

such as predation by non-native species, contaminants, migration barriers, or habitat alteration, it may cause a significant decrease in population viability. Native predators include herons and egrets, western pond turtles (*Clemmys marmorata*), various garter snakes (*Thamnophis* spp.), larger California tiger salamanders, larger spadefoot toads (*Scaphiopus hammondi*), and California red-legged frogs (M. Peters, Service, *in litt.*, 1993; Hansen and Tremper 1993). In Arizona, larval tiger salamanders are preyed upon by adult predaceous diving beetles (*Dytiscus dauricus*) (Holomuzki 1986), and 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 the decline of the Sonoma County California tiger salamander 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 Sonoma County California tiger salamander.

Federal

Clean Water Act. Under section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344 *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 headwaters and isolated waters, 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 fill or discharge of fill or dredged material into the aquatic environment within the current range of the Sonoma County 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 Sonoma County California tiger salamander has recently become clear by the Corps' failure to assert its jurisdiction over fill of several wetlands within the range of the Sonoma County California tiger salamander. In a letter from the Corps dated March 8, 2002, concerning the fill of 0.18 ha (0.45 ac) of seasonal wetlands southwest of the intersection of Piner and Marlow Roads (Corp 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.

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 Sonoma County California tiger salamander habitat values, if any, would actually be compensated and replaced by the ensuing mitigation action(s). A 1994 Service study of selected wetlands re-creation projects in California authorized through the section 404 program found deficiencies in both compliance and performance of the re-created wetlands (Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan 1995). There was evidence that, of all the proposed mitigation, half of the sites were meeting less than 75 percent of the mitigation conditions and our goal for "in-kind" replacement was not being met (DeWeese 1994). Other recent studies have produced similar results. In addition, most wetland re-creation

efforts in California to date have been directed at the wetlands themselves and have not adequately addressed the upland and other related needs of California tiger salamanders.

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 that plans to maintain local populations of California tiger salamanders should include pond(s) surrounded by buffers at least 173 m (567 ft) wide of terrestrial habitat occupied by burrowing mammals. 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 successful in recolonization 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; Trenham *et al.* 2001; Marsh and Trenham 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 from natural and anthropogenic local extirpations (P. Northen, *in litt.*, 2001).

Three federally endangered plants, Sonoma sunshine (*Blennosperma bakeri*), Sebastopol meadowfoam (*Limnanthes vincularis*), and Burke's goldfields (*Lasthenia burkei*) occur on the Santa Rosa Plain of Sonoma County in the vicinity of the Sonoma County California tiger salamander. However, little overlap occurs between the viable breeding sites of this species and these federally listed vernal pool species. Any Corps consultation requirement for fill