

Catalogue of American Amphibians and Reptiles.

PRITCHARD, PETER C. H. 1980. *Dermochelys coriacea*.

Dermochelys coriacea
Leatherback turtle

Chelonias Rafinesque, 1814:66. Type-species, *C. lutaria* Rafinesque (= *Testudo coriacea* Linnaeus), by monotypy. *Chelonias* is not a homonym of *Chelonia* Brongniart, thus is oldest available generic name. However, it has appeared infrequently and only in synonymies and should be suppressed by the International Commission on Zoological Nomenclature.

Dermochelys Blainville, 1816:119. Type-species, *Testudo coriacea* Linnaeus, 1766, by monotypy.

Sphargis Merrem, 1820:19. Substitute name for *Dermochelys*.

Coriudo Fleming, 1822:271. Substitute name for *Dermochelys*.

Scytina Wagler, 1828:861. Substitute name for *Sphargis*.

Chelyra Rafinesque, 1832:64. Substitute name for *Dermochelys*.

• CONTENT. One species, *Dermochelys coriacea*, is recognized.

• DEFINITION. An extremely large (adult carapace lengths 140–180 cm) marine turtle lacking keratinized epidermal structures, with a thick but scantily ossified, lyre-shaped carapace with a distinct, serrated median keel, two pairs of lateral keels, serrated marginal ridges, and five similar longitudinal plastral ridges. The shell is unique in lacking scutes, neural, costal, and peripheral bones, the free ribs being imbedded in a layer of cartilage and the surface of the carapace being composed of a layer of mosaic bones that probably have no homologs in other extant turtles. Both dorsal and ventral ridges are composed of enlarged mosaic bones; apart from these, the mosaic layer is absent from the plastron. The entoplastron is absent, and the other plastral bones are reduced to a flimsy open structure that lends little rigidity to the plastron. Hatchlings are covered with small scales that disappear after a few weeks. The skin is smooth and black to bluish black with scattered patches of white or pink; these patches predominate ventrally.

The skull is fully roofed, with a barely protruding supraoccipital process. The orbits are very large and the anterior maxillary ridge is strongly cusped. The jaws are relatively weak, completely lack crushing plates, and are adapted for cutting soft foods. The skull bones fail to fuse and the ends of the limb bones remain cartilaginous throughout life.

• DESCRIPTIONS, ILLUSTRATIONS, DISTRIBUTION, AND PERTINENT LITERATURE. See species account.

• FOSSIL RECORD. *Dermochelys* is known only from the Miocene of France (*Sphargis pseudostracion* Gervais, 1849; Romer, 1956). However, other dermochelyids are known from the Eocene of Africa and Europe, the Miocene of North America, and the Pliocene of Europe. These turtles do not fossilize well, and available material is fragmentary (Woodward, 1887).

• ETYMOLOGY. The name is from the Greek *dermos* (skin) and *chelys* (turtle) and refers to the soft skin covering the shell. Gender is feminine.

***Dermochelys coriacea* (Linnaeus)**
Leatherback turtle

Testudo coriacea sive *mercurii* Rondeletius, 1554 (fide Agassiz, 1857). Type-locality, Mediterranean Sea.

Testudo coriacea Linnaeus, 1766:350. Type-locality, "Mari mediterraneo, Adriatico"; restricted to Palermo, Sicily by Smith and Taylor (1950:13). Holotype untraceable. First use of binomial.

Testudo arcuata Catesby, 1771:40. Type-locality, coasts of Carolina and Florida. Holotype not designated.

Tortuga coriacea: Molina, 1782:216.

Testudo lya Lacépède, 1788:111. Not proposed as binomial, simply footnoted as Latin equivalent of the French *le luth*.

Testudo tuberculata Schoepf, 1801:144. Holotype and locality undesignated.

Chelonias lutaria Rafinesque, 1814:66. Type-locality, "Sicilia" [Sicily] (fide Lindholm, 1929). Holotype not designated.

Dermochelys coriacea: Blainville, 1816:119. First use of combination.

Sphargis mercurialis Merrem, 1820:19. Type-locality, "Mari mediterraneo et Oceano atlantico." Holotype not designated.

Coriudo coriacea: Fleming, 1822:271.

Scytina coriacea: Wagler, 1828, 861.

Dermochelis atlantica LeSueur, 1829:14. *Nomen nudum*.

Sphargis tuberculata: Gravenhorst, 1829:9.

Dermatochelys coriacea: Wagler, 1830:133.

Sphargis coriacea: Gray, 1831:51.

Chelyra coriacea: Rafinesque, 1832:64.

Chelonia (Dermochelys) coriacea: Van der Hoeven, 1855:548. First use of subgenus.

Sphargis coriacea var. *schlegelii* Garman, 1884:303. Type-locality, "Tropical Pacific and Indian Oceans"; restricted to Guaymas, Sonora, Mexico by Smith and Taylor (1950:13). No holotype designated; name based on plates 1 and 2 in Siebold's (1826) Fauna Japonica.

Sphargis angusta Philippi, 1899:730. Type-locality, "pescado cerca de Tocopilla [Chile]." Holotype, unnumbered adult male in Natural History Museum, Santiago, Chile. Not examined by author.

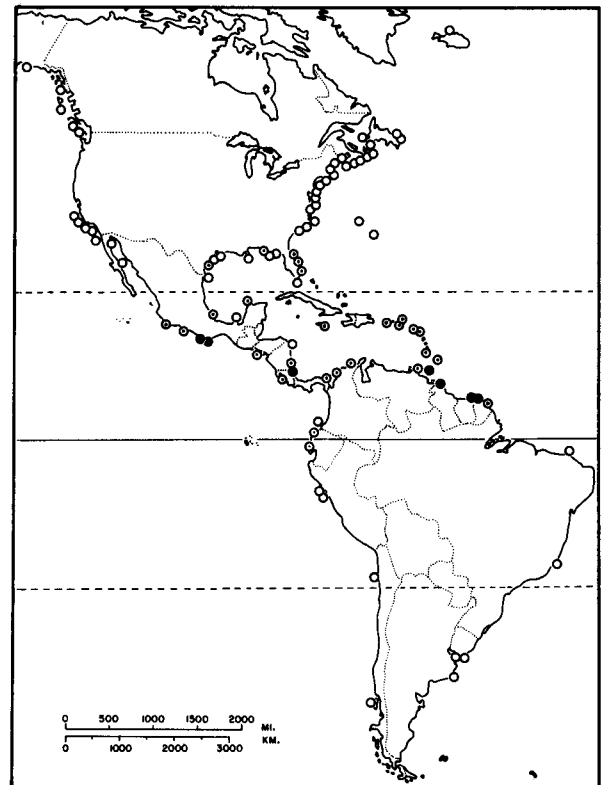
Dermochelys schlegelii: Stejneger, 1907:485.

Dermatochelys angusta: Quijada, 1916:24.

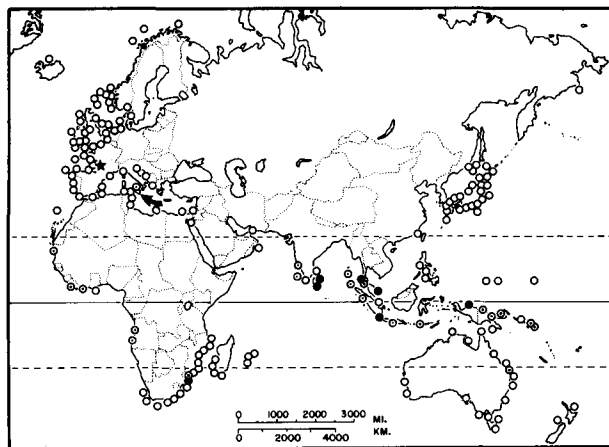
• CONTENT. Two subspecies, *coriacea* and *schlegelii* are recognized by some recent authors, but differentiating characters do not appear valid, and, pending further study, subspecies should not be recognized (Pritchard, 1971).

• DEFINITION. See generic account.

• DESCRIPTIONS. Embryos, juveniles, and adults are described in detail by Deraniyagala (1939). Other descriptions are in Loveridge and Williams (1957), Villiers (1958), Schulz (1967), Pritchard (1971), Ernst and Barbour (1972), Rebel (1974), and



MAP 1. Western Hemisphere distribution of *Dermochelys*. Symbols: solid spot, major nesting area; circled spot, isolated or sporadic nesting; open circle, non-breeding record.



MAP 2. Eastern Hemisphere distribution of *Dermochelys*. Arrow indicates restricted type-locality, star a fossil record. See Map 1 for other symbols.

many others. Anatomical descriptions are numerous; some important ones are: shell (Versluys, 1913), skull (Wegner, 1959; Adams, 1962, Gaffney, 1979), skeleton (Romer, 1956); soft anatomy (Heldt, 1933; Dunlap, 1955; Schumacher, 1972).

• **ILLUSTRATIONS.** Color photographs are in Pritchard (1967, 1979), Ernst and Barbour (1972), and Bainbridge and Pritchard (1974). Black and white illustrations are in most citations under DESCRIPTIONS, and in Brongersma (1968, 1969, 1970, 1972), Carr and Ogren (1959), Carr (1967), Bacon (1967), and Hughes (1974).

• **DISTRIBUTION.** The leatherback turtle is the most widely distributed of all reptiles (Pritchard, 1971). Nesting is mainly tropical; the most important nesting beach is in western French Guiana (Bainbridge and Pritchard, 1974) with smaller numbers nesting in eastern Surinam (Schulz, 1964, 1975), Guyana (Pritchard, 1969), Trinidad, Panama (Bacon, 1970, 1975), and Costa Rica (Carr and Ogren, 1959). Occasional nesting occurs on the Gulf Coast (Walton and Okaloosa counties; Yerger, 1965) and Atlantic Coast (Martin, St. Lucie, Palm Beach, and Dade counties; Allen and Neill, 1957; Carr, 1952; Caldwell, 1959) of Florida. A few nest in Colombia (Medem, 1962; Kaufmann, 1971) and on many West Indian islands (Caldwell and Rathjen, 1969). In West Africa, nesting occurs in Liberia (Loveridge and Williams, 1957), Ivory Coast (Villiers, 1958), Angola (Hughes et al., 1973), and probably elsewhere.

In the Indian Ocean, nesting occurs principally on the Tongaland coast of Natal, South Africa, and in southern Mozambique (Hughes, 1974), and in Ceylon (Deraniyagala, 1939). Kinunen and Walczak (1971) also reported a minor fishery on Larak Island. Trengganu, Malaysia, has an important rookery (Bustard, 1972a). Others of unknown importance are on New Guinea and the west coast of Thailand, and a few nest between Bundaberg and Gladstone, Queensland, Australia (Limpus and McLachlan, 1979).

In the East Pacific, leatherbacks nest at least from Jalisco, Mexico, to Costa Rica. The most-used nesting beaches are at Tierra Colorada near Cuajilicuilapa, Guerrero and at Bahia Chachua, Oaxaca, Mexico (Márquez, 1976; pers. obs.).

Leatherbacks migrate to areas well outside the tropics, to Alaska in North America (Hodge, 1979). Active turtles have been found in water as cold as 11.7°C in the Queen Charlotte Islands, British Columbia (McAskie and Forrester, 1962), and 17°C off the Atlantic coast of Nova Scotia (Bleakney, 1965). Other northern temperate records are Nova Scotia, Newfoundland, and New Brunswick (Bleakney, 1965); Maine (Moulton, 1963); New Jersey, Delaware, Maryland, and Virginia (Ford, 1879; McCauley, 1945; Jones, 1968; Hardy, 1969); Atlantic Europe and the British Isles (Brongersma, 1972); Japan (Nishimura, 1964); U.S.S.R. (Bannikov et al., 1971); and the Mediterranean Sea (Capocaccia, 1967; Pritchard, 1971). Pritchard (1976) records nesting leatherbacks tagged in French Guiana later caught in New Jersey, North and South Carolina, Texas, Campeche, Venezuela, and Ghana.

In the southern hemisphere, there are fewer published records of leatherbacks, although Bustard (1972b) reports "an important migration route . . . down the east coast of Australia judging by personal sightings and reports of capture in shark nets." In the southeast Pacific, leatherbacks are caught regularly at Ica,

Peru, and have been recorded as far south as Chiloé Island, Chile (Philippi, 1899). Hughes (1974) maps them around the Cape of Good Hope to southern Madagascar, Reunión, and Mauritius. They are common along the coasts of Queensland, New South Wales and Western Australia (Cogger, 1975), and Tasmania and New Zealand (Graham, 1964).

In the Atlantic, leatherbacks are not plentiful in Brazil despite the major nesting colony in neighboring French Guiana; but are frequent in Uruguay (Vaz-Ferreira and de Soriano, 1960), and nest in unknown numbers in Espirito Santo, Brazil (Anon., 1977). Freiberg (1945) provides Argentine records.

• **FOSSIL RECORD.** None.

• **PERTINENT LITERATURE.** Deraniyagala (1939) gave a thorough account. Pritchard (1971) summarized the knowledge of the species. Other references describe: cranial anatomy (Nick, 1912); Poglayen-Neuwall, 1953; Wegner, 1959; Parsons, 1958, 1968; Schumacher, 1972; Gaffney, 1979); heart anatomy (O'Donoghue, 1918); counter-current heat exchange in limbs (Greer, Lazell, and Wright, 1973); thermoregulation (Mrosovsky and Pritchard, 1971; Frair, Ackman, and Mrosovsky, 1972; Frair, 1972; Neill and Stevens, 1974); dermal oil analysis (Ackman and Burgher, 1965); fatty acids composition of depot fats (Brockeroff et al., 1968; Hooper and Ackman, 1970; Ackman, Hooper, and Frair, 1971); embryonic calcium metabolism (Simkiss, 1962); serological taxonomy (Cohen and Stickler, 1958; Frair 1964, 1969); phylogeny (Wegner, 1959; Zug, 1966; Gaffney, 1975); life history (Guiana, Pritchard, 1969; Surinam, Schulz, 1975; Trinidad, Bacon, 1970; southeast Africa, Hughes, 1974; Costa Rica, Cornelius, 1976); nesting beach preference (Hendrickson and Balasingham, 1966); nesting female sounds (Mrosovsky, 1972); major Mexican nesting beaches (Marquez, 1976); tag returns and migration (Bainbridge and Pritchard, 1974; Pritchard, 1976); non-breeding movements (Moulton, 1963); schooling (Leary, 1957); hatchling success (Hendrickson, 1962); hatchery (Hendrickson and Winterflood, 1961); predation (hatchlings, Mrosovsky, 1971; of adults, Caldwell and Caldwell, 1969); hatchling orientation (Mrosovsky and Shettleworth, 1975; Mrosovsky, 1977); toxicology (Willis, 1967; Halstead, 1970); diving (Hughes, 1979).

• **ETYMOLOGY.** The name *coriacea* derives from the Latin *corium*, leather, referring to the leathery carapace.

• **REMARKS.** Cope (1870) separated *Dermochelys* from other turtles by placing it in the Suborder Athecae (Athecoidea of Deraniyagala and others). This separation has been recognized sporadically by modern authors but most modern classifications accord it Superfamily rank within Cryptodira. Zangerl (1969) considers Dermochelyidae within the Suborder Metachelydia; Gaffney (1975) ranks it within the Superfamily Chelonioida.

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