

**HEITOR TAVARES DE SOUSA MACHADO** (e-mail: heitortadsm@gmail.com) and **KÁSSIO DE CASTRO ARAÚJO**, Programa de Pós-Graduação em Ecologia e Recursos Naturais, Universidade Federal do Ceará, Avenida da Universidade, 2853, Benfica, CEP 60440-900, Fortaleza, Ceará, Brasil; **DALILANGE BATISTA-OLIVEIRA**, Programa de Pós-Graduação em Biodiversidade e Recursos Naturais, Universidade Regional do Cariri, Rua Coronel Antônio Luís, 1161, Pimenta, CEP 63105-010, Crato, Ceará, Brasil.

#### TESTUDINES — TURTLES

**ACTINEMYS PALLIDA** (Southwestern Pond Turtle). **NEST DESTRUCTION.** *Actinemys marmorata* is a species of special concern in California (Spinks et al. 2014. *Mol. Ecol.* 23:2228–2241; Thompson et al. 2016. *California Amphibian and Reptile Species of Concern*. University of California Press, Berkeley, California. xv + 390 pp.). Bury et al. (2012. *Northwest Fauna* 7:1–128) and Thompson et al. (2016, *op. cit.*) have suggested that declines in the species' range may be attributable to aspects of the nesting ecology (e.g., destruction or loss of nesting habitat, absence of protections for nesting sites, putative lack of information on nesting ecology). Herein, we report on the destruction of a nest of *A. pallida* during soil grading activity.

A long-term turtle nesting ecology study was conducted between 2013 and 2019 at Mt. View Sanitary District's Moorhen Marsh, Martinez, California, USA. Individual *A. pallida* were closely observed and tracked during their breeding season, and nest locations were located, marked, and protected from disturbance (Alvarez and Davidson 2018. *Herpetol. Rev.* 49:101–103; Davidson and Alvarez 2020. *West. Wildl.* 7:42–49). Although data from this study suggested that an unknown proportion of nests remained undetected, the dominant site for nest construction was mapped and well known (Fig. 1).

Prior to the commencement of habitat restoration activities designed to benefit *A. pallida* at this site, pond levees were surveyed daily (i.e., 6 h/d for six weeks) for actively nesting turtles. Additionally, a turtle exclusion fence was installed to exclude turtles from the proposed construction area. On 20

August 2018, we received a report that a turtle was on a levee in an active construction portion of the restoration area. Upon our arrival to the reported area, a hatchling only partially free of its eggshell was found against the turtle exclusion fence, in an area that was freshly graded. The hatchling turtle had a small amount of fresh blood on its mouth and portions of its skin surface, and appeared to have been killed shortly before our observation. We searched for the presumed nest location and any other evidence of a nest, nestlings, or hatchlings, but no other signs were found. We concluded that an undetected nest was constructed within the restoration area, prior to the placement of the exclusion fence. During restoration activities, a small grader, which was removing the first 10 cm of surface soil, may have intersected a turtle nest that was actively hatching underground.

This observation indicates that females from even a very closely monitored population of *A. pallida*, for which typical nesting behavior is relatively well understood, can easily construct undetected nests. Further, it appears in this case that an undetected nest was made within an active construction area that, although thoroughly surveyed and closely monitored, was ironically destroyed by activities designed to enhance their habitat. Our long-term study suggested that the vast majority of known pond turtle nests were along the western boundary of the project area. Among 102 detected nests, only seven (6.8%), including the one reported here, were found in areas not within the typical known nesting area. Female pond turtles likely select nesting sites that meet the microhabitat requirements for nest placement and construction, however, some females will undoubtedly find suitable conditions in isolated locations in relatively cryptic habitat. This level of unpredictability (i.e., the expectation of outliers) in nest site location should be considered in mitigation measures and species management.

We are grateful to the Mt. View Sanitary District Board of Directors for long-term support to study these turtles. Work herein was conducted under a Lake and Streambank Alteration Agreement (1600-2016-0347-R3). We thank Kelly A. Davidson, Sarah M. Foster, and Karen James for assisting with nesting surveys.

**JEFF A. ALVAREZ**, The Wildlife Project, P.O. Box 188888, Sacramento, California 95818, USA (e-mail: jeff@thewildlifeproject.com); **ART RICHARDSON** and **BECKY ROZUMOWICZ-KODSUNTIE**, Area West Environmental Inc., 6248 Main Avenue, Suite C, Orangevale, California 95662, USA (e-mail: becky@areawest.net).

**APALONE FEROX** (Florida Softshell). **PREDATION.** On 17 October 2008, while driving on the Tamiami Trail (Route 41), near Big Cypress National Preserve in Collier County, Florida, USA, we observed a Great Egret (*Ardea alba*) on the side of the road with something in its beak that did not appear to be a fish. The egret was standing ca. 1 m from the edge of a roadside canal on the north side of the road. We stopped the vehicle to get a closer look at what the egret was eating, and saw it was a juvenile *Apalone ferox*, which is a common species in south Florida (Conant and Collins 1998. *A Field Guide to Reptiles and Amphibians of Eastern and Central North America*. Third edition. Houghton Mifflin Co., Boston, Massachusetts. 450 pp.). The diet of Great Egrets typically consists of various fish, frogs and crayfish. They also are known to eat snakes, hatchling alligators, small birds and mammals, snails, and insects (Peterson 2012. *Birds of Florida*. Houghton, Mifflin, Harcourt Publishers, Boston, Massachusetts. 480 pp.). They usually hunt in shallow waters, either moving around slowly with the neck extended searching for prey or

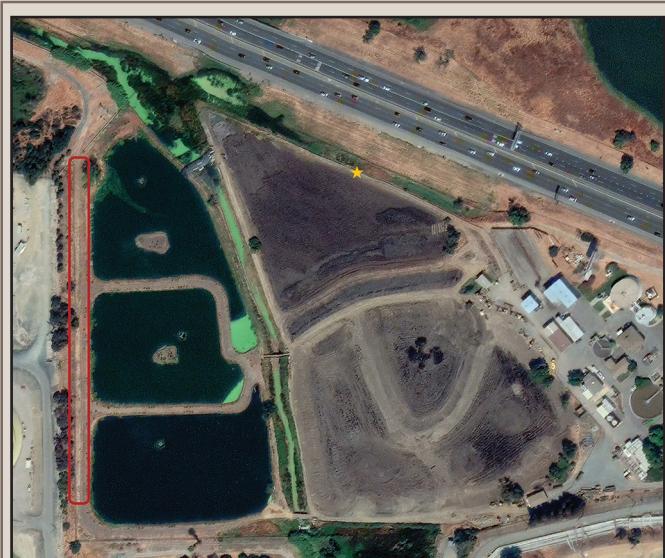


FIG. 1. Location of known primary nesting area (red box) for *Actinemys pallida*, and location of nestling (gold star) killed by ground disturbing activity. Photo modified from Google Earth Image 2020.