

Catalogue of American Amphibians and Reptiles.

HIRTH, HAROLD F. 1980. *Chelonia mydas*.

***Chelonia mydas* (Linnaeus)
Green Turtle**

- Testudo mydas* Linnaeus, 1758:197. Type-locality, "insulam Adscensionis." A carapace (in the Linnaean collection) in the Uppsala Museum, Sweden may be from the type specimen (Wallin, pers. comm.) (not examined by author).
- Testudo macropus* Walbaum, 1782:112. Type-locality not stated. Holotype not designated.
- Testudo viridis* Schneider, 1783:299. Type-locality, unknown, restricted to "Charleston, [Charleston Co.] S[outh]. C[arolina].," by Smith and Taylor (1950:17). Holotype not designated.
- Testudo japonica* Thunberg, 1787:178. Type-locality, "Japan." Holotype not designated.
- Testudo marina vulgaris* Lacépède, 1788:54 and Table. Type-locality, "contres equatoriales." Holotype not designated.
- Testudo viridis-squamosa* Lacépède, 1788:92 and Table. Type-locality, "grande partie l'Amerique meridionale . . . fleuve des Amazones." Holotype not designated.
- Chelonia mydas*: Brongniart, 1800:89. First use of combination (see Hirth, 1980, for other combinations of *mydas*).
- Testudo rugosa* Daudin, 1801:37. Type-locality, "la mer des Indes . . . environs trois degrés des îles Maldives." Holotype not designated.
- Testudo cepediana* Daudin, 1801:50. Type-locality, not stated. Holotype not designated.
- Chelonia virgata* Schweigger, 1812:291. Type-locality, "mari sub zona torrida"; restricted to "Bermuda Islands" by Smith and Taylor (1950:17). Holotype not designated.
- Caretta cepedii* Merrem, 1820:18. Type-locality, not given. Holotype not designated.
- Caretta esculenta* Merrem, 1820:18. Type-locality, "Oceano Atlantico." Holotype not designated.
- Caretta nasicornis* Merrem, 1820:18. Type-locality, "Meer bei Amerika." Holotype not designated.
- Caretta thunbergii* Merrem, 1820:19. Type-locality, "Japan." Holotype not designated.
- Chelonia lachrymata* Cuvier, 1829:13. Type-locality, not stated. Holotype, possibly in Mus. Nat. Hist. Natur., Paris (Roux, pers. comm.).
- Chelonia maculosa* Cuvier, 1829:13. Type-locality, not stated; restricted to "Ascension Island" by Smith and Taylor (1950:17). Holotype, possibly in Mus. Nat. Hist. Natur., Paris (Roux, pers. comm.).
- Chelonia bicarinata* Lesson, 1834:301. Type-locality, "l'Océan atlantique." Holotype, possibly in Mus. Nat. Hist. Natur., Paris (Roux, pers. comm.).
- Chelonia marmorata* Duméril and Bibron, 1835:546. Type-locality, "île de l'Ascension." Holotype, Mus. Nat. Hist. Natur. Paris 7878 (not examined by author).
- Euchelys macropus* Girard, 1858:447. See Hirth, 1980.
- Chelonia formosa* Girard, 1858:456. Type-locality, "Feejee Islands." Holotype, U.S. Nat. Mus. 12386, adult carapace, Fiji Islands, U.S. Exploring Expedition, 1840 (not examined by author).
- Chelonia tenuis* Girard, 1858:459. Type-locality, "Honden Island, Paumotu Group; Tahiti and Eimo; Rosa Island." Holotype, U.S. Nat. Mus. 12390, male carapace, Rosa Island (Tuamotu Islands, South Pacific; Rosa Island identified as Rose Atoll, American Samoa, by the author), U.S. Exploring Expedition, 1840 (not examined by author). Synonymy in Cochran (1961) in error.
- Chelonia albiventer* Nardo, 1864:1420. Type-locality, "Adriatico . . . prossimatà del porto di Malamocco." Holotype, Mus. Civico Storia Natur. Venezia, Italy, unnumbered dry specimen (not examined by author).
- Chelonia agassizii* Bocourt, 1868:122. Type-locality, "embouchure du Nagualate . . . Pacifique (Guatémala)." Holotype, Mus. Nat. Hist. Natur., Paris 9537 (not examined by author).
- Chelonia lata* Philippi, 1887:84. Type-locality, "Insel Chiloe" Chile. Holotype, Mus. Nac. Hist. Natur., Santiago 100201 (not examined by author).
- Chelonia mydas carinegra* Caldwell, 1962:4. Type-locality, "Ba-

hia de Los Angeles, Baja California Norte, Mexico." Holotype, Los Angeles Co. Mus. 1696, young female, collected by David K. and Melba C. Caldwell, early June 1961 (not examined by author).

• CONTENT. At present, *Chelonia mydas* is a monotypic species (see COMMENT).

• DEFINITION. Medium to large sized turtles well adapted to marine life. Carapace lengths of adults vary from about 70 to 153 cm. The domed carapace has juxtaposed scutes, is oval to heart-shaped, with four pairs of pleurals (the first separated from the cervical), and sloping marginals. The shell is constricted sharply above the hind flippers in some eastern Pacific populations. Carapace ground color varies from predominately green to olive, or brown, or gray to black; and, with a varying number of blotches or streaks of yellow, green, brown, copper and black. The adult plastron varies from white to cream-yellow but in some populations has various sized infusions of gray or black. The adult bridge has four inframarginal scutes which lack pores. The head has a single pair of prefrontal scales, and usually four post-oculars. The tomium of the lower jaw is serrate while that of the upper jaw has strong vertical ridges on its inner surface. The mid-dorsal surfaces of the fore flippers are covered with large scales. The female's tail rarely extends beyond the carapacial margin while the strongly prehensile tail of the adult male always does. The single nail on the fore flippers is more elongate and curved in the male. In some populations, adult females have more highly domed carapaces than adult males; and in some populations the male carapaces are narrower than those of females.

• DESCRIPTIONS. General descriptions are given by Carr (1952), Ernst and Barbour (1972), and Cornelius (1976); Hirth (1971) describes the various life stages.

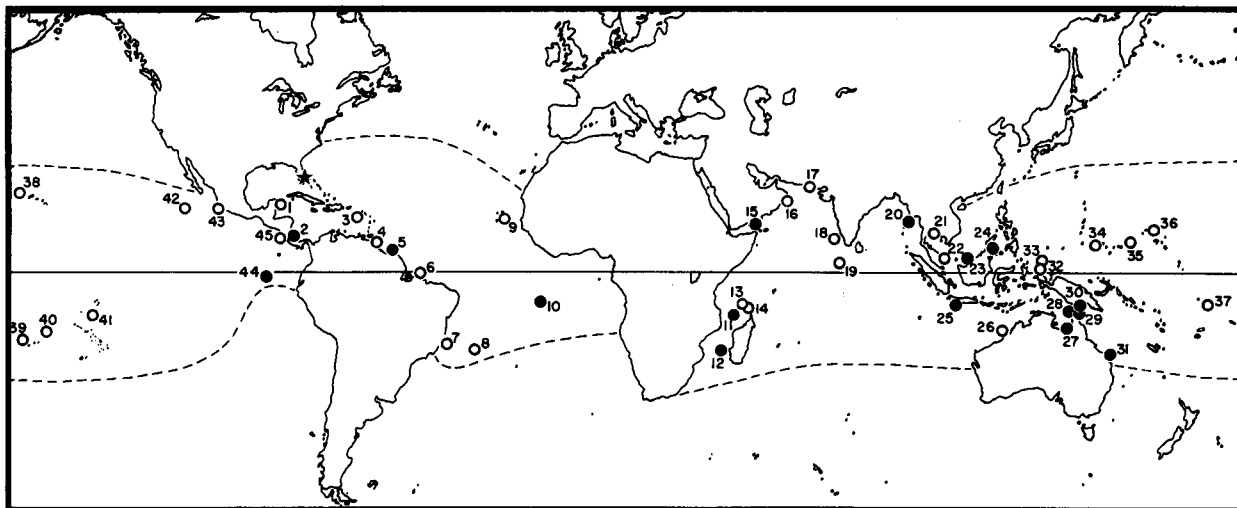
• ILLUSTRATIONS. Color photos of hatchlings appear in Carr (1967b) and Cogger (1975). Frazier (1971), Carr (1972b), Ernst and Barbour (1972), Bustard (1973), and Ehrenfeld (1974) present color photos of adults. Black and white photos of various sized individuals are in Carr and Ogren (1960), Caldwell (1962), Parsons (1962), Carr (1967a), Ernst and Barbour (1972), and Bustard (1972). Skull photographs are in Ernst and Barbour (1972).

• DISTRIBUTION. Green turtles are pantropical. Distribution of most populations centers around their breeding beaches, feeding areas and remigration routes. Some major and minor nesting beaches are located on the map and data concerning remigrations are given in the PERTINENT LITERATURE.

Green turtles occasionally occur far beyond their normal ranges in the tropical seas. Along the western Atlantic they have been recorded as far north as Massachusetts (Bleakney, 1965) and as far south as Necochea, Argentina (Freiberg, 1967). The northern and southern records for the eastern Pacific are British Columbia (Carl, 1955) and Polla Island, Chile (Bahamonde, 1972). Apparently, in recent times at least, green turtles have never been common on the western coast of North America, probably because of the relatively cold, southward flowing California Current. On the other hand, turtles off the southeastern coast of the United States are much more likely to drift northward in the relatively warm waters of the Gulf Stream and this may account for the more numerous eastern coastal records. Some even reach Europe (Brongersma, 1972). Radovich (1961) described how, during three years of above-normal sea temperatures off the California coast, green turtles were sighted more north of their usual range in southern California.

A very small population nests on Merritt and Hutchinson islands off the lower east coast of Florida in the summer months. A sub-adult population appears on the feeding pastures off the upper west coast of Florida between April and November. Green turtles in the northern Gulf of California overwinter in a dormant condition (Felger et al., 1976).

The map indicates nesting sites, each with a pertinent reference, as follows: 1 = Quintana Roo, Mexico (Márquez, 1976); 2 = Tortuguero, Costa Rica (Carr et al., 1978); 3 = Aves Is. (Thurston and Rainey, 1974, 1975); 4 = Guyana (Pritchard, 1969); 5 = Surinam (Schulz, 1975); 6 = Marajo Is., Brazil (Parsons, 1962); 7 = Rio Doce, Brazil (Parsons, 1962); 8 = Trindade Is. (Parsons, 1962); 9 = Cape Verde Is. (Parsons, 1962); 10 = Ascension Is. (Simon and Parkes, 1976); 11 = Moheli Is. (Frazier,



MAP. Solid circles identify major nesting beaches, open circles indicate some minor or lesser-known sites. Numbers refer to citations in text. The star (Florida) marks a Pleistocene fossil locality. Locality 10 (Ascension Island) is the type-locality. Broken lines trace 20°C isotherms.

1975); 12 = Europa Is. (Servan, 1976); 13 = Aldabra Atoll (Frazier, 1971); 14 = Astove Atoll (Hirth and Carr, 1970); 15 = South Yemen (Hirth and Carr, 1970); 16 = Oman and Masira Is. (F.A.O., 1973); 17 = Hawke's Bay, Pakistan (Minton, 1966); 18 = Laccadive Is. (Parsons, 1962); 19 = Maldive Is. (Parsons, 1962); 20 = Diamond Is. (Parsons, 1962); 21 = Gulf of Thailand (Polunin, 1975); 22 = West Malaysia (Hendrickson and Alfred, 1961); 23 = Sarawak Turtle Is. (Hendrickson, 1958); 24 = Sulu Sea Is. (Domantay, 1952-1953; de Silva, 1971); 25 = Indonesia (Polunin, 1975); 26 = Lacepede Is. (Carr and Main, 1973); 27 = Bountiful Is. (Bustard, 1972); 28 = Crab Is. (Bustard, 1972); 29 = Raine Is. (Bustard, 1972); 30 = Bramble Cay (Bustard, 1972); 31 = Capricorn-Bunker Cays (Bustard, 1972); 32 = Helen Is. (Pritchard, 1977); 33 = Merir Is. (Pritchard, 1977); 34 = Central Caroline Is. (McCoy, 1974); 35 = Oroluk Atoll (Pritchard, 1977); 36 = Bikar Atoll (Fosberg, 1969); 37 = Funafuti Atoll (Carr, 1965); 38 = French Frigate Shoals (Amerson, 1971); 39 = Cook Islands (Brandon, 1975); 40 = Scilly Atoll (Hirth, ms.); 41 = Raroia Atoll (Carr, 1965); 42 = Clarion Is. (Carr, 1965); 43 = Michoacan, Mexico (Montoya, 1969); 44 = Galápagos Islands (Pritchard, 1971); 45 = Naranjo, Costa Rica (Cornelius, 1976).

As shown above, most nesting beaches are on islands. Other lesser-known rookeries are given in Parsons (1962), Carr (1965), Hirth (1971), and Frazier (1975).

• **FOSSIL RECORD.** *Chelonia mydas* has been found in Pleistocene deposits at Vero, Florida (Hay, 1916).

• **PERTINENT LITERATURE.** There are more than one thousand good scientific papers dealing with *Chelonia mydas*. Many of the most useful papers are summarized in Hirth (1971). Some of the significant contributions appearing after 1970 are as follows. Natural history: Frazier (1971), Brongersma (1972), Bustard (1972), Ernst and Barbour (1972), Hughes (1974), Kaufmann (1975), Carr et al. (1978). Anatomy: Ehrenfeld and Ehrenfeld (1973), Albrecht (1976), Aitkin and Solomon (1976), Owens and Ralph (1978). Biochemistry and physiology: Ackerman and Prange (1972), Benedict and Pollard (1972), Owens (1974), Prange and Ackerman (1974), Tenney et al. (1974), Hochachka et al. (1975), Kooistra and Evans (1976), Licht et al. (1976), Prange (1976), Frair (1977a, 1977b), Licht (1978), Owens et al. (1978). Remigrations: Baldwin (1972), Carr (1972a, 1975), Carr and Carr (1972), Pritchard (1973, 1976), Carr and Coleman (1974), Carr et al. (1974, 1978), Balazs (1976), Hirth (1978). Hatchlings: Mrosovsky (1972, 1978), Balazs and Ross (1974), Mrosovsky and Shettleworth (1974), Frick (1976), Ireland et al. (1978). Feeding behavior: Felger and Moser (1973), Hirth et al. (1973), U.S. Dept. Commerce (1978). Population ecology: Márquez and Doi (1973), Hirth and Schaffer (1974), Servan (1976). Mating and nesting behavior: Booth and Peters (1972), Stancyk and Ross (1978), Simon and Parkes (1976), Kowarsky (1978). Parasites: Rebel et al. (1975), Ernst and Ernst (1977), Sey (1977). Mariculture: Ehrenfeld (1974),

Simon (1975), Simon et al. (1975), Kowarsky (1977), Ulrich and Parkes (1978).

• **REMARKS.** *Chelonia mydas* is the most economically important reptile. Its flesh and/or eggs are a protein source for coastal peoples. Unfortunately, there are also luxury markets for its skin (leather), fat (cosmetics, medicines), and stuffed specimens and shells (souvenirs); thus populations have been steadily declining (Parsons, 1962; Nietschmann, 1973; Rebel, 1974).

The green turtle is listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Anon, 1976); it is registered as an Endangered Species in the I.U.C.N. Red Data Book (Honegger, 1975) (but *Chelonia mydas agassizi* is labeled a Vulnerable Species), it is listed as a threatened species under the U.S. Endangered Species Act of 1973 and, in addition, the Florida and Mexican Pacific Coast nesting populations are classified as endangered (Federal Register, 1978).

• **ETYMOLOGY.** The specific name is from the Greek *myd (os)*, meaning wetness, referring to its aquatic habitat.

COMMENT

Taxonomic studies of the *Chelonia mydas* complex are needed. Several subspecies have been described with varying degrees of completeness. Carr (1975) speculated that, in time, the names *Chelonia mydas mydas* and *Chelonia mydas viridis* will be restricted to the Ascension Island and the Tortuguero, Costa Rica, populations, respectively. I suggest, however, that the taxon not be split into subspecies until more precise definitions and demarcation of ranges are available.

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