

**RESULTS OF TRAPPING IN 2023 FOR
SOUTHWESTERN POND TURTLES (*ACTINEMYS PALLIDA*) AT
THE SANTA RITA RANCH, SAN LUIS OBISPO COUNTY, CALIFORNIA**



(Photographed by David J. Germano)

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INTRODUCTION

The Western Pond Turtle (*Actinemys marmorata*; sensu lato) is a long-lived species for which some adults may reach an age of more than 50 years in the wild (Bury et al. 2012). It occurs along the Pacific coast of North America (Storer 1930; Bury and Germano 2008) from sea level to about 2,000 m elevation. A recent genetic analysis indicates that the species consists of two closely related species (Spinks et al. 2014), although these turtles are not ecologically distinct. Spinks et al. (2014) elevated the two previously recognized subspecies of *A. marmorata* to species status, the Northwestern Pond Turtle (*A. marmorata*) and the Southwestern Pond Turtle (*A. pallida*) and this change has been recognized by the three U.S. herpetological societies. The range of the Northwestern Pond Turtle is from the Oregon-Washington border down through the Central Valley of California but along the coast, the range ends at the San Francisco Bay. The Southwestern Pond Turtle occurs from San Francisco Bay along the central coast west of the Inner Coastal Range down into upper Baja California. Despite loss of habitat from human causes for both species, populations still occur in many streams, ponds, rivers, marshes, and man-made aquatic habitats throughout the core portion of their range (Bury and Germano 2008). Several studies of population biology have been completed for the Northwestern Pond Turtle (e.g., Germano and Bury 2009; Bury et al. 2010; Germano 2010; Germano 2016) and the Southwestern Pond Turtle (Goodman 1997; Pires 2001; Germano and Rathbun 2008; Scott et al. 2008; Germano and Riedle 2015).

Comparisons of population parameters of both species from sites at varying elevations may determine if these two species are affected by changing environmental conditions or if they only occupy areas conducive to a relatively fixed pattern of growth, population structure, and reproduction at a particular latitude. Additional studies of populations of the Southwestern Pond Turtle are needed because fewer population studies have been made for this species, and it has lost more habitat in its range than the Northwestern Pond Turtle. I began trapping at the reservoir of the Santa Rita Ranch in San Luis Obispo County in 2022 to determine population parameters for turtles known to occur there. This report covers my findings for trapping I conducted in 2023.

METHODS

In May and June, I set traps at the reservoir at the Santa Rita Ranch in the Santa Lucia Range between Templeton, California, and the coast. I also set traps the last day of trapping in May and again in June 2023 at Cienega Creek below the reservoir. The reservoir is at an elevation of 365 m and the surrounding habitat is an Oak Woodland with non-native grasses as the predominant understory. Cattle grazing occurs on the ranch, but the reservoir has been fenced to keep cattle out. I trapped along Cienega Creek just upstream from where the dirt road crosses the creek, approximately 330 m from the reservoir dam. The creek is almost 100% shaded by a canopy of oaks.

As I did last year, I captured turtles starting 23 May 2023 using commercial nylon net traps with double funnels (model FTC-FTD; Memphis Net & Twine Company, Inc., Memphis, Tennessee). I baited traps with canned sardines, and I left traps open for four days in May (one day of trapping the creek). In June I set traps for three days. I checked traps once daily, usually starting at 0900. I trapped the site twice: 23–26 May and 12–15 June. Because of poor trapping success, I did not trap the site in July as I did last year (see Discussion). In May I set out six traps in the reservoir and three more traps in the creek the last day of trapping. I set out the same number of traps in the reservoir in June and two traps in the creek. For each captured turtle, I recorded carapace length (CL) to 1 mm, weight to 1 g, sex, and age following Germano (2010). Turtles at this site grow fairly rapidly and discernible scute rings become hard to detect at 12–15 years. I classified some turtles when first captured as older than 15 years when rings were still fairly distinct but the edges of scutes along the midline of the plastron were beveled and > 20 years when plastron rings were well worn and the midline beveled. I defined turtles as adults if they were 120 mm CL or larger, and I individually marked turtles by notching marginal scutes with a file (Cagle 1939; Bury and Germano 1998). To determine if females were gravid and how many eggs were present in a clutch, I radiographed female turtles using a portable X-ray machine (HF8020, Minxray, Inc., Northbrook, Illinois).

RESULTS AND DISCUSSION

I caught only 12 individual Southwestern Pond Turtles at the reservoir in 2023, one of which was a male (#4) caught in 2022 (11 new captures). Although this is a low number of turtles compared to almost all other sites I have trapped throughout the range of both species, the total number of individuals I caught for both years was 25 (Fig. 1). Similar to 2022, turtles were all adult sized, but one male was starting its 8th year of growth (Fig 1). This male was 130 mm CL.

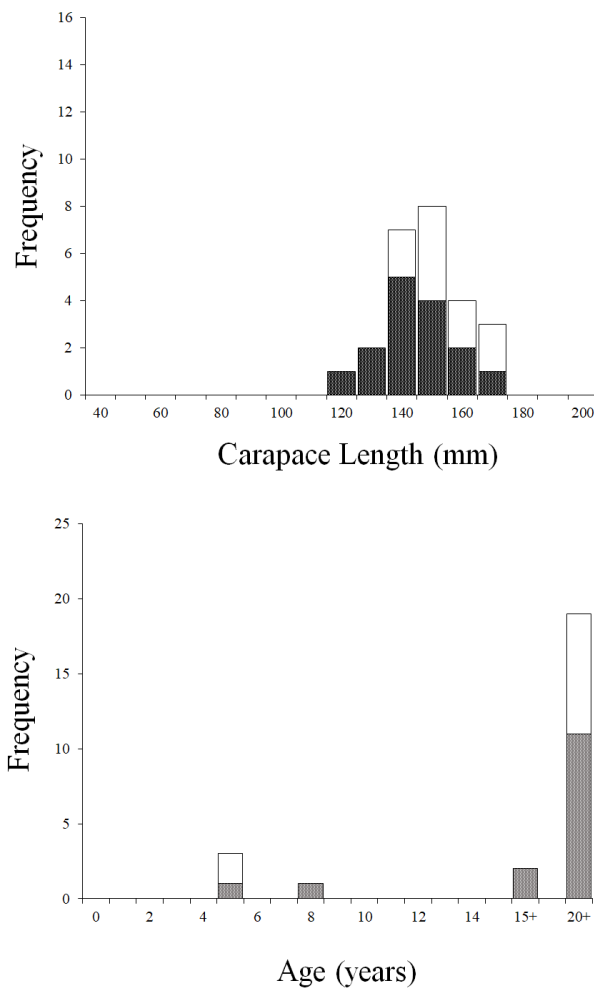


FIGURE 1. Carapace length (mm) and estimated age (years) of the 25 individual Southwestern Pond Turtles caught in 2022 and 2023 at the Santa Rita Ranch reservoir, San Luis Obispo County, California. Males are black or gray bars and females are white bars.

The seven new males that I caught ranged in size from 123–170 mm CL and the four females ranged in size from 139–166 mm CL. Combining sizes of the 25 individual turtles caught in both years, males averaged 145.5 ± 2.98 (standard error) mm CL and females averaged 153.5 ± 3.52 mm CL. As with females captures last year, I only found one female that was gravid. This female was 20 + years old and 146 mm CL. I x-rayed her 14 June, and she was carrying four eggs (Fig. 2).



FIGURE 2. X-ray photograph of female Southwestern Pond Turtle (*Actinemys pallida*) #104 taken 14 June 2003 that was caught in Cienega Creek below the reservoir at the Santa Rita Ranch, San Luis Obispo County, California.

Except for one male (#4) that I caught the first day of trapping in May, all the other captures were of new turtles not caught in 2022. Based on this, I now think there may be a fairly large population of Southwestern Pond Turtles in the reservoir (with some turtles in the creek). The population seems to be composed to a large extent of old turtles, although I have caught a small number of turtles < 10 years old. The problem with trapping at this site is the turtles have such a large area of water in which to move that I am not likely to have much better success capturing

turtles unless there are structures made as focal sites for turtles to bask. This was part of my recommendation last year for improving turtle habitat in the reservoir. In July I met with Lindsey Roddick and personnel of the reserve to discuss materials needed and how to install focal log basking sites. One structure has been put in place already (Fig. 3). Lindsey stated that two more structures have been approved for the site and hopefully these will be in place before the year is out. Because cattle are being excluded from the shore of the reservoir, emergent vegetation is returning (Fig.3), which will benefit small turtles as well as adults.



FIGURE 3. (Left) View of the north end of the reservoir in 2021 at the Santa Rita Ranch, San Luis Obispo County, California, before emergent vegetation returned along the shore. (Right) The first structure put in in August 2023 to improve the site for turtles showing large logs for adult basking and finer tree limbs and brush that can serve to protect small turtles from predatory Large Mouth Bass. Note also the emergent vegetation growing along the shoreline in contrast to 2021.

Even with basking structures in place along the shoreline of the reservoir, Large Mouth Bass still pose a particular challenge for reestablishment of a well-structured turtle population at the reserve. If The Land Conservancy allows me, I plan to trap for turtles at the Santa Rita Ranch a third time in spring 2024. I would continue trapping at the site for several more years to determine if remediation of the site increases the reproductive output of the turtle population. As

I have done with all the fieldwork I conduct, I will publish results of this work in a peer-reviewed journal.

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