

**California Wildlife Habitat Relationships System**  
**California Department of Fish and Wildlife**  
**California Interagency Wildlife Task Group**

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SPINY SOFTSHELL

*Apalone spiniferus*

Family: TRIONYCHIDAE  
R006

Order: TESTUDINES

Class: REPTILIA

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#### DISTRIBUTION, ABUNDANCE, AND SEASONALITY

The spiny softshell turtle is uncommon to common in riverine and lacustrine habitats of southeastern California. It was introduced to the upper Gila River around the turn of the century and has subsequently spread to the Colorado River drainage (Dill 1944, Miller 1946, Bury and Luckenbach 1976, Jennings 1983), and to the Salton Sea and irrigation canals in Imperial Co. (Bury and Luckenbach 1976). Specimens from the Colorado River were illegally released and have become established in the San Diego River and Lower Otay Reservoir, San Diego Co. (Jennings 1983, 1987). There have been unverified reports of spiny softshells in the San Pablo Reservoir, Contra Costa Co., and San Gabriel River, Los Angeles Co. (Bury and Luckenbach 1976, Jennings 1987). Has also been found in Santa Barbara Co. and in Kern Co. near Bakersfield (Jennings 1987). The species occurs in a wide variety of aquatic environments, preferring mud or sand bottoms, and avoiding temporary water.

#### SPECIFIC HABITAT REQUIREMENTS

**Feeding:** Spiny softshell turtles are primarily carnivorous. They feed on aquatic insects and larvae, crayfish, frogs, tadpoles, small fish, mollusks, earthworms, and carrion. Relatively large benthic prey items are preferred, such as *Hexagenia* mayfly and dragonfly naiads (Lagler 1943, Webb 1962, Williams and Christiansen 1981, Minckley 1982, Cochran and McConville 1983). Some plant material is also consumed. Turtles forage under water and prefer soft substrates. They forage by crawling along the bottom, pushing their snout under stones and debris, or by lying in ambush partially buried in mud.

**Cover:** Spiny softshell turtles spend most of the time lying in shallow water buried in mud, sand or silt with snout extended to surface of water. They will also seek refuge in submergent vegetation. Turtles bask floating in the water or on floating debris, emergent vegetation, or sandy banks (Stebbins 1954, Webb 1962, Ernst and Barbour 1972).

**Reproduction:** Courtship and mating occur in the water. Mature egg-laden females frequent shallow water prior to nesting (Webb 1962). Eggs are deposited in full sunlight on sandy banks, often close to the water. Nests are shallow flask-shaped depressions 15 cm (6 in) deep, 7.5 cm (3 in) wide, that are covered with soil and packed down (Stebbins 1954, Webb 1962, Ernst and Barbour 1972).

**Water:** These turtles are highly aquatic.

**Pattern:** Permanent water with soft substrate and sandy banks are required.

#### SPECIES LIFE HISTORY

**Activity Patterns:** Primarily diurnal, although some nocturnal activity has been observed

(Webb 1962, Ernst and Barbour 1972). Hatchlings probably emerge at night (Webb 1962). In California, spiny softshells are probably active all year (Stebbins 1954, 1985, Webb 1962).

**Seasonal Movements/Migration:** Overland migrations may be triggered by a sudden drop in water level (Williams and Christiansen 1981). Spiny softshells have traveled 50 m (150 ft) in search of suitable nest sites (Webb 1962).

**Home Range:** No data.

**Territory:** Spiny softshell turtles are noted for their vicious dispositions (Stebbins 1954, 1985, Webb 1962). Pugnacious behavior between conspecifics in captivity and the solitary nature of individuals in the wild may be evidence for territoriality (Lardie 1964). In small sandy areas nests may be in contact or overlap. Nests with eggs of two different sizes suggest that different females occasionally deposit eggs in the same location (Webb 1962).

**Reproduction:** Mating occurs from April to May, nesting from May to July, and hatching from August to October (Stebbins 1954, 1985, Webb 1962, Ernst and Barbour 1972). Clutch size varies from 3 to 17 eggs and is correlated with size of female (Webb 1962). Reports of larger clutch sizes (up to 30 eggs) are from northern populations where females are larger and lay more eggs (Webb 1962). Females may lay up to 3 clutches per season (Webb 1962). Incubation period is dependent on temperature and is at least 60 days. The minimum size of mature males was 8-10 cm (3-4 in) plastral length or 11.2 to 12.6 cm (4.5-5 in) carapace length. Females may be sexually mature when the plastron is 16-19 cm (6-7 1/2 in) or carapace length of 25.4-28 cm (10-11 in). Age estimates of softshell turtles are difficult due to the lack of horny epidermal covering of the carapace and plastron (Webb 1962).

**Niche:** Predation on eggs is the greatest source of mortality. Skunks, raccoons, foxes and domestic dogs destroy nests and consume eggs. Snakes, fish, other turtles, wading birds, and mammals also prey on the young turtles (Webb 1962, Ernst and Barbour 1972).

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