Merced, and northwestern Madera Counties), southern San Joaquin Valley (portions of Madera, central Fresno, and northern Tulare and Kings Counties), and the Central Coast Range (southern Santa Cruz, Monterey, northern San Luis Obispo, and portions of western San Benito, Fresno, and Kern Counties) (Shaffer and Trenham 2002). Except for the Sonoma County and Santa Barbara County populations, the geographic barriers between some of these populations are not entirely clear. The Central California DPS of the California tiger salamander (Central California tiger salamander) occupies the Bay Area, Central Valley, southern San Joaquin Valley, and the Central Coast Range.

Subadult and adult California tiger salamanders spend the dry summer and fall months of the year estivating (existing in a state of dormancy or inactivity in response to hot, dry weather) in the burrows of small mammals, such as California ground squirrels (*Spermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*) (Storer 1925; Loredo and Van Vuren 1996; Petranka 1998; Trenham 1998a). During estivation, California tiger salamanders eat very little (Shaffer *et al.* 1993). Once fall or winter rains begin, they emerge from the upland sites on rainy nights to feed and to migrate to the breeding ponds (Stebbins 1985, 1989; Shaffer *et al.* 1993).

California tiger salamanders spend the vast majority of their lives in upland habitats, and cannot persist without it. The upland component of California tiger salamander habitat typically consists of grassland savannah with scattered oak trees. However, in Santa Barbara County, some California tiger salamander breeding ponds exist within mixed grassland and woodland habitats, and a few ponds are found in woodlands, scrub, or chaparral habitats. Salamanders settle most commonly in burrows in open grassland or under isolated oaks, and less commonly in oak woodlands.

The salamanders breeding in, and living around, a seasonal pool or pools, and associated uplands where estivation can occur, are said to occupy a breeding site. A breeding site is defined as a location where the animals are able to successfully breed in years of ''normal'' rainfall and complete their estivation. Historically, California tiger salamanders utilized vernal pools, but the species will also breed in stockponds.

Occurrence of California tiger salamanders is significantly associated with occurrence of California ground squirrels (Seymour and Westphal 1994). Active ground burrowing rodent colonies probably are required to sustain California tiger salamanders because inactive burrow systems become progressively unsuitable over time. Loredo *et al.* (1996) found that California ground squirrel burrow systems collapsed within 18 months following abandonment by, or loss of, the mammals. Although California tiger salamanders use both occupied and unoccupied burrows, they apparently do not use collapsed burrows.

Adult California tiger salamanders may migrate up to 1.6 km (1 mi) from their upland sites to the breeding ponds (S. Sweet, University of California, Santa Barbara, *in litt.* 1998), which may be vernal pools, stockponds, or other seasonal water bodies. The distance between the upland sites and breeding pools depends on local topography and vegetation, and the distribution of California ground squirrel or other rodent burrows (Stebbins 1989). Males migrate to the breeding ponds before females (Twitty 1941; Shaffer, *et al.* 1993; Loredo and Van Vuren 1996; Trenham 1998b). Males usually remain in the ponds for an average of about 6 to 8 weeks, while females stay for approximately 1 to 2 weeks. In dry years, both sexes may stay for shorter periods (Loredo and Van Vuren 1996; Trenham 1998b). Most marked salamanders have been recaptured at the pond where they were initially captured; in one study, approximately 80 percent were recaptured at the same pond (Trenham 1998b). The rate of natural movement of salamanders among breeding sites depends on the distance between the ponds or complexes of ponds and on the quality of intervening habitat (*e.g.*, salamanders may move more quickly through sparsely covered and open grassland than they can through densely vegetated lands) (Trenham 1998a). As with migration distances, the number of ponds used by an individual over its lifetime depends on landscape features and environmental factors.

The adults mate in the ponds and the females lay their eggs in the water (Twitty 1941; Shaffer *et al.* 1993; Petranka 1998). Females attach their eggs singly or, in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris (Storer 1925; Twitty 1941). In ponds with no or limited vegetation, females may attach eggs to objects, such as rocks and boards on the bottom (Jennings and Hayes 1994). After breeding, adults leave the pool and return to the small mammal burrows (Loredo *et al.* 1996; Trenham 1998a), although they may continue to come out nightly for approximately the next 2 weeks to feed (Shaffer *et al.* 1993). In drought years, the seasonal pools may not form and the adults cannot breed (Barry and Shaffer 1994).

Salamander eggs hatch in 10 to 14 days with newly hatched salamanders (larvae) ranging in size from 11.5 to 14.2 mm (0.45 to 0.55 in) in total length (Petranka 1998). The larvae are aquatic. Each is yellowish gray in color and has a broad fat head, large, feathery external gills, and broad dorsal fins that extend well onto its back. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about 6 weeks after hatching, after which they switch to larger prey (J. Anderson 1968). Larger larvae have been known to consume smaller tadpoles of Pacific treefrogs (*Pseudacris regilla*) and California red-legged frogs (*Rana aurora*) (J. Anderson 1968; P. Anderson 1968). The larvae are among the top aquatic predators in the seasonal pool ecosystems. They often rest on the bottom in shallow water, but also may be found at different layers in the water column in deeper water. The young salamanders are wary; when approached by potential predators, they will dart into vegetation on the bottom of the pool (Storer 1925).

The larval stage of the California tiger salamander usually lasts 3 to 6 months, because most seasonal ponds and pools dry up during the summer (Petranka 1998). Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Individuals collected near Stockton in the Central Valley during April varied from 47 to 58 mm (1.85 to 2.3 in) in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left the breeding pools 60 to 94 days after the eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. The longer the ponding duration, the larger the larvae and metamorphosed juveniles are able to grow, and the more likely they are to survive and reproduce (Semlitsch *et al.* 1988; Pechmann *et al.* 1989; Morey 1998; Trenham 1998b). The larvae perish if a site dries before they complete metamorphosis (P. Anderson 1968; Feaver 1971). Pechmann *et al.* (1989) found a strong positive correlation between ponding duration and total number of metamorphosing juveniles in 5 salamander species. In Madera County, Feaver (1971) found that only 11 of 30 pools sampled supported larval California tiger salamanders, and 5 of these dried before metamorphosis could occur. Therefore, out of the original 30 pools, only 6 (20 percent) provided suitable conditions for successful reproduction that year. Size at metamorphosis is positively correlated with stored body fat and survival of juvenile amphibians, and negatively correlated with age at first reproduction (Semlitsch *et al.* 1988; Scott 1994; Morey 1998).

The metamorphosed juveniles leave their ponds in the late spring or early summer. Before the pools dry completely, they settle in small mammal burrows, to which they return at the end of nightly movements (Zeiner *et al.* 1988; Shaffer *et al.* 1993; Loredo *et al.* 1996). Like the adults, juveniles may emerge from these retreats to feed during nights of high relative humidity (Storer 1925; Shaffer *et al.* 1993) before settling in their selected upland sites for the dry, hot summer months. Juveniles have been observed to migrate up to 1.6 km (1 mi) from breeding pools to upland areas (Austin and Shaffer 1992).

An estimated 83 percent of the salamanders rely on rodent burrows for shelter (Petranka 1998). Mortality of juveniles during their first summer exceeds 50 percent (Trenham 1998b). Emergence from upland estivation sites in hot, dry weather occasionally results in mass mortality of juveniles (Holland *et al.* 1990). Juveniles do not typically return to the breeding pools until they reach sexual maturity, at several years of age (Trenham 1998b; Hunt 1998). Trenham (1998b) estimated survival from metamorphosis to maturity at his study site to be less than 5 percent (well below an estimated replacement level of 18 percent). Adult survivorship varies greatly between years, but is a crucial determinant of whether a population is a source or sink (*i.e.*, whether net productivity exceeds the level necessary to maintain the population or it does not).

Lifetime reproductive success for California and other tiger salamanders is low. Trenham *et al.* (2000) found the average female bred 1.4 times and produced 8.5 young that survived to metamorphosis per reproductive effort. This resulted in roughly 11

metamorphic offspring over the lifetime of a female. Preliminary data suggest that most California tiger salamander individuals require 2 years to become sexually mature. But some individuals may be slower to mature (Shaffer *et al.* 1993), and some animals do not breed until they are 4 to 6 years old. While individuals may survive for more than 10 years, many breed only once, and in some populations, less than 5 percent of marked juveniles survive to become breeding adults (Trenham 1998b). With such low recruitment, isolated populations can decline greatly resulting from unusual, randomly occurring natural events, as well as from human-caused factors that reduce breeding success and individual survival. Factors that repeatedly lower breeding success in isolated pools that are located too far from other pools to allow migrating individuals to replenish the population can quickly extirpate a population.

The life history and ecology of the California tiger salamander make it likely that this population has a metapopulation structure (Hanski and Gilpin 1991). A metapopulation is a set of local populations or breeding sites within an area, where typically migration from one local population or breeding site to other areas containing suitable habitat is possible, but not routine. Dispersal (movement between areas containing suitable habitat) is restricted by inhospitable conditions around and between areas of suitable habitat. Because many of the areas of suitable habitat may be small and support small numbers of salamanders, local extinction may commonly occur. A metapopulation's persistence depends on the combined dynamics of these local extinctions and the subsequent recolonization of these areas through dispersal (Hanski and Gilpin 1991; Hanski 1994; McCullough 1996).

The total number of individual California tiger salamanders is not known. The difficulty of estimating total California tiger salamander population size has been discussed by a number of biologists (Shaffer *et al.* 1993; Jennings and Hayes 1994). However, estimates have been made for a few populations in Monterey (Trenham *et al.* 2000; Barry and Shaffer 1994). Because data on numbers of individual California tiger salamanders are lacking, since they spend much of their lives underground, and because only a portion of the total number of animals migrate to pools to breed each year (Trenham *et al.* 2000), the availability of suitable habitat and documentation of its loss may be an appropriate method for assessing the status of the species.

Vernal pools and other seasonal ponds are the primary breeding areas used by California tiger salamanders (Storer 1925; Feaver 1971; Zeiner *et al.* 1988). The species occurs in 10 of the 17 Californian vernal pool regions defined by Keeler-Wolf *et al.* (1998), including northeastern Sacramento Valley, southeastern Sacramento Valley, Santa Rosa, Solano-Colusa, Livermore, Central Coast, Carrizo, southern Sierra Foothills, Santa Barbara, and San Joaquin Valley. Vernal pools typically form in topographic depressions underlain by an impervious layer (such as claypan, hardpan, or volcanic strata) that prevents downward percolation of water. Vernal pool hydrology is characterized by ponding of water during the late fall, winter, and spring, followed by complete desiccation during the summer dry season (Holland and Jain 1998). Vernal pools support diverse flora and fauna that are adapted to the dramatic seasonal changes in moisture and benefit from the lack of predation by nonnative fish. Thirty other federally or State listed species within the California tiger salamander's range are vernal pool specialists, including 24 plants, 4 crustaceans, and 1 insect (Keeler-Wolf *et al.* 1998). California tiger salamanders, like the listed vernal pool crustaceans, prefer seasonally ponded habitat. However, listed vernal pool crustaceans require only a few weeks of inundation to complete their life cycle (59 FR 48136; September 19, 1994); therefore, pools that support crustacean populations may not hold water long enough to allow successful metamorphosis of California tiger salamander larvae.

In addition to vernal pools and seasonal ponds, California tiger salamanders also use small artificial water bodies for breeding (Stebbins 1985; Zeiner *et al.* 1988; Shaffer *et al.* 1993). Stockponds for cattle (*Bos taurus*), sheep (*Ovies aries*), horses (*Equus caballus*) and other livestock have been, and continue to be, built to supply local water needs, especially in rural grazing lands in coastal and Sierra foothill areas where inexpensive public water or ground water is not available (Bennett 1970). Stockponds, constructed as water sources for livestock, are important habitats for the California tiger salamander throughout its range (H. Shaffer, pers. comm. 2003; P. Trenham, University of California, Davis, pers. comm. 2002). A large population of the California tiger salamander coexists with sheep and horses at the University of California Natural Reserve System's Jepson Prairie in Solano County (P. Trenham, pers. comm. 2002; CNDDB 2002). In some areas, stockponds have largely replaced vernal pools and provide important habitat for the species. For instance, of the 112 California tiger salamander locality records in the Livermore area where the wetland type was identified, 88 percent (98 sites) are located in stockponds (CNDDB 2002).

However, stockponds often are poorer habitat for California tiger salamanders than natural vernal pools. Hydroperiods (amount of time the stockpond contains water) may be so short that larvae cannot metamorphose (*e.g.*, when early drawdown of irrigation ponds occurs), or so long that predatory fish and bullfrogs *R. catesbeiana*) can colonize the pond (Shaffer *et al.* 1993; Seymour and Westphal 1994). Permanent wetlands may occasionally support breeding California tiger salamanders if fish are not present, but extirpation of the salamander population is likely if fish are introduced (Shaffer *et al.* 1993; Seymour and Westphal 1994). Artificial ponds also require ongoing maintenance and are often temporary structures. Natural soil erosion, sometimes increased by pond breaching, stock animal impacts, and off-road vehicle (ORV) use, can cause ponds to silt in after a few decades (Hamilton and Jepson 1940), thereby reducing their quality as salamander habitat. Often ponds are not maintained because it may be more economical to construct a new pond when the old pond fills with silt and is no longer functional (Hamilton and Jepson 1940). Stockponds are often geographically isolated from other seasonal wetlands occupied by California tiger salamanders, and colonization of newly created ponds beyond the normal dispersal range may be slow or nonexistent (Pechmann *et al.* 1989).

Although stockponds can provide refugia for salamander populations and are important for the species, these habitats may be dynamic. Stockponds often dry out during drought, and flooding may destroy downstream impoundments or cause siltation, either of which may result in loss of aquatic habitat and extirpation of salamander populations. Periodic maintenance to remove silt from stockponds may also cause a temporary loss of habitat. Some eggs and larvae of the California tiger salamander are probably trampled by livestock on the perimeters of the stockponds. Populations of nonnative introduced predaceous fish and bullfrogs, although less prevalent than in natural habitats, sometimes become established in stockponds and have been implicated in the decline of the

California tiger salamander (Fisher and Shaffer 1996).

Stockponds may also facilitate spread of nonnative organisms by providing aquatic habitats in arid landscapes that otherwise may have served as barriers to the spread of such organisms. Despite these adverse impacts, the long-term effect of ranching on the species is either neutral or beneficial, because the California tiger salamander would have likely been extirpated from many areas if stockponds had not been built and maintained for livestock production.

Distinct Vertebrate Population Segment

Under the Act, we must consider for listing any species, subspecies, or, for vertebrates, DPSs of these taxa, if information is sufficient to indicate that such action may be warranted. To implement the measures prescribed by the Act and its Congressional guidance, we, along with the National Oceanic and Atmospheric Administration (NOAA) Fisheries, developed policy that addresses the recognition of DPSs for potential listing actions (61 FR 4722; February 7, 1996). The policy allows for a more refined application of the Act that better reflects the biological needs of the taxon being considered, and avoids the inclusion of entities that do not require its protective measures. Under our DPS policy, we use two elements to assess whether a population segment under consideration for listing may be recognized as a DPS. The elements are: (1) the population segment's discreteness from the remainder of the species to which it belongs; and (2) the significance of the population segment to the species to which it belongs. If we determine that a population segment being considered for listing is a DPS, then we evaluate the level of threat to that population segment on the basis of the five listing factors established by the Act to determine if listing it as either threatened or endangered is warranted.

Discreteness

The DPS policy's standard for discreteness is meant to allow an entity given DPS status under the Act to be adequately defined and described. A population segment of a vertebrate species may be considered discrete if it satisfies either one of the following two conditions: (1) it is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation; or (2) it is delimited by international governmental boundaries within which significant differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist.

Dr. H. Bradley Shaffer has analyzed the population genetics of the California tiger salamander (Shaffer *et al* 1993; Shaffer and Trenham 2002). The most recently available and most comprehensive mtDNA sequence data indicate that there are six populations of California tiger salamander; these six populations are distinguished from one another by their mtDNA characteristics (Shaffer and Trenham 2002). We based our DPS determinations for the already-listed Sonoma County and Santa Barbara County populations of the California tiger salamander in part on the relatively high divergence of these populations from other populations of California tiger salamanders (65 FR 57242; 68 FR 13498). The phylogenetic tree (which indicates relationships among populations or groups) constructed from the mtDNA data of Shaffer and Trenham (2002) indicates that Sonoma County and Santa Barbara County California tiger salamanders are very distinct relative to other California tiger salamanders. They are separated from other California tiger salamanders on branches that are statistically strongly supported. These data indicate that Sonoma County and Santa Barbara County California tiger salamanders are distinct from other populations of the species. The genetic differentiation observed indicates that there has been little, if any, gene flow for a significant period of time between the Sonoma County population, the Santa Barbara County population, and the remaining populations, which are the subject of this rulemaking process.

Shaffer and Trenham's (2002) study may suggest that the Central California tiger salamander consists of four populations, which are found in the Bay Area, Central Valley, southern San Joaquin Valley, and the Central Coast Range. Their genetic study suggests that levels of interchange among these populations are low, and that populations or groups of populations (metapopulations) are genetically different from one another (Shaffer and Trenham 2002). However, the geographic boundaries between some of these populations have not been fully delineated (*e.g.*, Bay Area and Central Coast Range populations in the vicinity of the Contra Costa County/Alameda County lines, and the border between the Central Coast Range/Central Valley populations). Therefore, we believe it is not appropriate at this time to treat each of these four populations as a separate DPS. Instead, we treat these four populations as a single group, which is genetically and geographically distinct from the Sonoma County and Santa Barbara County groups.

The Central California tiger salamander is geographically isolated and separate from the Sonoma County DPS and the Santa Barbara County DPS, which are federally listed. The Sonoma County population is separated geographically from the closest Central California tiger salamander populations located in Contra Costa, Yolo, and Solano Counties by the Coast Range, Napa River, and the Carquinez Straits, a distance of about 72 km (45 mi). There are no known records of the California tiger salamander in the intervening areas (D. Warenycia, CDFG, pers. comm. 2002). The Santa Barbara County population is geographically separated from the Central California tiger salamander by the La Panza and Sierra Madre Ranges, and the Carrizo Plain, which extends into the Tremblor Range in eastern San Luis Obispo and western Kern Counties (Shaffer *et al.* 1993). Thus, the same conditions that establish geographic isolation of the Santa Barbara County California tiger salamander and the Sonoma County California tiger salamander from the Central California tiger salamander work correlatively to establish that the converse is also true. There is no evidence of natural interchange of individuals between the Sonoma County and Santa Barbara County populations with the Central California tiger salamander. The genetic work discussed above (Shaffer and Trenham 2002) also indicates that natural interchange is unlikely. Therefore, the best available genetic data (Shaffer and Trenham 2002) for California tiger salamanders indicate that the Central California tiger salamander is distinct from the Sonoma County and Santa Barbara County DPSs.

Significance

Under our DPS policy, once we have determined that a population segment is discrete, we consider its biological and ecological significance to the larger taxon to which it belongs. This consideration may include, but is not limited to, evidence of the persistence of the discrete population segment in an ecological setting that is unique for the taxon; evidence that loss of the population segment would result in a significant gap in the range of the species; evidence that the population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range; and evidence that the

discrete population segment differs markedly from other populations of the species in its genetic characteristics. We have found substantial evidence that two of these significance factors are met by the population of the Central California tiger salamander.

The extinction of the Central California tiger salamander would likely result in the loss of a significant genetic entity and create a significant gap in the range of the species. Shaffer and Trenham's recent genetic work (2002) indicates that the Central California tiger salamander consists of four populations. As discussed above, the Central California tiger salamander differs genetically from the Sonoma County and Santa Barbara DPSs. This supports the hypothesis that no natural interchange of the Central California tiger salamander occurs with the Santa Barbara County or the Sonoma County DPSs. Loss of the Central California tiger salamander would also result in a significant gap in the range of the species.

Conclusion

We evaluated the Central California tiger salamander, addressing the two elements which our policy requires us to consider in deciding whether a vertebrate population may be recognized as a DPS and considered for listing under the Act. We propose that the Central California tiger salamander is discrete, as per our policy, because it is both genetically different and geographically separated from the Santa Barbara County and Sonoma County DPSs. We propose that the Central California tiger salamander is significant because the loss of species would result in a significant gap in the range. It would also constitute loss of a genetically divergent portion of the species. Because the population segment appears to meet both the discreteness and significance criteria of our DPS policy, we propose that the Central California tiger salamander constitutes a DPS that qualifies for consideration for listing.

We have already listed the Sonoma County DPS and Santa Barbara County DPS as endangered. We will be reviewing the relationship between the Central California tiger salamander, and the Sonoma County and Santa Barbara County DPSs as part of this proposed rulemaking.

Summary of Factors Affecting the Species

Section 4 of the Act, and the regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act, describe the procedures for adding species to the Federal list of Endangered and Threatened Wildlife and Plants. We may determine a species to be endangered or threatened on the basis of one or more of the five factors described in section 4(a)(1) of the Act. These factors, and their application to the Central California tiger salamander, are described below.

We have analyzed threats to the California tiger salamander throughout the four populations using information from 608 California tiger salamander sites identified in the CNDDB, of which 486 sites are known to be extant (Service 2003). This database includes the localities listed by Shaffer *et al.* (1993), Seymour and Westphal (1994), LSA Associates, Inc. (1994), and numerous other biologists. At each of these localities, at least one California tiger salamander (adult, juvenile or larva) has been identified by a biologist. Upland habitat types in the vicinity of these localities include annual grassland (49 percent) and oak savannah (12 percent) (California GAP 1996; Service 2003). The remaining upland habitat types are agricultural crops, urban areas, and other natural habitats. The localities in the CNDDB for which one or more wetland type was identified included vernal pools, artificial bermed ponds or stockponds, or ponds. Threats are analyzed in detail below in the discussion of the five factors affecting the species.

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Destruction, modification, and curtailment of Central California tiger salamander habitat is caused by a variety of urban and agricultural land uses. We define urban impacts to include a variety of nonagricultural development activities, such as building and maintenance of housing, commercial, and industrial developments; construction and widening of roads and highways; golf course construction and maintenance; trash dumping, landfill operation and expansion; operation of gravel mines and quarries; dam building; and inundation of habitat by reservoirs. Agricultural impacts include the conversion of native habitat by discing and deep-ripping; and cultivation, planting, and maintenance of row crops, orchards, and vineyards.

Many habitat changes began before California tiger salamanders were widely collected or studied by biologists. Habitat degradation or loss, alteration of vernal pools and seasonal ponds, introduction of nonnative organisms, and other changes have occurred throughout the range of this species (Shaffer *et al.* 1993; Jennings and Hayes 1994; Thelander 1994).

These impacts threaten both wetland breeding habitat and upland habitat. Even salamanders utilizing breeding sites that are protected from development may not persist as viable populations if upland sites are unavailable. Earthmoving operations and cultivation in upland habitat can directly or indirectly kill or injure California tiger salamanders in burrows or on the surface by crushing or trapping them. These practices can also expose salamanders to adverse environmental conditions (increased predation, high temperatures, low humidity) and alter surface hydrology (potentially affecting breeding ponds). Discing, deep-ripping, or grading of upland habitat also destroys California ground squirrel burrows and other crevices, making suitable upland sites unavailable and reducing long-term adult survival of Central California tiger salamanders. Ongoing agricultural and urban land uses prevent upland sites from being reestablished, and may kill or injure salamanders that enter the developed area. Existing vineyards and orchards can disrupt annual migration patterns and cut off access to breeding wetlands as salamanders avoid moving through areas with heavy canopy cover (S. Sweet, in litt. 1998). Agricultural and urban land uses can interfere with dispersal among breeding sites and prevent natural recolonization of ponds after local extirpation.

Filling, discing, or excavating wetland habitat can directly kill or injure larvae, eggs, or breeding adults, and prevents future use of the wetland for reproduction. Additionally, surviving adults may be unable to locate alternative breeding sites in subsequent years. Erosion from agriculture or grading can similarly impair reproductive success by causing sedimentation and degradation of nearby wetlands (S. Sweet, in litt. 1998; Sneed 2000). Changes in flooding duration and depth caused by urban and agricultural land use (*e.g.*, digging of drainage/irrigation ditches, construction of permanent ponds or reservoirs, deepening or berming of seasonal wetlands, redirection of runoff from developments) can reduce reproductive success either by prematurely drying wetlands and desiccating larvae, or by extending the flooded period and facilitating invasion of exotic predators (*see* Factor C). Other secondary effects of agricultural and urban land uses include increased road mortality, drift and runoff of pesticides and fertilizers,

and ongoing rodent-control activities (*see* Factor E).

A comparison of the past and present extent of suitable habitat for the Central California tiger salamander indicates that the range of the species has been substantially reduced from its historical distribution. Historically, approximately 3.67 million hectares (ha) (9.06 million acres (ac)) of valley and coastal grasslands existed within the range of the Central California tiger salamander, with an additional 2.64 million ha (6.53 million ac) supporting an overstory of blue oak/foothill pine, valley oak, or mixed hardwoods (Kuchler 1988), for a total of 6.31 million ha (15.59 million ac) of potential habitat. However, urbanization and intensive agriculture have eliminated virtually all valley grassland and oak savanna habitat from the Central Valley floor. Valley grasslands and, consequently, Central California tiger salamanders are now distributed primarily in a ring around the Central Valley (Heady 1977). An analysis of CNNDB (2002) and Service (2003) records indicate that currently there are only about 4.5 million ha (11.1 million ac) of potential habitat where the California tiger salamander may still be extant. From 1995 to 2020, the human population in the range of the Central California tiger salamander (Central Valley, Bay Area, and Central Coast Counties) is projected to grow by 49 percent (from 12.8 million to 19.1 million people) (California Department of Water Resources (CDWR) 1998). Therefore, impacts on the Central California tiger salamander and conversion of its habitat resulting from urban development are expected to continue.

The relative loss of habitat has been even more extreme with respect to vernal pools, the historic breeding habitat of the Central California tiger salamander. Approximately 1.68 million ha (4.15 million ac) of grasslands in 20 Central Valley Counties are estimated to have supported vernal pools at the time of European settlement (Holland 1978, 1998a, 1998b; Holland and Jain 1988). Most of this area, excepting the northern Sacramento Valley, was within the Central California tiger salamander's historical range. The remaining vernal pool complexes are now fragmented and reduced in area. Where vernal pools remain, they are often disturbed and degraded by drainage modification, overgrazing, ORV use, nonnative plant invasion, trash dumping, road construction, and urban development (Jones and Stokes Associates 1987; 59 FR 48136; Keeler-Wolf *et al.* 1998). Vernal pools are now recognized as a threatened resource (Jones and Stokes Associates 1987; Wright 1991; 59 FR 48136). During the 1980s and 1990s, vernal pool grasslands continued to be lost at an estimated rate of 1.5 percent per year (Holland 1998a, 1998b). As of 1997, 377,165 ha (931,991 ac) of vernal pool grasslands remained in the Central Valley, representing a loss of approximately 78 percent (Holland 1998a, 1998b). Along the southeastern edge of the Central Valley, from San Joaquin to Fresno Counties, at least 25 percent of the 259-ha (640-ac) sections that had contained vernal pools in 1970 (Holland 1978) were wholly converted to agriculture or urban uses by 1994 (Seymour and Westphal 1994). This conversion estimate is probably conservative because it does not include partially converted sections where vernal pool habitat may also have been lost (Seymour and Westphal 1994).

Shaffer *et al.* (1993) detected California tiger salamanders in only 36 of 86 localities (42 percent) that had been previously recorded, and ponds currently occupied by California tiger salamanders were significantly higher in elevation than those that were unoccupied or had been previously occupied. These data suggest that low-elevation breeding sites on the valley floor have been eliminated in recent years, thereby restricting the species to higher-elevation habitats on the margin of its ecological requirements (Shaffer *et al.* 1993; Seymour and Westphal 1994; Fisher and Shaffer 1996).

In both our final rule listing the Santa Barbara County DPS of the California tiger salamander (65 FR 57242), and the Sonoma County DPS of the California tiger salamander (67 FR 47726), we described land conversions to more intensive agriculture, especially conversions to grape vineyards, as being a factor in the species' decline. Data from the California Agricultural Statistics Service (CASS) (2002) provides further corroboration that this is a factor and shows that the phenomenon extends over much of the Central California tiger salamander's current and historic range.

Urban development poses a similar significant threat to the Central California tiger salamander. The human population of the State of California is continuing to increase, along with a concomitant increase in urban development. According to the 2000 census, the number of people in California has increased by 13.8 percent since 1990 (California Department of Finance 2002). The average growth in human population within the Counties in the range of the Central California tiger salamander has been 19.5 percent. Counties in the East Bay region and the Highway 99 corridor in the San Joaquin Valley are undergoing increases both in human population and related urbanization. Sub-populations at forty-one records of the Central California tiger salamander from the CNDDB data base have been extirpated by urban development (Service 2003).

The information documenting the present or threatened destruction, modification, or curtailment of Central California tiger salamander habitat or range due to urbanization and other factors is organized below as it applies to four populations of the species (Shaffer *et al.* 1993; Shaffer and Trenham 2002) that we have not yet listed.

Bay Area Population (Alameda, Santa Clara, San Benito, southwestern San Joaquin, western Stanislaus, and western Merced Counties): Thirty-two percent (194 of 608 sites) of the known California tiger salamander records are in this population, most of them in eastern Alameda and Santa Clara Counties (CNDDB 2002). Forty-nine of these records in the Bay Area population are considered extirpated due to urbanization, orchards and vineyards, and hybridization with nonnative tiger salamanders (CNDDB 2002; Service 2003). There are 83,386 ha (206,051 ac) of potential habitat for the California tiger salamander in the Bay Area (Service 2003).

The East Bay area of the Bay Area and Livermore Valley area has undergone intensive urban development in recent years. The total human population of Santa Clara, Contra Costa, Alameda, Solano, and Yolo Counties increased by approximately 86 percent between 1990 and 2002. From 1995 to 2020, the human population is projected to increase by 18 percent for the San Francisco Bay hydrologic region, with agricultural crop land use projected to remain around 26,305 ha (65,000 ac) (CDWR 1998). From 1990 to 1996, 16,457 ha (40,665 ac) of native habitat were converted to urban and agricultural uses in Santa Clara, Alameda, and San Benito Counties (California Department of Conservation (CDC) 1994, 1998). Approximately 90 percent of land conversions in Santa Clara, Alameda, and Contra Costa Counties were to urban use.

Of 98 California tiger salamander localities where wetland type was identified, only 15 percent (15) were located in vernal pools. These wetland type localities within the Bay Area population of California tiger salamanders occur within the Solano-Colusa and Livermore vernal pool regions (Keeler-Wolf *et al.* 1998). However, little vernal pool habitat

remains within these regions. Many of the Solano-Colusa vernal pools have been destroyed or degraded by agricultural conversion, water impounding for waterfowl habitat enhancement, urban development, and road-building. Most of the vernal pools in the Livermore Region have been destroyed or degraded by urban development, agriculture, water diversions, poor water quality, and long-term overgrazing (Keeler-Wolf *et al.* 1998). Many breeding sites in the Bay Area population are in artificial water bodies rather than natural vernal pools. Overall, 43 percent (83) of the records are in stock, farm, or berm ponds used for cattle grazing and as a temporary source of water for small farm irrigation (CNDDB 2002).

California tiger salamander localities in Contra Costa and Alameda Counties may be affected by ORV use; at least 10 proposed housing developments; 3 golf courses; infrastructure construction, including expansion of an airport, a landfill, and a power station; and highway construction (CNDDB 2002). These development projects may destroy upland habitat and wetland breeding habitat, killing salamanders and reducing the viability of populations at the affected localities.

In eastern Contra Costa and Alameda Counties, especially the Livermore and Amador Valleys, urban expansion continues at a rapid pace. California tiger salamander populations in the Livermore Valley are severely threatened by the ongoing conversion of 14,527 ha (35,897 ac) of grazing land to subdivisions and vineyards (Stebbins 1989; East Bay Regional Park District (EBRPD) 1999). Almost the entire valley floor, and large portions of the adjacent hills, are being developed or are being considered for development and eventual annexation. The North Livermore and South Livermore Valley Specific Plans represent 11,727 ha (28,977 ac) of planned urban development in and around Livermore Valley (EBRPD 1999). Urban Growth Boundaries encompass 108,262 ha (267,520 ac), including the Livermore, La Costa, Amador, Sunol, and Vallecitos valleys in east Alameda County and the Clayton, Lone Tree, Deer, and Briones valleys of eastern Contra Costa County (Alameda County Planning Department 1993; EBRPD 1999). These valleys constitute much of the core area inhabited by the Bay Area California tiger salamander population. Shaffer *et al.* (1993) found that the East Bay Counties of Alameda and Contra Costa supported the greatest concentrations of California tiger salamander. Three localities are known from near San Francisco Bay in southwestern Alameda County, and are partially protected by San Francisco Bay National Wildlife Refuge.

California tiger salamanders at a university in Palo Alto declined to near extirpation due, in part, to urban development of adjoining upland areas (Barry and Shaffer 1994), but water management and other take-reduction efforts have been implemented in recent years to protect the population (Thomas Reid Associates 1998). A locality within the City of San Jose is threatened by urban development. Several areas in southern Santa Clara County also are undergoing urban expansion.

Central Valley Population (Yolo, Solano, Sacramento County south of the Cosumnes River, northeastern Contra Costa, eastern San Joaquin, western Amador, western Calaveras, western Tuolumne, eastern Stanislaus, Merced, western Mariposa, and northwestern Madera Counties): Forty-seven percent (286 of the 608 sites) of the known California tiger salamander records are in this population (CNDDB 2002). Subpopulations at 37 of recorded locations in the Central Valley Population are considered extirpated (CNDDB 2002; Service 2003). Urban development and agriculture have eliminated much of the grassland and vernal pools. From 1996 to 1998, 14,361 ha (35,487 ac) of native habitat were converted to urban and agricultural uses in Yolo, Solano, Contra Costa, Merced, Sacramento, San Joaquin, Stanislaus, and Madera Counties (CDC 2000). There are 146,600 ha (362,253 ac) of potential habitat for the California tiger salamander in the Central Valley (Service 2003). The species historically occurred as far north as Butte County but has not recently been documented north of the Cosumnes River. The remaining sites inhabited by the California tiger salamander occur in the low-elevation foothills on the eastern side of the Central Valley (Shaffer *et al.* 1993).

Of 127 California tiger salamander localities where wetland type was identified, 26 percent (33) were in vernal pools. These wetland type localities within the Central Valley population of California tiger salamanders occurs within the southeastern Sacramento Valley and southern Sierra foothills vernal pool regions (Keeler-Wolf *et al.* 1998). Vernal pools in both regions are threatened by conversion of grasslands and grazing land to housing developments and intensive agriculture (see Factor E).

California tiger salamander localities in the Central Valley population may be affected by recently implemented development projects, including vineyards and proposed highway construction. These development projects may destroy upland habitat and wetland breeding habitat, killing salamanders and reducing the viability of populations at the affected localities. Large vineyards planted in areas along the San Joaquin-Sacramento County line have degraded and destroyed habitat for California tiger salamanders.

In Yolo and Solano Counties, the major impacts to California tiger salamander populations have been agricultural. Portions of the California tiger salamander locality at Jepson Prairie in Solano County is protected by the University of California Natural Reserve System and the Solano Land Trust. However, some upland habitat may have been disrupted by construction of a natural gas pipeline in the vicinity. California tiger salamanders also were found at some proposed power plant sites near Jepson Prairie.

In Stanislaus County, California tiger salamanders were considered extirpated until they recently were found by biologists surveying a potential route for a highway bypass near Oakdale (California Department of Transportation 2000). This highway route threatens the only known population of California tiger salamanders in the Oakdale area. However, other populations are known to exist within Stanislaus County outside the Oakdale area.

South San Joaquin Population: (western Madera, central Fresno, and northwestern Tulare Counties north of the St. Johns and Kaweah Rivers): Nine percent (56 of the 608 sites) of the known California tiger salamander sites are in this population (CNDDB 2002). However, 18 of these sites in the South San Joaquin population are considered extirpated (CNDDB 2002; Service 2003). From 1996 to 1998, 4,509 ha (11,142 ac) of native habitat were converted to urban and agricultural uses in Fresno, Tulare, and Madera Counties (CDC 2000). There are 24,450 ha (60,418 ac) of potential habitat for the California tiger salamander in the southern San Joaquin Valley (Service 2003).

Ninety-seven percent (31) of 32 localities for which wetland type was identified in the South San Joaquin population are within vernal pools. These wetland type localities within the South San Joaquin population of the California tiger salamander occur within the southern Sierra Foothill Vernal Pool Region (Keeler-Wolf 1998). Although we are unaware of a specific quantified estimate of loss for this vernal pool region, we believe that a significant

number of vernal pools in this region have been destroyed, fragmented, and degraded by conversion to intensive agriculture and housing developments.

Shaffer *et al.* (1993) were unable to find breeding habitat to sample for presence of the California tiger salamander over most of the original grassland habitat of the San Joaquin Valley. Where ponds were located, California tiger salamanders generally were absent (72 percent of 324 ponds sampled were absent). The rarity of this species in the San Joaquin Valley, in habitat that was apparently suitable historically, suggests widespread extirpation of California tiger salamanders from habitat conversion to agricultural and urban uses (Stebbins 1989). Large areas of California tiger salamander habitat were destroyed and degraded by major urbanization in this region during the 1970s and 1980s (Shaffer *et al.* 1993). Agricultural, housing, road, and commercial developments on the valley floor of Fresno, Madera, and Tulare Counties have reduced suitable habitat to a fraction of the species' historical range (J. Halstead, Kings River Conservation District, *in litt.* 1994). Most remaining salamander habitat on the eastern side of the Central Valley occurs on tracts of privately-owned ranch land (Seymour and Westphal 1994).

California tiger salamander localities in the South San Joaquin population may be affected by proposed development projects, including housing developments and highway construction. These development projects would likely destroy upland habitat and wetland breeding habitat, likely killing salamanders and reducing the viability of populations at the affected localities.

Several large water storage and delivery projects have been constructed in the South San Joaquin population. These projects have flooded large areas of known and potential salamander habitat. Additional habitat has been lost to construction from associated State and County park recreational facilities (*e.g.*, boat ramps, campgrounds, parking lots) and agriculture and urbanization facilitated by water supply development.

Numerous new housing developments and golf courses are planned or in progress around Millerton Lake in Fresno and Madera Counties (J. Halstead, *in litt.* 1994; The Keith Companies 1994). Extensive areas of upland habitat and wetland breeding habitat will likely be destroyed by these developments, potentially killing many salamanders and/or further reducing the viability of any remaining habitat at these localities.

California tiger salamanders are known from eight localities in Tulare County, most of which are surrounded by a matrix of agricultural lands.

Central Coast Population (southern Santa Cruz, Monterey, extreme western San Benito, extreme western Fresno, extreme western Kings, extreme northwestern Kern, and San Luis Obispo Counties): Twelve percent (72 of the 608 localities) of the known California tiger salamander records are in the Central Coast Range population. Nineteen of these sites in the Central Coast population are considered extirpated (CNDDB 2002; Service 2003). From 1996 to 1998, 2,084 ha (5,149 ac) of native habitat were converted to urban and agricultural uses in San Luis Obispo and Monterey Counties (CDC 2000). There are 28,411 ha (70,205 ac) of potential habitat for the California tiger salamander in the Central Coast.

California tiger salamanders in this population occurred predominantly in stock ponds, reservoirs, seasonal lakes, and intermittent streams. Of the California tiger salamander localities in this population where the wetland type was identified, 26 percent (86) were vernal pools. The wetland type localities within the Central Coast Range population of the California tiger salamander occur in the Central Coast and San Joaquin Valley Vernal Pool Regions (Keeler-Wolf *et al.* 1998). The annual loss of vernal pools from 1994 to 2000 in Monterey, San Benito, San Luis Obispo, Santa Barbara, and Ventura Counties appears to be accelerating to a rate of 2 to 3 percent annually (Holland 2003).

Two California tiger salamander localities occur at a 8,064 ha (19,927 ac) development project site that comprises 14 percent of the Greater Monterey Peninsula Planning Area, which is nearly half of the Planning Area's unimproved land. Construction on this project has been initiated (D. Steeck, Service, pers. comm. 2000). Eleven localities occur on Fort Ord, an 11,220 ha (27,726 ac) former military installation that has been transferred to the U.S. Bureau of Land Management (BLM), California Department of Parks and Recreation, California State University, Santa Cruz, and Monterey County municipalities. The proposed habitat management plan (Jones and Stokes Associates 1993) for Fort Ord includes protection of salamander breeding habitat at seven of these localities within the designated Natural Resource Management Area (NRMA) managed by BLM. Two of the localities in the NRMA are within a highway easement, and may be imperiled due to future road construction. The protected area has historically been extensively used by ORVs, but recent enforcement of ORV restrictions by BLM has apparently reduced this problem (R. Lewis, BLM, pers. comm. 1999). Excavation for removal of unexploded ordnance could potentially disrupt breeding or upland habitat in the NRMA (Jones and Stokes Associates 1993), but ordnance removal in breeding ponds has not yet been deemed necessary (D. Steeck, pers. comm. 2000). The remaining four localities on Fort Ord are projected for development as recreational areas, commercial centers, and a university campus. Development in these areas may avoid breeding ponds, but additional upland habitat is likely to be lost and fragmented.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

There is no evidence that overutilization is a factor causing decline of the California tiger salamander.

C. Disease or Predation

Disease

Relatively little is known about the diseases of wild amphibians (Alford and Richards 1999). The specific effects of disease on the Central California tiger salamander are not known and the risks to the animal have not been determined.

Pathogen outbreaks have not been documented in the Central California tiger salamander. Nevertheless, disease must be considered a potential future population threat because of the relatively small, fragmented remaining Central California tiger salamander breeding sites, the many stresses on these sites due to habitat losses and alterations, and the many other potential disease-enhancing anthropogenic changes which have occurred both inside and outside the species' range.

Predation

A number of nonnative California species have likely adversely affected the Central California tiger salamander in many parts of its range through predation and competition. Bullfrogs prey on California tiger salamanders (P. Anderson 1968; Lawler *et al.* 1999). The bullfrog, native to the United States east of the Great Plains, was introduced into California in the late 1800s and early 1900s, and it rapidly spread throughout the State (Storer 1925 as cited in Moyle 1973; Hayes and Jennings 1986). Morey and Guinn (1992) documented a shift in

amphibian community composition at a vernal pool complex, with salamanders becoming proportionally less abundant as bullfrogs increased in number. Although bullfrogs are unable to establish permanent breeding populations in unaltered vernal pools and seasonal ponds because they require more than 1 year to complete their larval stage, dispersing immature bullfrogs take up residence in such water bodies during winter and spring where they prey on native amphibians, including larval salamanders (Morey and Guinn 1992; Seymour and Westphal 1994). A strong negative correlation exists between bullfrog presence and California tiger salamander presence (Shaffer *et al.* 1993; Seymour and Westphal 1994).

Because bullfrogs are known to travel at least 2.6 km (1.6 mi) from one pond to another (Bury and Whelan 1984), they have the potential to naturally colonize new areas where they do not currently exist, including where Central California tiger salamanders occur. In one study of the eastern San Joaquin Valley, it was found that 22 of 23 ponds (96 percent) with California tiger salamanders were within the bullfrogs' potential dispersal range (Seymour and Westphal 1994). In addition, because bullfrogs are still sought within California for sport and as food, and may be taken without limit under a fishing license, the threat of transport for intentional establishment in new habitat suitable for the Central California tiger salamanders is significant.

Western mosquitofish (*Gambusia affinis*) are native to central North America (watersheds tributary to the Gulf of Mexico) and have been introduced throughout the world for mosquito control, including California, beginning in 1922. Western mosquitofish now occur throughout California wherever the water does not get too cold for extended periods, and they are still widely planted throughout the State (K. Boyce, Sacramento County/Yolo County Mosquito and Vector Control District, *in litt.* 1994; Moyle 2002) by about 50 local mosquito abatement districts. Western mosquitofish are ubiquitous because of their tolerance of poor water quality and wide temperature ranges (K. Boyce, *in litt.* 1994).

Salamanders may be especially vulnerable to western mosquitofish predation due to their fluttering external gills, which may attract these visual predators (Graf and Allen-Diaz 1993). Loredo-Prendeville *et al.* (1994) found no California tiger salamanders inhabiting ponds containing western mosquitofish. Leyse and Lawler (2000) found that the survival of California tiger salamander in experimental ponds stocked with western mosquitofish, at densities similar to those found in many stock ponds, was significantly reduced. Larvae that survived in ponds with western mosquitofish were smaller, took longer to reach metamorphosis, and had injuries such as shortened tails.

Western mosquitofish prey on other amphibian species, such as California newt (*Taricha torosa*) (Gamradt and Kats 1996) and Pacific treefrog (Goodsell and Kats 1999) tadpoles in both field and laboratory experiments, even when given the optional prey of mosquito larvae (Goodsell and Kats 1999; L. Kats, Pepperdine University, pers. comm. 1999). Western mosquitofish have also been observed ingesting and then spitting out California newt larvae, causing severe damage to the newts in the process (Graf and Allen-Diaz 1993). Given the effects of western mosquito fish on other amphibian species, they are likely to have similar effects on Central California tiger salamanders. If they have the same effects, the use of western mosquito fish in Central California tiger salamander habitat threatens its persistence.

Other nonnative fish have either been directly implicated in predation of California tiger salamanders or appear to have the potential to prey upon them. For example, introductions of sunfish species (*e.g.*, largemouth bass (*Micropterus salmoides*) and bluegill (*Lepomis macrochirus*), catfish (*Ictalurus* spp.), and fathead minnows (*Pimephales promelas*) are believed to have eliminated Central California tiger salamanders from several breeding sites in Santa Barbara County (65 FR 3096). Nonnative sunfish species, catfish, and bullheads (*Ameiurus* spp.) have been, and still are, widely planted in ponds in California to provide for sportfishing. By 1984, the California fish fauna included about 50 such transplanted and exotic species, mostly from eastern North American origin (Hayes and Jennings 1986). More recently, Moyle (2002) estimated that, on average, California is losing about one native species or subspecies of fish every 5 to 6 years, and gaining an average of one alien species about every 2 years.

Nonnative fish introductions may be responsible for the declines of frog species in western North America (Hayes and Jennings 1986). Such introduced fish may be a problem for California ranids because of their specialization for preying on aquatic life (including eggs and larvae), and because the affected amphibians may have evolved under conditions of limited fish predation, which now increases the impacts of the introductions (Hayes and Jennings 1986). We believe the same threat may apply to the Central California tiger salamander. Thus, we consider introductions of such nonnative fish species into Central California tiger salamander breeding habitat a potential threat to the persistence of the species.

The range and breeding habitats of the Central California tiger salamander also overlap with the ranges and habitats of several nonnative and native crayfish (*Pacifastacus, Orconectes,* and *Procambarus* spp.). Crayfish prey on California tiger salamanders (Shaffer *et al.* 1993) and are thought to have eliminated some populations (Jennings and Hayes 1994). In Sonoma County, a nonnative crayfish has been found throughout ditches within California tiger salamander range, but not in any nearby pools known to support California tiger salamander breeding (D. Cook, The Wildlife Society, pers. comm. 2002). Crayfish are also known to prey on California newt eggs and larvae, despite toxins produced by these amphibians, and crayfish may be a significant factor in the loss of newts from several streams in southern California (Gamradt and Kats 1996). Thus, based on direct and indirect evidence, we believe that crayfish, especially several nonnative species, represent a considerable threat to the persistence of the Central California tiger salamander.

Another nonnative species which may represent a threat to the species, is the wild pig (*Sus scrofa*). The wild pig population in California, which was recently estimated at about 106,000 to 160,000 individuals (Waithman *et al.* 1999), resulted from numerous introductions, both from domesticated pigs escaping captivity, and more recently from deliberate introductions for sport-hunting, over the last two centuries. Although range expansion of introduced wild pigs has ceased in many regions of the United States, it increased significantly since the 1950s in California (Waithman *et al.* 1999). Wild pigs are now distributed within parts of 49 of California's 58 Counties (Waithman *et al.* 1999), with densities as high as 3.8 (Sweitzer *et al.* 2000) to 4.7 pigs per square kilometer (9.8 to12.2 pigs per square mile) (Schauss *et al.* 1990).

Wild pigs have been widely implicated in declines and extinctions of numerous species worldwide, and have had pronounced negative ecological effects on Central California tiger salamanders when their populations are high (Waithman *et al.*

1999). Detrimental effects of wild pigs on the Central California tiger salamander include both predation and habitat modifications. One recognized expert on wild pigs in California states that he has found bullfrogs, snakes, and newts in pig stomachs, and he believes that California tiger salamanders would be consumed by pigs, if encountered (R. Barrett, University of California, Berkeley, pers. comm. 2002), a view also shared by another wild pig expert in Florida (R. Belden, Florida Wildlife Commission, pers. comm. 2002). The nocturnal behavior of wild pigs, and their affinity for ponds and watering holes in oak woodlands of foothills and other fringe areas of the Central California tiger salamander's range, coupled with the nocturnal movements of Central California tiger salamanders during the rainy season, could result in considerable predation. In addition, wild pigs may cause ecological damage to Central California tiger salamander habitat, including consumption of vegetation for food, and rooting and digging, which may change plant successional patterns, soil properties, water infiltration rates, water quality (Synatzske 1993), or the small-mammal burrows the salamander needs during estivation.

California tiger salamanders are also likely preyed on by many species of native fish and wildlife. In healthy salamander populations, such predation should not be a significant threat. But when combined with other impacts, such as predation by nonnative species, contaminants, migration barriers, or habitat alteration, it may cause a significant decrease in population viability. Native predators including avian species, such as great blue herons (*Ardea herodias*) and snowy egrets (*Egretta thula*), western pond turtles (*Clemmys marmorata*), various garter snakes (*Thamnophis* spp.), larger California tiger salamanders, larger spadefoot toads (*Scaphiopus hammondii*), and California red-legged frogs (Peters 1993; Hansen and Tremper 1993). In Arizona, larval tiger salamanders are preyed upon by adult predaceous diving beetles (*Dytiscus dauricus*) (Holomuzki 1986); turkey vultures (*Carthartes aura*) have been observed feeding on larval or adult tiger salamanders (Duncan 1999).

D. The Inadequacy of Existing Regulatory Mechanisms

The primary cause of Central California tiger salamander decline is the loss, degradation, and fragmentation of habitat due to human activities. Federal, State, and local laws have been insufficient to prevent past and ongoing losses of the limited habitat of the Central California tiger salamander, and are unlikely to prevent further declines of the species.

Federal

Clean Water Act. Under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1251 *et seq.*), the U.S. Army Corps of Engineers (Corps) regulates the discharge of fill material into waters of the United States, including wetlands. Section 404 regulations require applicants to obtain a permit for projects that involve the discharge of fill material into waters of the United States, including wetlands. However, normal farming activities are exempt under the CWA and do not require a permit (53 FR 20764; Robert Wayland III, Environmental Protection Agency (EPA), *in litt.* 1996). Projects that are subject to regulation may qualify for authorization to place fill material into waters of the United States, including wetlands, under several nationwide permits. The use of nationwide permits by an applicant or project proponent is normally authorized with minimal environmental review by the Corps. No activity that is likely to jeopardize the continued existence of a threatened or endangered species, or that is likely to destroy or adversely modify designated critical habitat of such species, is authorized under any nationwide permit. An individual permit may be required by the Corps if a project otherwise qualifying under a nationwide permit would have greater than minimal adverse environmental impacts.

Recent court cases may further limit the Corps' ability to utilize the CWA to regulate the discharge of fill or dredged material into the aquatic environment within the current range of the California tiger salamander (*Solid Waste Agency of Northern Cook County* v. *U.S. Army Corps of Engineers,* 531 U.S. 159 (2001) (SWANCC)). The effect of SWANCC on Federal regulation of activities in wetlands in the area of the Central California tiger salamander has recently become clear by the Corps' decision not to assert its jurisdiction over the discharge of fill material into several wetlands within the range of the Central California tiger salamander. In a letter from the Corps, dated March 8, 2002, concerning the discharge of fill into 0.18 ha (0.45 ac) of seasonal wetlands southwest of the intersection of Piner and Marlow Roads (Corps File Number 19736N), the Corps referenced the SWANCC decision and reiterated that the subject wetlands were not ''waters of the United States'' because they were: (1) Not navigable waters; (2) not interstate waters; (3) not part of a tributary system to 1 or 2; (4) not wetlands adjacent to any of the foregoing; and (5) not an impoundment of any of the above. The letter further stated that the interstate commerce nexus to these particular waters is insufficient to establish CWA jurisdiction, and therefore, not subject to regulation by the Corps under Section 404 of the CWA. The Corps also cited the SWANCC decision as their reasoning for not taking jurisdiction over fill of Sonoma County California tiger salamander breeding pools at the recently constructed South Sonoma Business Park (Corps File Number's 23540N, 249420N).

When on- or off-site mitigation is required by the Corps as a condition of a Section 404 permit to fill certain wetlands, there is often low probability that affected Central California tiger salamander habitat functions (if any) would actually be compensated and replaced by the ensuing mitigation action(s).

Semlitsch (1998) examined published literature for six species of pond-breeding ambystomatid salamanders from five states and concluded that a buffer zone encompassing 95 percent of a given population would need to extend 263 m (534 ft) from a wetland's edge into surrounding terrestrial habitat in order to give adequate protection. More recently, Trenham (2001), although cautioning that essential terrestrial habitats and buffer requirements are still relatively poorly understood, concluded certain populations of California tiger salamanders have migrated distances of 670 m (2,200 ft) between breeding ponds, and that plans to maintain local populations of California tiger salamanders should include pond(s) surrounded by at least 173 m (567 ft) wide buffers of terrestrial habitat occupied by burrowing mammals. Preliminary results of a study located at Jepson Prairie have determined that adult California tiger salamanders migrate up to 400 m (1,312 ft) from their breeding pond (P. Trenham, pers. comm. 2002).

Management plans that focus only on preserving ponds or wetlands, without consideration for associated terrestrial habitat, are likely to fail to maintain viable amphibian populations (Marsh and Trenham 2001). However, even with inclusion of terrestrial habitat buffers, recent studies have demonstrated that restored wetlands are often still only partially successfully recolonized by the full amphibian assemblages being targeted for restoration (Lehtinen and Galatowitsch

2001; Pechmann *et al.* 2001). Successful compensatory mitigation for losses of California tiger salamander pool and pond habitat due to filling would also require the connectivity of the restoration site to other pools and ponds (Gibbs 1998; Lehtinen *et al.* 1999; Marsh and Trenham 2001; Trenham *et al.* 2001). Pond isolation may be an important consideration in disturbed environments where inter-pond dispersal is impeded by barriers such as roads and urban development (Marsh and Trenham 2001). The California tiger salamander may also require large preserves to maintain viable breeding populations and to allow recolonizations after natural and anthropogenic local extirpations (P. Northen, *in litt.* 2001).

We conclude that regulation of wetlands filling by the Corps under Section 404 of the CWA is inadequate to protect the Central California tiger salamander from further decline. Section 404 administration fails to prevent losses of numerous small wetlands in California which may support Central California tiger salamander breeding. Section 404 does not regulate the continuing losses of Central California tiger salamander terrestrial habitat (except to the extent certain agricultural activities are regulated). When authorized fills under Section 404 do result in compensatory mitigation for wetlands losses, it is unlikely that Central California tiger salamander losses at specific fill sites can, and will be, fully and successfully mitigated.

Endangered Species Act. Two DPSs of the California tiger salamander in California have been listed under the Act. The Santa Barbara County DPS was listed on September 15, 2000 (65 FR 3096). The Sonoma County DPS was listed under an emergency rule effective July 22, 2002 (67 FR 4772). The final rule listing this DPS was published March 19, 2003 (68 FR 13497). These two DPSs are currently provided with the protections afforded by the Act.

Elsewhere within its range in California, the California tiger salamander is not currently a federally listed species under the Act. Within this unprotected range in California, however, there are currently 16 species (1 beetle, 4 species of freshwater shrimp, and 11 species of plants) listed under the Act that occur in association with seasonally-flooded vernal pools. Critical habitat has been designated for the threatened delta green ground beetle (*Elaphrus viridus*), but its range is limited to a portion of the area at Jepson Prairie in Solano County that is inhabited by the California tiger salamander. We have also proposed approximately 687,968 ha (1.7 million ac) in 36 California Counties and one Oregon county as critical habitat considered essential for the conservation of the 4 freshwater shrimp and the 11 vernal pool plant species (68 FR 12336).

In some instances the vernal pools supporting the 15 listed vernal pool species, and the critical habitat being proposed for them, overlap with local occurrences of the Central California tiger salamander. However, such overlap is limited, and where it does occur, regulatory protections afforded under the Act for the 15 listed vernal pool species, or their proposed critical habitat, do not convey adequate protection to Central California tiger salamander upland habitats. Most of the requirements of the listed vernal pool plants and freshwater shrimp can be met through maintenance of existing hydrology within the confines (or with additional upland areas dependent on the individual location) of individual vernal pools or vernal pool complexes. California tiger salamanders, on the other hand, spend only about 20 percent of their lives in such pools or ponds, and 80 percent in the confines of small mammal burrows in nearby terrestrial areas.

Lacey Act. The Lacey Act Amendments of 1981 (16 U.S.C. 3371–3378; Pub. L. 97–79, as amended) provide some protection for the California tiger salamander by making it illegal to trade in this species. This legislation prohibits the import, export, sale, receipt, acquisition, purchase, and engagement in interstate or foreign commerce of any species taken, possessed, or sold in violation of any law, treaty, or regulation of the United States, any Tribal law, or any law or regulation of any State. The law covers all fish and wildlife and their parts or products, and plants protected by State law. This Act does not apply to the interstate shipment, through Tribal lands or a State, of any fish, wildlife, or plant legally taken if the shipment goes to a State in which the fish or wildlife or plant may be legally possessed.

State

Since 1994, the California Department of Fish and Game (CDFG) has recognized the California tiger salamander as a ''species of special concern.'' More recently, the California tiger salamander has been placed on the State's list of protected amphibians, which means that it cannot be taken without a special permit issued for scientific collecting or research. Also, as stated earlier in Factor C, the California Code of Regulations (2002) specifies California tiger salamanders can no longer be taken, possessed, or used for fishing bait.

On July 6, 2001, the CDFG received a petition from the CBD to list the California tiger salamander under the California Endangered Species Act. The status of the animal and potential threats was evaluated by the CDFG. On October 3, 2001, the Director of the CDFG recommended to the California Fish and Game Commission (Commission) that the petition be accepted and the animal be designated as a candidate (R. Hight, CDFG, *in litt.* 2001). On December 7, 2001, the Commission found that the petition was not warranted because the Commissioners felt there was not enough information on the population abundance and trend information of the California tiger salamander (R. Treanor, Commission, *in litt.* 2001).

CDFG recognizes the importance of California tiger salamander conservation at the local population level and routinely considers and recommends actions to mitigate potential adverse effects to the species during its review of development proposals. However, CDFG's primary regulatory venue is under the California Environmental Quality Act (CEQA) (Public Resources Code Sec. 21000–21177). CEQA has proven to be a variable, and often inadequate, regulatory mechanism for providing protection to the California tiger salamander and its habitat.

CEQA requires a full disclosure of the potential environmental impacts of proposed projects. The public agency with primary authority or jurisdiction over a project is designated as the lead agency, and is responsible for conducting a review of the project and consulting with the other agencies concerned with the resources affected by the project. Section 15065 of the CEQA Guidelines, as amended, requires a finding of significance if a project has the potential to ''reduce the number or restrict the range of a rare or endangered plant or animal.'' Once significant effects are identified, the lead agency must require mitigation for effects through changes in the project unless specific overriding considerations make mitigation infeasible (CEQA Sec. 21002). In the latter case, projects that may include the destruction of listed endangered species or their habitat may be approved.

Moreover, neither CEQA nor other statutory mechanisms under CDFG's jurisdiction provides any effective regulatory mechanisms for reducing or eliminating several of the other manmade factors (as discussed below)

which may also adversely affect California tiger salamanders and their habitat. For example, there is no State regulation of nonnative fish stocking into California tiger salamander ponds and waters. Agencies and individuals may purchase (from CDFG-licensed fish breeders) and stock into such waters sunfish, catfish and other nonnative fish for recreational fishing. Similarly, there is no State regulation of western mosquitofish stocking into California tiger salamander ponds and waters by the approximately 50 mosquito abatement districts that routinely stock this mosquito predator as a means for mosquito control. In addition, the act of controlling burrowing small mammals in places where their burrows may be highly essential to California tiger salamander survival is not State-regulated and is, therefore, still widely and commonly practiced throughout the California tiger salamander's range.

Local

We are not aware of any specific county or city ordinances or regulations that provide protection for the Central California tiger salamander. The Central California tiger salamander may be indirectly benefitting from the increased attention being given to conversions of grasslands, oak woodlands, row-crops, and other agricultural uses to vineyards and orchards. At least three Counties (Sonoma, Napa, and Santa Barbara) have recently begun applying regulatory oversight to such conversions. This oversight is resulting in requirements for full-scale environmental analyses, restrictions on the steepness of slopes onto which vineyards may be established, and requirements for erosion control plans and measures. However, in the majority of the State's Counties in the Central California tiger salamander's range, conversions to vineyards and orchards is an unregulated agricultural activity with significant potential to adversely affect the Central California tiger salamander.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Several other factors may also be causing direct or indirect adverse effects to California tiger salamanders or their habitat, including direct mortality while they are crossing roads, the species' extensive hybridization with nonnative salamanders, their exposure to various contaminants, the effects from rodent population control efforts, livestock grazing, and decreased population viability because of the species' small remaining population size.

Contaminants

Like most amphibians, California tiger salamanders inhabit both aquatic and terrestrial habitats at different stages in their life cycle, and are likely exposed to a variety of pesticides and other chemicals throughout their range. They are extremely sensitive to these pollutants due to their highly permeable skin which can rapidly absorb pollutant substances (Blaustein and Wake 1990). Toxins at lower than lethal levels may still have adverse effects, such as causing abnormalities in larva and behavioral anomalies in adults, both of which could eventually lead to lethal effects (Hall and Henry 1992; Blaustein and Johnson 2003). California tiger salamanders also could die from starvation due to the reduction or loss of their prey base from the use of pesticides. Sources of chemical pollution which may adversely affect California tiger salamanders include hydrocarbon and other contaminants from oil production and road runoff; the application of numerous chemicals for agricultural production; roadside maintenance activities; urban/suburban landscaping applications; and rodent and vector control programs.

Road mortality is not the only risk factor associated with roads, as oil and other contaminants in runoff have been detected in adjacent ponds and linked to die-offs and deformities in California tiger salamanders and spadefoot toads, and die-offs of invertebrates that form most of both species' prey base (S. Sweet, *in litt.* 1993). Lefcort *et al.* (1997) found that oil had limited direct effects on 5-week-old marbled (*A. opacum*) and tiger salamanders (*A. t. tigrinum*). However, salamanders from oil-contaminated natural ponds metamorphosed earlier at smaller sizes, and those from oil-contaminated artificial ponds had slower growth rates than larvae raised in uncontaminated ponds. Their studies did not address effects on eggs and early larval stages, where the effects may be more pronounced.

Hatch and Burton (1998) and Monson *et al.* (1999) investigated the effects of one component of petroleum products and urban runoff (fluoranthene, a polycyclic aromatic hydrocarbon) on spotted salamanders (*A. maculatum*), northern leopard frogs (*R. pipiens*), and African clawed frogs (*Xenopus laevis*). In laboratory and outdoor experiments, using levels of the contaminant comparable to those found in service stations and other urban runoff, the researchers found reduced survival and growth abnormalities in all species. The effects were worse when the larvae were exposed to the contaminant under natural levels of sunlight, rather than in the laboratory under artificial light.

There are a number of records of California tiger salamanders using roadside ditches. Many are in areas where there are no known breeding ponds, and these animals are utilizing the only marginal habitat remaining. Also, many pools in these areas have likely been destroyed, leaving these marginal sites as the only option for breeding. In light of increased urbanization, along with concurrent increases in traffic, the risk factor associated with contaminants in runoff likely will increase in both roadside ditches and across the general landscape.

Agricultural and Landscaping Contaminants

During 2001, the 23 California Counties where California tiger salamanders may occur used over 47,627,160 kilograms (105 million pounds) of pesticide active ingredients (California Department of Pesticide Regulation (CDPR) internet website 2002). Chemicals included were metam-sodium, methyl bromide, mancozeb, petroleum oil, phosmet, chlorpyrifos, pendimethalin, parathion, paraquat dichloride, fosetyl-aluminum, acephate, cryolite, malathion, and other chemicals, some of which are extremely toxic to aquatic organisms, including amphibians and the organisms on which they prey. Some of these pesticides, such as chloropyrifos, malathion, and endosulfin are cholenesterase inhibitors. Reduced cholenesterase activity has been linked to uncoordinated swimming, increased vulnerability to predation, depressed growth rates, and increased mortality in tadpoles (de Llamas *et al.* 1985; Rosenbaum *et al.* 1988; Bridges 1997; Berrill *et al.* 1998; Sparling *et al.* 2001).

Although there is some evidence that some amphibians may be affected by chemicals applied during the migration and dispersal seasons (Sparling *et al.* 2001), Davidson *et al.* (2001, 2002) were unable to find a significant overall relationship between upwind agriculture and the California tiger salamander's decline.

Rodent Control

California tiger salamanders spend much of their lives in underground retreats, often in California ground squirrel burrows (Loredo *et al.* 1996; Trenham 1998a), so widespread control of ground squirrels may pose threats to the salamander. California ground squirrel control, which began in the early 1900s (Marsh 1987), may be done

by trapping, shooting, fumigation of burrows, use of toxic (including anticoagulant) baits, and habitat modification, including deep-ripping of burrow areas (UCIPM internet website 2003).

California ground squirrel control programs are widely conducted (frequently via bait stations placed at specific problem sites) on and around various commercial agricultural operations, including grazing/range lands and various croplands including vineyards (R. Thompson, Science Applications International Corporation, *in litt.* 1998). Also, numerous agencies, particularly flood control agencies and levee districts, conduct extensive California ground squirrel control programs around levees, canals and other facilities they manage.

The pocket gopher, which also provides the required upland retreats for some California tiger salamanders (Loredo *et al.* 1996; Trenham 1998a; D. Cook, pers. comm. 2001), is targeted by certain control operations that may also pose threats to the amphibian. This species is also classified as a non-game mammal by CDFG. Pocket gopher control measures (UCIPM internet website 2003) are similar to measures used for California ground squirrel control, except that shooting is not an effective approach because of the pocket gophers' nearly continuous seclusion underground. Pocket gopher control typically is most common around golf courses and other large, landscaped areas, and around residential homes and gardens. Widespread control in agricultural situations is much less common than for California ground squirrels.

Two of the most commonly used rodenticides, chlorophacinone and diphacinone, are anticoagulants that cause animals to bleed to death. These chemicals can be absorbed through the skin and are considered toxic to fish and wildlife (EPA 1985; EXOTONET 1996). These two chemicals, along with strychnine, are used to control rodents (R. Thompson, *in litt.* 1998). Although the effects of these poisons on California tiger salamander have not been assessed, any uses in close proximity to occupied Central California tiger salamander habitat could have various direct and indirect toxic effects. Gases, including aluminum phosphide, carbon monoxide, and methyl bromide, are used in rodent fumigation operations and are introduced into burrows by either using cartridges or by pumping. When such fumigants are used, animals inhabiting the fumigated burrow are killed (Salmon and Schmidt 1984).

In addition to possible direct adverse effects of rodent control chemicals and gasses, California ground squirrel and pocket gopher control operations may have the indirect effect of reducing the number of upland burrows available to specific California tiger salamander populations (Loredo-Prendeville *et al.* 1994). Because the burrow density required by California tiger salamanders is unknown, the impacts of burrow loss are also unknown.

Shaffer *et al.* (1993) believe that rodent control programs could be the cause for lack of California tiger salamanders in certain areas. Active California ground squirrel colonies probably are needed to sustain California tiger salamanders, because inactive burrow systems likely become progressively unsuitable over time. Loredo *et al.* (1996) found that burrow systems usually collapsed within 18 months following cessation of California ground squirrel use, and did not report California tiger salamanders utilizing any collapsed burrows. Also, deep ripping of rodent burrow areas as a rodent control measure would be likely to completely destroy burrows and harm or kill any California tiger salamanders using them.

Many Central California tiger salamander sites are currently occupied by livestock. Livestock owners' concern over livestock breaking their legs in rodent burrows is a reason for many California ground squirrel control efforts, especially around livestock watering tanks and ponds. These and other California ground squirrel and pocket gopher control efforts clearly have potential to adversely affect Central California tiger salamanders if they are implemented without knowledge of, and concern for, the species.

Mosquito Control

In addition to the use of western mosquitofish, a common chemical method of mosquito control in California involves the use of methoprene. Methoprene is an insect hormone mimic which increases the level of juvenile hormone in insect larvae and disrupts the molting process. Lawrenz (1984, 1985) found that methoprene (Altosoid SR–10) retarded the development of selected crustacea that had the same molting hormones (*i.e.*, juvenile hormone) as insects, and anticipated that the same hormone may control metamorphosis in other arthropods. Because the success of many aquatic vertebrates relies on an abundance of invertebrates in temporary wetlands, any delay in insect growth could reduce the numbers and density of prey available (Lawrenz 1984, 1985). The use of methoprene could have an indirect adverse effect on California tiger salamanders by reducing the availability of prey.

In more recent studies, methoprene did not cause increased mortality of gray treefrog (*Hyla versicolor*) tadpoles (Sparling and Lowe 1998). However, it caused reduced survival rates and increased malformations in northern leopard frogs (Ankley *et al.* 1998), and increased malformations in southern leopard frogs (*R. utricularia*) (Sparling 1998). Blumberg *et al.* (1998) correlated exposure to methoprene with delayed metamorphosis and high mortality rates in northern leopard and mink (*R. septentrionalis*) frogs. Methoprene appears to have both direct and indirect effects on the growth and survival of larval amphibians.

Road-Crossing Mortality

Although no systematic studies of the California tiger salamander have been conducted, it is known that significant numbers of the species in other portions of its range are killed by vehicular traffic while crossing roads (Hansen and Tremper 1993; S. Sweet, *in litt.* 1993; Joe Medeiros, Sierra College, pers. comm. 1993). For example, during one 15-day period in 2001 at a Sonoma County location, 26 road-killed California tiger salamanders were found (D. Cook, pers. comm. 2002). Overall breeding population losses of California tiger salamanders due to road kills have been estimated to be between 25 and 72 percent (Twitty 1941; S. Sweet, *in litt.* 1993; Launer and Fee l996). Mortality may be increased by associated roadway curbs and berms as low as 9 to 12 centimeters (3 to 5 in), which allow California tiger salamanders access to roadways but prevent their exit from them (Launer and Fee 1996; S. Sweet, *in litt.* 1998).

Vehicular usage on California roads is increasing rapidly and directly with human population and urban expansion. During November 2002, California's estimated total vehicular travel on State highway system roads alone was 23 billion km (14.27 billion mi) (this figure and subsequent vehicular-use data from California Department of Transportation's internet website 2003). From 1972 to 2001, State highway system total vehicular usage rose steadily from 108.6 km to 270 billion km (67.1 to 167.8 billion mi) annually. For the 23 California Counties in which the California tiger salamander may occur, State highway system total annual vehicular usage in 1999, 2000, and 2001 was 86.0, 90.0, and 92.1 billion km (53.3, 55.9, and 57.2 billion

mi), respectively. Moreover, for the four areas of the State in which the four remaining population segments of the California tiger salamander occur, road densities due to past urbanization are already high. Overall, these four areas have 5,860.2 km (3,641.5 mi) of roads (and rail tracks) of all types. The range of current road (and rail) density is from 1.01 km per 100 ha (0.25 mi per 100 ac) in the Southern San Joaquin population of the salamander, to 1.64 km per 100 ha (0.41 mi per 100 ac) in the Bay Area population of the salamander. We believe such relatively high road-use and road-density values result in road-kill mortality being a potentially serious threat to the species, and a threat that is likely continuing to grow in concert with the State's rapid growth of human population and urbanization.

Hybridization With Nonnative Salamanders

Sixteen populations of hybrid California tiger salamanders and the nonnative tiger salamander (*A. tigrinum*) were found in southern Santa Clara, eastern Merced, San Benito, and northern Monterey Counties (Shaffer and Trenham 2002). Four populations consisting of pure nonnative tiger salamanders were located in Monterey County (Shaffer and Trenham 2002). The tiger salamanders at a number of locations in this area reportedly are the result of intentional introductions of the animals by a bait salesman in the 1950s and 1960s (B. Shaffer, pers. comm. 2002).

Hybrids between the California tiger salamander and the nonnative tiger salamander have been documented elsewhere in the range of *A. californiese* (Shaffer and Trenham 2002). Introduced salamanders may out-compete the California tiger salamander or interbreed with the natives to produce hybrids that may be less fit and adapted to the California climate or are not reproductively viable past the first or second generations (Bury and Lukenbach 1976; Shaffer *et al.* 1993). More recent evidence suggests that the hybrids are viable and that they breed with California tiger salamanders (Shaffer and Trenham 2002). Over time, a population of a species could become genetically indistinguishable from a larger population of an introgressing species such that the true genotype (the genetic constitution of an individual or group) of the lesser species no longer exists (Levin 2002). The loss of any population of the Central California tiger salamander due to hybridization with, or competition from, introduced species is of serious concern.

Livestock Grazing

Light to moderate livestock (cattle, sheep, and horses) grazing is generally thought to be compatible with the continued successful use of rangelands by the Central California tiger salamander, provided the grazed areas do not also have intensive burrowing rodent control efforts (T. Jones, *in litt.* 1993; Shaffer *et al.* 1993; S. Sweet, pers. comm. 1998; H. Shaffer and P. Trenham, pers. comm. 2003). By maintaining shorter vegetation, grazing may make areas more suitable for California ground squirrels whose burrows are essential to California tiger salamanders. Melanson (*in litt.* 1993) noted that although vernal pool species continued to reproduce under a November to April grazing regime, California tiger salamanders were either absent or diminished in numbers in portions of pools heavily trampled by cattle. Repeated trampling of pond edges by cattle also can increase the surface area of ponds which may increase water temperature and evaporation rate, thus reducing the amount of time the pond contains water (S. Sweet, pers. comm. 1998).

Reduction in water quality cause by livestock excrement may negatively affect the California tiger salamander by increasing nitrogen and silt levels. High nitrogen levels are associated with bacterial blooms and lowered dissolved oxygen (Worthylake and Hovingh 1989), and silt has been associated with fatal fungal infections (Lefcort *et al.* 1997), as discussed earlier under Factor C.

However, grazing generally is compatible with the continued use of rangelands by the Central California tiger salamander as long as intensive burrowing rodent control programs are not implemented on such areas and grazing is not excessive (T. Jones, *in litt.* 1993; Shaffer *et al.* 1993; S. Sweet, pers. comm. 1998).

Conclusion

In making this proposal, we have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the Central California tiger salamander. As discussed in the Summary of Factors Affecting the Species above, this species faces a number of threats. The most overwhelming threat is from continuing habitat destruction, degradation, and fragmentation. Secondary threats exist from predation and competition from introduced exotic species; possible commercial overutilization; disease; hybridization with nonnative salamanders; various chemical contaminants; road-crossing mortality; and rodent control operations. The various primary and secondary threats are not currently being offset by existing Federal, State, or local regulatory mechanisms. The Central California tiger salamander also is vulnerable to chance environmental or demographic events. The combination of its biology and specific habitat requirements makes the animal susceptible to random events, such as drought, disease, and other occurrences. Such events are not usually a concern until the number of breeding/estivation sites or geographic distribution become severely limited, as is the case with the Central California tiger salamander.

Critical Habitat

Critical habitat is defined in section 3 of the Act as the—(i) 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 the species at the time it is listed in accordance with the provisions of section 4 of the Act, upon a determination by the Secretary that such areas are essential for the conservation of the species. ''Conservation'' means the use of all methods and procedures needed to bring the species to the point at which listing under the Act is no longer necessary.

Section 4(a)(3) of the Act and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary of the Interior (Secretary) designate critical habitat at the time the species is determined to be endangered or threatened. Our implementing regulations (50 CFR 424.12(a)) state that critical habitat is not determinable if information sufficient to perform the required analysis of impacts of the designation is lacking, or if the biological needs of the species are not sufficiently well known to allow identification of an area as critical habitat. Section 4(b)(2) of the Act requires us to consider economic and other relevant impacts of designating a particular area as critical habitat on the basis of the best scientific data available. The Secretary may exclude any area from critical habitat if she determines that the benefits of such exclusion outweigh the conservation benefits, unless to do so would result in the extinction of the species.

In 30 years of implementing the ESA, we have found that the designation of statutory critical habitat provides little additional protection to most listed species, while consuming significant amounts of scarce conservation resources. The present system for designating critical habitat has evolved since its original statutory prescription into a process that provides little real conservation benefit, is driven by litigation and the courts rather than biology, limits our ability to fully evaluate the science involved, consumes enormous agency resources, and imposes huge social and economic costs. We believe that rational public policy demands serious attention to this issue in order to allow our focus to return to true conservation efforts.

While attention to and protection of habitat is paramount to successful conservation actions, we have consistently found that, in most circumstances, the designation of critical habitat is of little additional value for most listed species, yet it consumes large amounts of conservation resources. Sidle (1987) stated, ''Because the ESA can protect species with and without critical habitat designation, critical habitat designation may be redundant to the other consultation requirements of section 7.''

Currently, only 306 species or 25 percent of the 1,211 listed species in the U.S. under the jurisdiction of the Service have designated critical habitat. We address the habitat needs of all 1,211 listed species through conservation mechanisms such as listing, section 7 consultations, the section 4 recovery planning process, the section 9 protective prohibitions of unauthorized take, section 6 funding to the States, and the section 10 incidental take permit process. We believe that these measures are superior conservation strategies compared to the designation of critical habitat.

We have been inundated with lawsuits for our failure to designate critical habitat, and we face a growing number of lawsuits challenging critical habitat determinations once they are made. These lawsuits have subjected the Service to an ever-increasing series of court orders and court-approved settlement agreements, compliance with which now consumes nearly the entire listing program budget. This leaves the Service with little ability to prioritize its activities to direct scarce listing resources to the listing program actions with the most biologically urgent species conservation needs.

The consequence of the critical habitat litigation activity is that limited listing funds are used to defend active lawsuits, to respond to Notices of Intent (NOIs) to sue relative to critical habitat, and to comply with the growing number of adverse court orders. As a result, listing petition responses, the Service's own proposals to list critically imperiled species, and final listing determinations on existing proposals are significantly delayed. Litigation over critical habitat issues for species already listed and receiving the Act's full protection has precluded or delayed many listing actions nationwide.

The accelerated schedules of court ordered designations have left the Service with almost no ability to confirm the scientific data in its administrative record or to respond in any meaningful way to legitimate comments before making decisions on listing and critical habitat proposals due to the risks associated with noncompliance with judicially-imposed deadlines. This in turn fosters a second round of litigation in which those who fear adverse impacts from critical habitat designations challenge those designations. The cycle of litigation appears endless, is very expensive, and in the final analysis provides relatively little additional protection to listed species.

The costs resulting from the designation include legal costs, the cost of preparation and publication of the designation, the analysis of the economic effects and the cost of requesting and responding to public comment, and in some cases the costs of compliance with NEPA, all are part of the cost of critical habitat designation. None of these costs result in any benefit to the species that is not already afforded by the protections of the Act enumerated earlier, and they directly reduce the funds available for direct and tangible conservation actions.

We determine that, designation of critical habitat for the Central California tiger salamander would be prudent, if we reach a final determination to list the species as proposed. However, we do not intend to propose critical habitat at this time. Our budget for listing activities is currently insufficient to allow us to immediately complete all the listing actions required by the Act. Not designating critical habitat at this time allows us to provide the necessary protections needed for the conservation of the species without further delay. This is consistent with section 4(b)(6)(C)(i) of the Act, which states that final listing decisions may be issued without critical habitat designations when it is essential that such determinations be promptly published. The legislative history of the 1982 Act amendments also emphasized this point: ''The Committee feels strongly, however, that, where biology relating to the status of the species is clear, it should not be denied the protection of the Act because of the inability of the Secretary to complete the work necessary to designate critical habitat * * * . The committee expects the agencies to make the strongest attempt possible to determine critical habitat within the time period designated for listing, but stresses that the listing of species is not to be delayed in any instance past the time period allocated for such listing if the biological data is clear but the habitat designation process is not complete'' (H.R. Rep. No. 97–567 at 20 (1982)). We will prepare a critical habitat designation in the future when our available resources allow.

We will protect the Central California tiger salamander and its habitat through section 7 consultations to determine whether Federal actions are likely to jeopardize the continued existence of the species, through the recovery process, and through enforcement of take prohibitions under section 9 of the Act.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages conservation actions by Federal, State, and local agencies. The Act provides for possible land acquisition and cooperation with the State and requires that recovery actions be carried out for listed species. We discuss the protection from the actions of Federal agencies, considerations for protection and conservation actions, and the prohibitions against taking and harm for the Central California tiger salamander, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed to be listed or is listed as endangered or threatened, and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Federal agencies are required to confer with us informally on any action that is likely to jeopardize the continued existence of a proposed species, or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) 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 agency action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with us. Federal agency actions that may affect the Central California tiger salamander and may require consultation with us include, but are not limited to, those within the jurisdiction of the Corps and Federal Highway Administration (FHA).

We believe that protection and recovery of the Central California tiger salamander will require reduction of the threats from destruction and degradation of wetland and associated upland habitats due to urban development, exotic predators, unnecessary California ground squirrel and gopher control, and road construction. These threats should be considered when management actions are taken in habitats currently and potentially occupied by the Central California tiger salamander, and areas deemed important for dispersal and connectivity or corridors between known locations of this species. Monitoring also should be undertaken for management actions or scientific investigations designed to address these threats or their impacts.

Listing also will require us to review any actions that may affect the Central California tiger salamander for lands and activities under Federal jurisdiction, State plans developed pursuant to section 6 of the Act, scientific investigations of efforts to enhance the propagation or survival of the animal, pursuant to section 10(a)(1)(A) of the Act, and habitat conservation plans (HCPs) prepared for non-Federal lands and activities pursuant to section 10(a)(1)(B) of the Act.

Federal agencies with management responsibility for the Central California tiger salamander include the Service, in relation to the issuance of section 10(a)(1)(A and B) permits for HCPs and other programs. Occurrences of this species could potentially be affected by projects requiring a permit from the Corps under Section 404 of the CWA. The Corps is required to consult with us on applications they receive for projects that may affect listed species. Highway construction and maintenance projects that receive funding from the FHA would be subject to review under section 7 of the Act. In addition, activities that are authorized, funded, or administered by Federal agencies on non-Federal lands will be subject to section 7 review.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, codified at 50 CFR 17.21, in part make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt any such conduct), import, export, transport in interstate or foreign commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to our agents and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities. Requests for copies of the regulations on listed species and inquiries about prohibitions and permits may be addressed to the U.S. Fish and Wildlife Service, Endangered Species Permits, 911 N.E. 11th Avenue, Portland, OR 97232–4181 (telephone: 503/231–2063, facsmile: 503/231–6243).

It is our policy, as published in the **Federal Register** on July 1, 1994 (59 FR 34272), to identify, to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of the listing on proposed and ongoing activities within a species' range. We believe that, based on the best available information, the following actions are not likely to result in a violation of section 9, provided these actions are carried out in accordance with any existing regulations and permit requirements:

(1) Possession, delivery, including interstate transport and import or export from the United States, involving no commercial activity, of Central California tiger salamanders that were collected prior to the date of publication of a final regulation in the **Federal Register** adding the Central California tiger salamander to the list of endangered and threatened species;

(2) Any actions that may affect the Central California tiger salamander that are authorized, funded, or carried out by a Federal agency, when the action is conducted in accordance with the consultation requirements for listed species pursuant to section 7 of the Act;

(3) Any action taken for scientific research carried out under a recovery permit issued by the Service pursuant to section 10(a)(1)(A) of the Act;

(4) Land actions or management carried out under an HCP approved by the Service pursuant to section 10(a)(1)(B) of the Act, or an approved conservation agreement; and

(5) Release of western mosquitofish and the use of pesticides in non-breeding habitat for the California tiger salamander. Breeding habitat is defined as vernal pools, seasonal ponds, and stock-watering ponds where the animals currently breed, or such water bodies that are within 4.8 km (3.0 mi) of existing breeding habitat, and that contain surface water for at least 3 consecutive months between September and April on average over various precipitation year-types.

Activities that we believe could potentially result in a violation of section 9 of the Act include, but are not limited to, the following:

(1) Unauthorized possession, collecting, trapping, capturing, killing, harassing, sale, delivery, or movement, including intrastate, interstate, and foreign commerce, or harming, or attempting any of these actions, of California tiger salamanders. Research activities where salamanders are trapped or captured will require a permit under section 10(a)(1)(A) of the Act;

(2) Any activity not carried out pursuant to the proposed special rule in ''§ 17.43 Special rules—amphibians'' that results in destruction or significant alteration of habitat of the Central California tiger salamander, which actually kills or injures an individual of the species, including, but not limited to, the discharge of fill material, or the withdrawal of water to the point at which habitat becomes unsuitable for the species.

(3) Discharges or dumping of toxic chemicals, silt, or other pollutants into, or other alteration of, the quality of waters supporting California tiger salamanders that results in death or injury of the species or that results in degradation of their occupied habitat which actually kills or injures an individual of the species;

(4) Release of exotic species (including, but not limited to, bullfrogs, tiger salamanders, mosquitofish, bass, sunfish, bullhead, catfish, crayfish) into Central California tiger salamander breeding habitat *which results in actual death or injury to the species;*

(5) Destruction or alteration of uplands associated with seasonal pools used by Central California tiger salamanders during estivation and dispersal, or modification of migration routes such that migration and dispersal are reduced or precluded and actual death or injury to the species results; and

(6) Activities (*e.g.*, habitat conversion, excessive livestock grazing, road and trail construction, recreation, development, and unauthorized application of herbicides and pesticides in violation of label restrictions) that directly or indirectly result in the death or injury of larvae, sub-adult, or adult Central California tiger salamanders, or modify Central California tiger salamander habitat and significantly affect their essential behavioral patterns including breeding, foraging, sheltering, or other life functions, causing actual death or injury to the species. Otherwise lawful activities that incidentally take Central California tiger salamanders, but have no Federal nexus, will require a permit under section 10(a)(1)(B) of the Act.

Questions regarding whether specific activities would constitute a violation of section 9 should be directed to the Field Supervisor of the Sacramento Fish and Wildlife Office (*see* **ADDRESSES** section).

Special Rule

Section 4(d) of the Act provides authority for us to promulgate special rules for threatened species that would relax specific prohibitions against taking. As a means to promote conservation efforts of the Central California tiger salamander, we are proposing a special rule under section 4(d) of the Act. In the case of a special rule, the general regulations applying most section 9 prohibitions to threatened species do not apply to that species, and the special rule contains the prohibitions necessary and appropriate to conserve that species. Under the rule, take of the threatened Central California tiger salamander caused by existing routine ranching activities on private or Tribal lands that don't have a Federal nexus would be exempt from section 9 of the Act. We believe that this special rule will encourage landowners and ranchers to continue their livestock-related practices that are not only important for livestock operations, but also provide habitat for the Central California tiger salamander. Livestock use on Federal lands will be addressed through the section 7 process.

Such regulations generally are issued and published as special rules in the **Federal Register** along with, or following, the listing of a species. In this case, we have chosen to concurrently publish this proposed special rule along with our proposal to list the Central California tiger salamander as threatened. We are proposing this special rule under the authority of section 4(d) of the Act containing the actions and prohibitions necessary to provide for the conservation of the Central California tiger salamander. The prohibitions we propose do not include the take of Central California tiger salamander during existing routine ranching practices, which are already listed as endangered. If this proposed special rule is finalized, the general regulations at 50 CFR 17.31 would not apply to the Central California tiger salamander where it is designated as threatened. Our rationale for a proposed special rule follows.

The proposed rule to list the Central California tiger salamander as a threatened species identifies the take of the species in upland and aquatic habitats as one of many possible reasons for the decline of the animal. The proposed listing describes the potential loss of Central California tiger salamanders to activities routinely occurring on private and Tribal lands. The specific focus of this proposed special rule is routine activities occurring on private and Tribal lands currently in or that may become subject to ranching practices, such as livestock grazing, rodent control, stock pond management, and noxious weed control.

In areas where seasonal water bodies (*e.g.*, vernal pools) no longer exist due to landscape changes or alteration of local hydrologic conditions, the Central California tiger salamander utilizes manmade water supplies such as stock ponds for breeding (Stebbins 1985; Zeiner *et al.* 1988; Shaffer *et al.* 1993). The creation and maintenance of these ponds provides not only an alternate breeding site for Central California tiger salamanders, in the absence of naturally occurring sites, but also provides additional breeding habitat as well. Routine management practices on manmade water supplies such as stock ponds must be performed in order to protect water supplies and protect the integrity of the water storage system. Management typically includes periodic dredging, dam and levee repair, the introduction of fish species to control aquatic vegetation and pests, and the chemical control of aquatic vegetation.

The Central California tiger salamander uses burrows constructed by small mammals as upland habitat during the non-breeding season (Loredo *et al.* 1996; Trenham 1998a). The California ground squirrel is a very common resident small mammal found in nearly all regions of California, excluding the Basin Ranges, and the Mojave and Colorado Desert regions. Its range overlaps significantly with the Central California tiger salamander. The California ground squirrel is considered a pest over large agricultural areas and frequently is subject to some form of population control.

Justification

Our analysis indicates that this special rule will affect approximately 222,162 ha (548,972 ac) or 49 percent of the range of the Central California tiger salamander. This special rule will apply to land primarily used for livestock grazing. Discussions with Dr. Peter Trenham and Dr. Brad Shaffer, both with the University of California, and Dr. Gary Fellers of the U.S. Geological Survey, lead us to believe that livestock grazing, in many cases, has positive, or at least neutral, effects on the Central California tiger salamander. Vegetation height and density are likely habitat factors affecting the suitability of an area for California ground squirrels. The presence of California ground squirrels and their burrows provide upland habitat for the Central California tiger salamander. Two beneficial effects to Central California tiger salamanders that would occur as a result of exempting livestock grazing in this special rule: The maintenance of open rangelands that are utilized by the salamander, and the construction and maintenance of stockponds that are used for breeding by the species.

California ground squirrels typically construct burrows that range in length from 1.5 to 9.1 m (5 to 30 ft) and range in depth below the surface from 0.6 to 1.2 m (2 to 4 ft) (University of California 2002). Central California tiger salamanders generally spend much of their lives within the first 0.9 m (3 ft) of the burrow (Loredo and Van Vuren 1996). Both occupied and unoccupied burrows are utilized as upland habitat (Loredo *et al.* 1996). Cattle and sheep, the two most common domestic grazing animals in California, have coexisted with California ground squirrels and Central California tiger salamanders since the arrival of early Spaniard explorers to California in the 16th century. It has not been demonstrated in the scientific literature, nor do we expect, that continued moderate intensity livestock grazing will destroy rodent burrows to such an extent that Central California tiger salamanders cannot use them as upland habitat. Additionally, small mammal burrows collapse naturally within 18 months if not maintained (Loredo *et al.* 1996), so

we expect that Central California tiger salamanders are forced naturally to move within or between burrows as they decay and collapse.

Control of vegetation by grazing livestock may encourage California ground squirrels to colonize areas they typically would not colonize due to the height and density of the vegetation. California ground squirrels are active during daylight hours and are preyed upon by diurnal raptors (birds of prey) such as red-tailed hawks (*Buteo jamaicensis*), and by larger predatory mammals such as coyotes (*Canis latrans*) and bobcats (*Lynx rufus*). Establishing home ranges in areas where vegetation is controlled by grazing livestock provides an advantage to California ground squirrels in being able to detect and avoid predation by their natural predators. Also, less vegetation may facilitate the movement of Central California tiger salamanders from upland areas to breeding ponds. Lack of vegetation is not anticipated to increase the risk of Central California tiger salamanders to predators as they typically move during hours of darkness, and most generally, during periods of rainfall. Nocturnal predators such as owls, skunks (*Mephitis* sp.), and racoons (*Procyon lotor*) rely more on their olfactory and auditory senses to locate prey than their vision. Although the height of the surrounding vegetation may afford a slight advantage to Central California tiger salamanders in avoiding predators, we do not anticipate that vegetation height plays a significant role in preventing depredation of Central California tiger salamanders by nocturnal predators.

Central California tiger salamanders may be subject to take during routine control of California ground squirrel populations on private lands. The California ground squirrel can, in moderate to high-densities, significantly deplete forage for grazing livestock, thereby reducing the carrying capacity on rangeland as well as irrigated pasture land (Marsh 1994). Grinnell and Dixon (1918) calculated that 200 ground squirrels could consume as much forage as a 454 kilogram (kg) (1,000 pounds (lbs)) steer during the spring months (Marsh 1998). Most commonly, routine control of California ground squirrels and other burrowing rodents includes shooting individual squirrels, baiting squirrel burrows or colonies with poisonous grains, fumigating burrows with toxic or suffocating gases, and discing or blading over burrow openings to destroy burrow complexes and fill openings.

Shooting individual squirrels, while potentially harmful to other species through secondary lead poisoning, is not expected to have adverse effects on Central California tiger salamanders. To be effective, a population must be kept under constant shooting pressure which is time consuming and not cost effective over the long-term. Discing and/or blading burrow complexes to destroy burrows and fill burrow openings may result in take of Central California tiger salamanders. Although the extent of this practice has not been documented, conversations with landowners lead us to believe this activity generally does not occur over widespread areas on any given parcel of land. Generally, this type of activity is limited to areas in or near ranch buildings, and in areas where livestock tend to be concentrated (*e.g.*, corrals and watering areas). Poisonous grains such as Chlorophacinone® and toxic and suffocating gases (*e.g.*, Phostoxin®) are regulated by the EPA, CDPR, and other county and local ordinances. Toxic and suffocating gases also may result in high levels of salamander mortality. In areas where federally listed species are known to occur, regulations on the use of toxicants to control California ground squirrels are more restrictive, and these restrictions should provide an ''umbrella'' protection for Central California tiger salamanders from take associated with routine ground squirrel control. In Counties where more stringent guidelines are not in place to protect listed species, we will continue to work with agencies to develop use guidelines for these products and activities.

California's annual precipitation ranges from less than 20 cm (8 in) in the San Joaquin Valley to more than 127 cm (50 in) along the northern coast range, western slope of the Sierra Nevada mountains, and parts of the Cascade Range (National Climatic Data Center 2003). Summers are dry with little or no rainfall, and abnormally dry winters can be disastrous on both summer water supplies and the quality of feeding ranges for domestic livestock. In some areas of California, spring/summer range usually does not support more than one cow-calf unit per 4 to 8 ha (10 to 20 ac) of range, with each cow being able to consume up to 57 liters (15 gallons) of water per day per 454 kg (1,000 lbs) of body weight (Ohlenbusch *et al.* 1995). Considering the limited availability of naturally occurring water across California's rangeland, routine management of stock ponds is critical to the economic success of ranching operations. During heavy winter rain events, stock pond dams and levees may be subject to overflows that cause severe erosion (head-cutting) of the dam faces and containment levees. Without immediate repair, critical summer water supplies will be lost. Pond vegetation is typically controlled by grazing animals using the water supply. However, at times the vegetation must be controlled through mechanical means or herbicide applications to prevent excess loss of water supply through evapotranspiration, and to prevent aquatic vegetation from completely dominating the pond. In some ponds, fish are introduced to help control vegetation and insects. However, this practice is limited to year-round ponds which are typically not suitable habitat for Central California tiger salamander reproduction.

We propose to include in this rule an exemption for incidental take of Central California tiger salamanders during routine ranching activities by non-Federal entities on private and Tribal lands for the following activities: (1) Livestock grazing according to normally acceptable and established levels of intensity in terms of the number of head of livestock per acre of rangeland; (2) control of ground-burrowing rodents using poisonous grain according to the labeled directions and local, State and Federal regulations and guidelines. The use of toxic or suffocating gases is not exempt from the prohibitions due to its non-target specific mode of action; (3) control and management of burrow complexes using discing and grading to destroy burrows and fill openings is exempt. This exemption does not apply to large-scale discing or grading of rangeland (more than 4 ha (10 ac)) within any one-quarter section of a single township and range for burrow control and management; (4) routine management and maintenance of stock ponds and berms to maintain livestock water supplies at levels present at the time of the listing of the Central California tiger salamander. This exemption does not include the introduction of species into the stock pond that may prey on Central California tiger salamander adult, larvae, or eggs; or the introduction of chemicals into the stock pond during the general breeding season of the Central California tiger salamander that would result in the take of Central California tiger salamander adults, larvae, or eggs, or result in decreased reproductive success; and (5) control and management of noxious weeds.

Provisions of the Proposed Special Rule

We propose to exempt existing routine ranching practices from the prohibitions on take (*see* 50 CFR 17.31) for the Central California tiger

salamander. The finalization of this special rule is contingent upon a final listing of the Central California tiger salamander. Exempted activities include existing routine ranching practices as outlined above by non-Federal entities on existing rangeland (as defined by U.S. Department of Agriculture, National Agricultural Statistics Service 1997 Census of Agriculture—Appendix (1)) except for the Sonoma County DPS and Santa Barbara County DPS of the California tiger salamander, which are already listed as endangered.

Take Prohibitions

We propose that the prohibitions under section 9 of the Act that apply to threatened species continue to apply all California tiger salamander populations, to the same extent that they apply to other threatened species under our general regulations at 50 CFR 17.31.

Effects of the Special Rule on Future Section 7 Consultations

This special rule does not change the obligation of Federal agencies to consult with us under section 7 of the Act concerning actions they authorize, fund, or carry out that may affect listed species, including the California tiger salamander.

Section 10(a)(1)(B) authorizes us to issue permits for the take of listed species incidental to otherwise lawful activities, such as agriculture, surface mining, and urban development. Incidental take permits must be supported by an HCP that identifies conservation measures that the permittee agrees to implement to conserve the species, usually on the permittee's lands. Such conservation measures may, for example, minimize the reduction in the number of California ground squirrels whose burrows are used by estivating California tiger salamanders. These and other techniques to avoid take of California tiger salamanders or protect the species can be examined in the development of an HCP, candidate conservation agreement with assurances (while unlisted), or safe harbor agreement. A key element in our review of each of these conservation strategies is a determination of the plan's effect upon the long-term conservation of the species. We would approve an HCP, and issue a section 10(a)(1)(B) permit, as appropriate, if the plan would minimize and mitigate the impacts of the take to the maximum extent practicable and would not appreciably reduce the likelihood of the survival and recovery of that species in the wild.

We also are exploring other opportunities to permit conservation activities for the California tiger salamander. In particular, we encourage the public to comment on the desirability of promulgating a special rule under section 4(d) of the Act that would exempt from the section 9 take prohibition activities associated with conservation plans for the California tiger salamander. Eligible conservation plans would need to promote recovery and be approved by the Service. Activities potentially addressed under such a plan, and which would be exempt from the section 9 take provisions, could include, but are not limited to, construction of new breeding and upland habitats, fencing, and removal of bullfrogs or other exotic animals.

Reclassification of Santa Barbara County Population and Sonoma County Population

As noted above, we published a final determination on January 19, 2000, listing the Santa Barbara County tiger salamander as endangered (65 FR 3095). We hereby incorporate by reference in this document the provisions of that final determination. We determined that, based on geographic isolation, the lack of evidence of gene flow with other populations, and marked genetic differentiation, the Santa Barbara County population of California tiger salamanders meets the discreteness and significance criteria in our Policy Regarding the Recognition of Distinct Vertebrate Population Segments and qualifies as a DPS. In making this determination, we assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the Santa Barbara County population of California tiger salamanders. Like the California tiger salamander, the Santa Barbara population is restricted to breeding ponds threatened by agricultural conversion, fragmentation, and development. Ponds and upland habitats are being lost in all four regions of the county in which the species occurs. On the other hand, the Santa Barbara salamander occurs in a significant part of its historic range. There are 14 known breeding sites all located on privately owned land, and no conservation agreements or easements were in place as of the data of the final listing determination.

Also as noted above, on March 19, 2003, we published a final determination listing the Sonoma County tiger salamander as endangered (68 FR 13497). We incorporate by reference here the provisions of that determination. We determined that the population segment meets both the discreteness and significance criteria of our DPS policy and qualifies for listing. In making this determination, we carefully assessed the best scientific and commercial information available at that time regarding the past, present, and future threats faced by the Sonoma County California tiger salamander. We found that the DPS faces continuing habitat destruction, degradation, and fragmentation. We were able to identify only eight known breeding sites in Sonoma County. However, we observed: ''We note that the petition and subsequent emergency listing of this population has led to increased interest in this population by a variety of parties, and thus to an acceleration of the rate at which new information is becoming available. We expect this trend to continue subsequent to this final listing determination'' (68 FR 13502).

The analysis of threats for the Santa Barbara and Sonoma populations is virtually identical to that for the Central California population which we are proposing for threatened status. The research supporting the final Santa Barbara determination, the final Sonoma determination and this proposed rule is the same. In both cases, habitat loss is the apparent key threat. The remaining threats are precisely the same. Obviously there are site-specific distinctions which may be of significance. Given this identity of threat, it may be that the populations should have the same status. Such a determination may turn on a number of factors. For example, is the rate of habitat conversion in Santa Barbara County and Sonoma County more or less that of the 23-county area in which the Central California tiger salamander population is found? Is the habitat remaining in the Central Valley equivalent to that remaining in Santa Barbara County or Sonoma County? Is the tiger salamander population more or less imperiled in Santa Barbara and Sonoma Counties given that Santa Barbara's recent annual growth rate has been about 1 percent, Sonoma's has been under 1 percent, and in the counties in the range of the Central California tiger salamander, growth has averaged in excess of 1 percent (California Department of Finance 2003)?

In the final rule to list the Sonoma County population, we announced that: ''As a part of [this] rulemaking we intend to review all then-current information regarding both the Sonoma County and Santa Barbara County populations, including whether they constitute valid distinct population segments, and render a final

determination on the California tiger salamander accordingly'' (68 FR 13502).

Pursuant to that announcement and given the potential issues surrounding the correct status for the Sonoma and Santa Barbara populations, we now propose the following:

(1) That the Sonoma County DPS of the California tiger salamander be reclassified from endangered to threatened.

(2) That the Santa Barbara County DPS of the California tiger salamander be reclassified from endangered to threatened.

(3) That the proposed special rule under section 4(d) of the ESA be extended to the DPSs in Santa Barbara and Sonoma Counties, as well as to the Central California DPS.

The basis for proposing that the special rule be extended to Santa Barbara and Sonoma Counties is that our analysis in those areas, like that in the range of the Central California tiger salamander, shows that grazing generally is compatible with the continued use of rangelands by the California tiger salamander as long as intensive burrowing rodent control programs are not implemented on such areas and grazing is not excessive. Indeed, in Santa Barbara County, the only remaining sites with large amounts of suitable salamander habitat (eight ponds at five sites) currently are being grazed. These rangelands are the only undeveloped habitat in the area and thus provide the only chance for salamanders to breed successfully. Additionally, in all areas, to the extent that conversion of rangelands to more intensive agricultural activity is postponed, conservation of the tiger salamander will be enhanced.

If this proposal is finalized without change, all three DPSs will have the same status. We are not, however, proposing at this time to eliminate the DPSs in favor of a single listed population. We will take public comment on that issue.

Public Comments Solicited

We intend that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, we are soliciting comments from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule. We are particularly seeking comments concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to the California tiger salamander;

(2) The location of any additional populations or breeding sites of this species, and the reasons why any habitat should or should not be determined to be critical habitat pursuant to section 4 of the Act;

(3) Additional information concerning the range, distribution, and population sizes of this species;

(4) Current or planned activities or land use practices in the subject area and their possible impacts on this animal;

(5) Additional information pertaining to the promulgation of a special rule to exempt from section 9 take prohibitions existing routine ranching practices located on private and Tribal lands where the Central DPS occurs; and

(6) Additional information pertaining to the Central, Sonoma County, and Santa Barbara County populations, including data on their validity as DPSs, or whether other designations, such as a single rangewide designation or combinations of designations including additional DPSs, is more appropriate.

If you wish to comment, you may submit your comments and materials concerning this proposal by any one of several methods: (1) You may submit written comments and information to the Field Supervisor at the address provided in the **ADDRESSES** section above; (2) You also may comment via the electronic mail (e-mail) to *catiger@R1.fws.gov.* Please submit e-mail comments as an ASCII file avoiding the use of special characters and any form of encryption. Please also include ''Attn: [1018–AI68]'' and your name and address in your e-mail message. If you do not receive a confirmation from the system that we have received your e-mail message, contact us directly by calling our Sacramento Fish and Wildlife Office at telephone number 916/414–6600. Please note the internet address CATIGER@R1.fws.gov will be terminated at the close of the comment period; and (3) You may hand-deliver comments to our Sacramento Fish and Wildlife Office (*see* **ADDRESSES** section above).

Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Commenters may request that we withhold their home addresses from the rulemaking record, which we will honor to the extent allowed by law. There also may be circumstances in which we would withhold from the rulemaking record a commenter's identity, as allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. However, we will not consider anonymous comments. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

Public Hearings

The Act provides for one or more public hearings on this proposal, if requested. Requests for public hearings must be made within 45 days of the publication of a proposed rule (section 4(b)(5)(E) of the Act). Given the high likelihood of requests, and the need to proceed as expeditiously as possible, the Service will hold public hearings on the dates and locations described in the **DATES** and **ADDRESSES** sections above.

The purpose of the public hearings announced here is to take oral comments on the proposed listing. Oral comments will be transcribed and will be given equal weight to comments submitted by other means. However, we encourage those commenting orally to submit written versions of their comments as well.

Persons needing reasonable accommodations in order to attend and participate in a public hearing should contact the Field Supervisor of the Sacramento Fish and Wildlife Office (*see* **ADDRESSES** section) as soon as possible. In order to allow sufficient time to process requests, please call no later than 1 week before the hearing.

Peer Review

In accordance with our policy published on July 1, 1994 (59 FR 34270), we will solicit the expert opinions of at least three appropriate and independent specialists regarding the proposed rule. The purpose of such review is to ensure listing decisions are based on scientifically sound data, assumptions, and analyses. We will send these peer reviewers copies of this proposed rule immediately following publication in the **Federal Register**. We will invite these peer reviewers to comment, during the public comment period, on the specific assumptions and conclusions regarding the proposed listing and special rule.

Executive Order 12866

Executive Order 12866 requires agencies to write regulations that are easy to understand. We invite your comments on how to make this proposal

easier to understand, including answers to questions such as the following—(1) Is the discussion in the ''Supplementary Information'' section of the preamble helpful in understanding the proposal? (2) Does the proposal contain technical language or jargon that interferes with its clarity? (3) Does the format of the proposal (grouping and order of sections, use of headings, paragraphing, etc.) aid or reduce its clarity? What else could we do to make the proposal easier to understand?

Required Determinations

Paperwork Reduction Act

This rule does not contain any information collection requirements for which Office of Management and Budget (OMB) approval under the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*), is required. Any information collection related to the rule pertaining to permits for endangered and threatened species has OMB approval and is assigned clearance number 1018–0094. This rule does not alter that information collection requirement. For additional information concerning permit and associated requirements for threatened species, *see* 50 CFR 17.32.

Executive Order 13211

On May 18, 2001, the President issued Executive Order 13211 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 rule 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.

National Environmental Policy Act

We have determined that an Environmental Assessment and Environmental Impact Statement, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act as amended. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

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) and 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. We will discuss this proposal with potentially affected Tribes before we make a final listing determination.

References Cited

A complete list of all references cited in this rulemaking is available upon request from the Sacramento Fish and Wildlife Office (*see* **ADDRESSES**).

List of Subjects in 50 CFR Part 17

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

Proposed Regulation Promulgation

For the reasons given in the preamble, we hereby propose to 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) by revising the entry for ''Salamander, California tiger'' under AMPHIBIANS in the List of Endangered and Threatened Wildlife as follows:

§ 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						
AMPHIBIAN							
*	*	*	*	*	*		*
Salamander, California tiger.	*Ambystoma californiense*.	U.S.A. (CA)	U.S.A. (CA—Central California except for Sonoma County and Santa Barbara County).	T		NA	§ 17.43(c)
Do	.....do	.....do	U.S.A. (CA—Santa Barbara County).	T	677E, 702	NA	§ 17.43(c)
Do	.....do	.....do	U.S.A. (CA—Sonoma County).	T	729E, 734	NA	§ 17.43(c)
*	*	*	*	*	*		*

3. Amend § 17.43 by adding a new paragraph (c) to read as follows:

§ 17. 43 Special rules—amphibians.

* * * * *

(c) California tiger salamander (*Abystoma californiense*).

(1) *Which populations of the California tiger salamander is covered by this special rule?* All three distinct population segments (DPSs) of the California tiger salamander (*Ambystoma californiense*) listed in § 17.11 (the Central California DPS, the Santa Barbara County DPS, and the Sonoma County DPS).

(2) *What activities are prohibited?* Except as noted in paragraph (c)(3) of this section, all prohibitions of § 17.31 will apply to all three population segments of the California tiger salamander.

(3) *What activities are allowed on private or Tribal land?* Incidental take of the California tiger salamander will not be a violation of section 9 of the Act, if the incidental take results from existing routine ranching activities located on private or Tribal lands. ''Existing'' is defined as any date on or before the effective date of the final rule to list the Central California tiger salamander. Existing routine ranching activities

include the following: (i) Livestock grazing according to normally acceptable and established levels of intensity in terms of the number of head of livestock per acre of rangeland; (ii) control of ground-burrowing rodents using poisonous grain according to the labeled directions and local, State, and Federal regulations and guidelines (The use of toxic or suffocating gases is not exempt from the prohibitions due to its non-target specific mode of action.); (iii) control and management of burrow complexes using discing and grading to destroy burrows and fill openings is exempt (This exemption does not apply to large-scale discing or grading of rangeland (more than 4 ha (10 ac)) within any one-quarter section of a single township and range for burrow control and management.); (iv) routine management and maintenance of stock ponds and berms to maintain livestock water supplies at levels present at the time of the listing of the Central California tiger salamander (This exemption does not include the introduction of species into the stock pond that may prey on California tiger salamander adult, larvae, or eggs; or the introduction of chemicals into the stock pond during the general breeding season of the California tiger salamander that would result in the take of California tiger salamander adults, larvae, or eggs, or result in decreased reproductive success.); and (v) control and management of noxious weeds.

Dated: May 15, 2003.

Matt Hogan,

Acting Director, Fish and Wildlife Service.

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