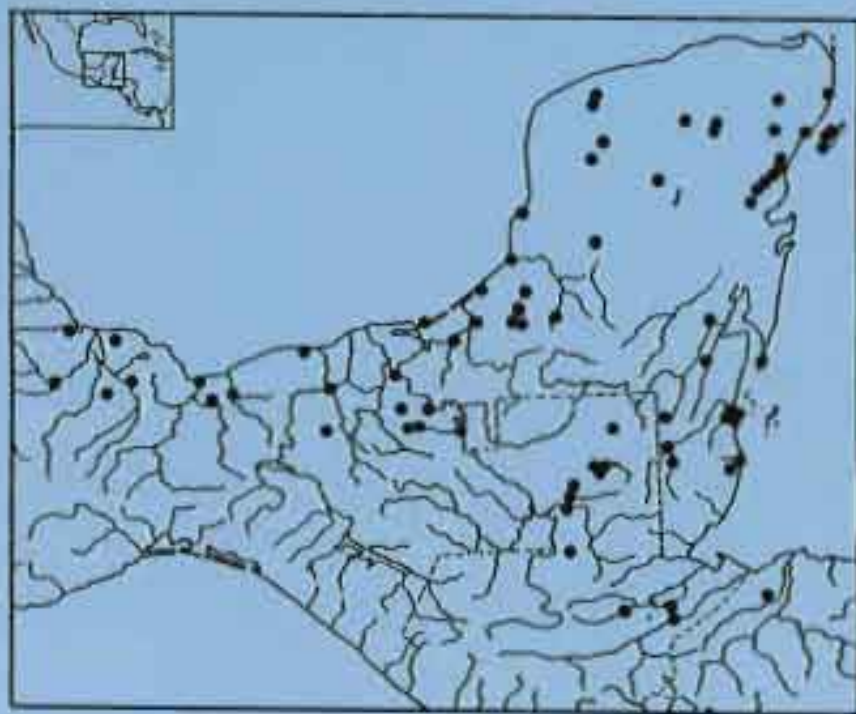


# A Revised Checklist with Distribution Maps of the Turtles of the World

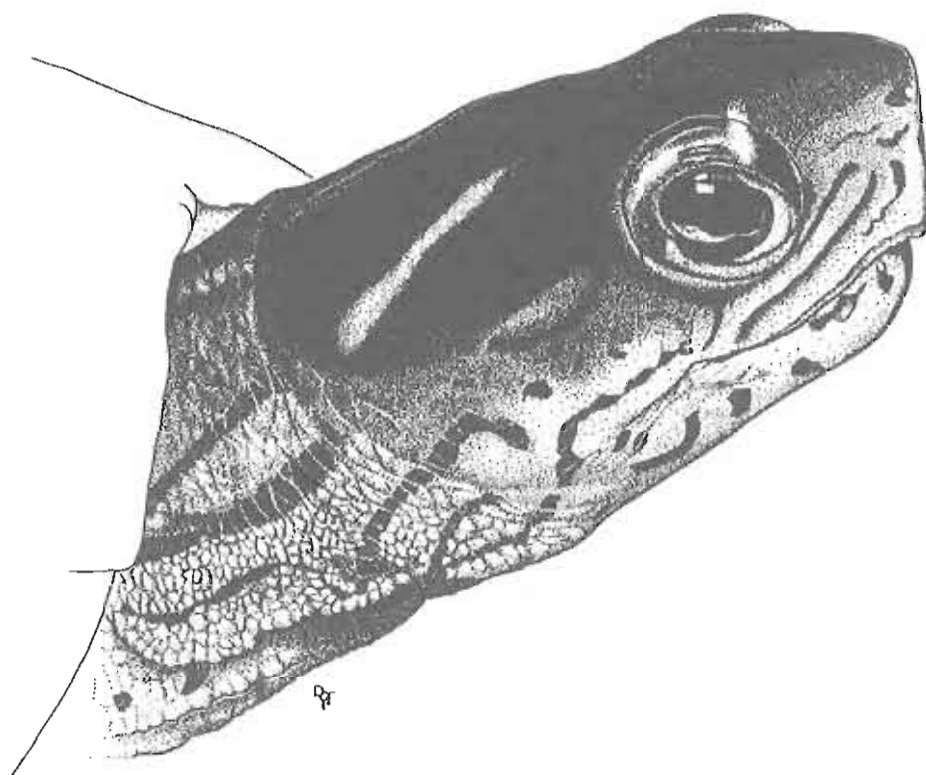
John B. Iverson  
Earlham College



# A Revised Checklist with Distribution Maps of the Turtles of the World

John B. Iverson  
Earlham College

1992



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Richmond, Indiana

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## INTRODUCTION

The six years since the publication of my 1986 Checklist have witnessed many significant taxonomic changes among the turtles (see tally on page xiii); however, they will surely pale in the light of the taxonomic changes I predict will occur in the next decade. Clearly, we are entering a unique period in the taxonomic history of turtles, as well as that of all other organisms. In my opinion, this innovation can be attributed to the latest philosophical debate about the definition of a "species," and the computer revolution that has made desk-top publishing a reality.

The recent emergence of the "evolutionary species concept" (i.e., that any ecologically, reproductively or geographically isolated genetic unit [i.e., population] that differs in "some way" from other populations should be afforded species status) promises to increase exponentially the number of recognized taxa [for an excellent discussion of this species definition debate, see *Herpetologica* vol. 46 (1:86-124)]. As has historically been the case in the species definition controversy, decisions about species boundaries ultimately come down to 1) how isolated a population must be, and 2) how different it must be. Although I fear that uncritical acceptance of the evolutionary species concept will provide justification for the naming of virtually every allopatric population (e.g., see Collins, 1991), I am more concerned that practical application of any species concept depends on differences among organisms. And the ability of scientists to detect differences among organisms or populations is greater today than it has ever been in the past. For example, we have statistical programs like discriminant function analysis that are already robust enough to identify morphometric differences among almost any set of allopatric populations (given enough variables measured). Furthermore, modern molecular techniques demonstrate unprecedented power for detecting differences between individuals and populations. Those methods may soon permit the identification of consistent biochemical differences among (for example) every separate drainage basin population of almost any currently recognized turtle "species." But just how different must a genetic (i.e., evolutionary) unit be before it is afforded species status? I cannot answer this question, but I do hope that authors and editors take seriously the responsibility that this change in philosophy and method places on their shoulders. Specifically, authors must be required to justify changes in established taxonomy with rigorous quantitative analysis. The time has long since passed for describing turtle taxa based solely on allopatry and minor color differences (which may have no genetic basis). In addition, authors should be required to do comprehensive range-wide analyses of geographic variation in all members of the particular clade under consideration (e.g., see analyses of variation in *Trachemys* by Seidel, 1987, and Legler, 1990). After all, how many times must we be misled by conclusions drawn from analyses of variation in restricted portions of a species' range (compare Faheey, 1980 and Ward, 1984, for but one example).

The ability of individuals to desk-top publish also complicates the current state of turtle taxonomy, as it raises many legal (in the sense of the International Code of Zoological Nomenclature) and moral questions. On the positive side, it makes possible the rapid transmission of information relatively inexpensively (e.g., this Checklist). On the other hand, the technology now allows one to circumvent the rules and intent of the ICZN. This complication is specifically illustrated by the controversy surrounding the papers by Wells and Wellington (1983; 1985) in which the taxonomy of the Australian herpetofauna was radically revised. Fortunately, the broader herpetological community has rejected these authors' approach (e.g., see Shine, 1984; King and Miller, 1985; Heatwole, 1985; Gans, 1985; Tyler, 1985; Grigg and Shine, 1985; Shea, 1987; King and Burke, 1989), and the ICZN has been petitioned to suppress those publications. However, on a smaller scale, it is also illustrated by recent papers by Highfield (1990) and Highfield and Martin (1989a, 1989b) that elevate populations of *Testudo graeca* to species and/or new generic status in a new journal created by those very authors. This story is further complicated by the incredible international variation that exists in the time between submission and publication of a manuscript. It may take up to two years for this process for mainstream journals in the United States, whereas it can take only a few months for "in-house" publishers in many countries (e.g.,

see Comment under *Cuora zhoui*). This raises issues of ethics and fairness that will not soon be answered. How open should we be in sharing data or manuscripts? How much peer review is essential without restraining academic freedom of expression? How long should the academy wait for results from people who lay "claim" to a group (e.g., see Comment under *Pelusios broadleyi*)? Again, I lack clear answers, but the time to struggle with these questions is surely at hand.

All of this controversy makes the preparation of a checklist such as this complicated and (unfortunately) its usefulness short-lived. However, my naive hope is that through cooperative sharing of information such as that in this Checklist, we can minimize future controversy. To that end I welcome any and all comments or criticisms of this Checklist.

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1 February 1992

## RULES OF COMPILATION

**Species names:** I have attempted to follow the taxonomic decision of the most recent reviewer of any particular group. In some cases I have not listed a taxon as it was listed by the most recent reviewer. These deviations occurred in cases where thorough taxonomic revisions are pending publication or were not previously available. I have, of course, included comment on any such controversy. I have also tried to adhere as strictly as possible to the rules of nomenclature presented in the Third Edition of the Code of Zoological Nomenclature (1985). Parentheses surround the author and date if the species (or subspecies) was originally described in a different genus than now recognized.

**Original name:** I have included the exact orthography (including capital letters, if used) of the binomen from the original species description if it is not precisely the same as the current usage.

**Common name:** With very few exceptions, names follow those I published in 1985c and 1986b. I strongly urge authors with more appropriate names to publish them, with the ultimate hope of developing a world-wide list of standardized names.

**Holotype:** Although this manuscript details only the primary types (holotype or neotype or syntypes or lectotype) of recognized species and subspecies that I have been able to locate, my ultimate goal, obviously to be accomplished in later versions of this publication, is to include lists of secondary types as well as synonymy lists with full information about the type material of synonyms. Museum acronyms follow Leviton et al. (1985), Leviton and Gibbs (1988), and King and Burke (1989), and are listed on page vii.

**Type locality:** The location at which the type specimen(s) was(were) collected is noted. Locations enclosed in quotation marks are quoted directly from the original description. Brackets enclose additional information added by me only for clarity. I have not restricted type-localities or designated lectotypes in this volume.

**Distribution:** A general description of taxon range is provided to clarify the distribution dot map. Geographical names follow the Times Atlas of the World (1980), although some more recent geographical changes have been added for clarity (e.g., Myanmar for Burma, but not individual republics resulting from the dissolution of the USSR).

**Subspecies:** Recognized taxa are listed along with author and date, common name, primary type(s), type locality, and a general range description.

**Comment:** Any controversy concerning a taxon is elaborated here. Recent reviewers are also cited here when available.

**Maps:** I have been amassing locality data from museum collections and the literature, and from lists provided by colleagues since 1976. These data have been and are being compiled by taxon and country. Preliminary base maps were prepared and most of the localities plotted using available atlases (National Geographic, Times, Hammond, Rand McNally, etc.) and gazetteers (prepared by the Office of Geography, U. S. Dept. of Interior). Some localities for virtually every species have not been plotted because they could not be pinpointed. Copies of various partial lists and/or preliminary maps have been circulated among colleagues (see Acknowledgments). This process is one long from completion, and the lists are continually being updated with new information (especially those for the turtles of the United States, which have been my lowest priority). The maps are also deficient in several ways (e.g. lack of meridians and distance scales, presence of too few geographical reference points, etc.), although this edition does have larger scale map inserts to clarify the location of each species' range. I hope to correct other inadequacies in future editions. In addition to political boundaries, the maps appearing here always include rivers that may affect or clarify the distribution of the particular species.

Because I have not been able to verify personally the identities of many of the specimens plotted, my working assumption has had to be that identifications were correct (unless obviously incorrect due to distributional anomaly). This is generally a dangerous approach, but one I believe will not lead to problems using the turtle data base. First, most of the world's turtle specimens: 1) are easily identifiable [From my own work verifying museum specimens of the difficult-to-identify kinosternine turtles, species misidentifications numbered less than 5%]; 2) are older specimens and have been examined numerous times by curators and/or researchers; and/or 3) have been included in review papers with presumably accurate specimen lists. Nevertheless, mapping errors have undoubtedly been made. Since this is a long-term project, it is hoped that such errors of compilation and/or mapping can eventually be eliminated.

In addition to dots marking localities, maps may have snowflakes (signifying introduced populations) or question marks. If the latter are immediately adjacent to dots they indicate questionable localities; if they are isolated they indicate general areas where the species has been reported and/or can be expected to be found.

It should also be noted that the mapped distributions of nearly all taxa (except for example *Geochelone nigra*) represent the species' "historic" range rather than the current range. Unfortunately, humans have directly and indirectly caused significant reductions in the distributions of most turtles.

**Keys:** With some hesitation I have included dichotomous keys to the species level in this edition of the checklist, especially when it was clear that I would not have the time to write and/or check them personally. This is especially problematic in that the only published keys for many taxa rely on internal characters (particularly skeletal ones) and/or require considerable technical expertise (e.g., identifying particular processes on the skull). My decision to include modifications of published keys (with sources clearly referenced) was a compromise in that I think that even a preliminary key is better than no key. In an ideal world, we should have keys that work for all taxa, both sexes and all size classes, and living, whole preserved, or skeletal material. In reality, and for many reasons, we are still far from that goal. However, it is my hope that the next decade will bring more stability to turtle taxonomy (see Introduction), but also a focus on the development of keys for the non-specialist. Readers should refer to the glossary in Ernst and Barbour (1989) for clarification of unfamiliar terms.

**Phylogenies:** When available from either the published or unpublished literature, the most recent hypothesis of phylogenetic relationships of taxa at or above the species level is illustrated.

**Museum abbreviation list:** Abbreviations follow Leviton et al. (1985) and Leviton and Gibbs (1988), with the several additions by King and Burke (1989:192-194).

AMG	Albany Museum, Somerset Street, Grahamstown 6140, Cape Province, Republic of South Africa.
AMNH	American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024, U.S.A.
AMS	Australian Museum, P.O. Box A285, 6-8 College Street, Sydney South, New South Wales 2000, Australia.
ANSP	Academy of Natural Sciences, 19th and the Parkway, Philadelphia, Pennsylvania 19103, U.S.A.
BMNH	British Museum (Natural History), Department of Zoology, Cromwell Road, London SW7 5BD, United Kingdom.
CAS	California Academy of Sciences, Golden Gate Park, San Francisco, California 94118, U.S.A.
CHM	Charleston Museum, 121 Rutledge Avenue, Charleston, South Carolina 29401, U.S.A.
EBRG	Estación Biológica de Rancho Grande, Aragua, Venezuela
FMNH	Field Museum of Natural History, Roosevelt Road and Lake Shore Drive, Chicago, Illinois 60605, U.S.A.

FU	Fudan University, Fujian Province, People's Republic of China.
IRSNB	Institut Royal des Sciences Natureles de Belgique, Rue Vautier 31, B-1040 Brussels, Belgium
KU	University of Kansas, Museum of Natural History, Lawrence, Kansas 66045, U.S.A
LACM	Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, California 90007, U.S.A.
MACN	Museo Argentino de Ciencias Naturales, Bernadino Rividavia, Avenida Angel Gallardo 470, 1405 Capital Federal, Argentina.
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138, U.S.A
MHNT	Museum d'Histoire Naturelle, Jardin des Plantes, Allée Jules Guesde, 3100 Toulouse, Haute Garonn, France
MNHN	Museum National d'Histoire Naturelle, 43 Rue Cuvier, 75231 Paris V, France. [The MNHN comparative anatomy collection is indicated by the suffix AC.]
MPEG	Museu Paraense "Emilio Goeldi", Caixa Postal 399, 66.000 Belem, Para, Brasil.
MRAC	Musee Royal de l'Afrique Centrale, B-1980 Tervuren, Belgium.
MSNG	Museo Civico di Storia Naturale de Genova 'Giacoma Doria,' Via Brigata Liguria 9, 16121 Genova, Italy.
MTKD	Staaliche: Museum für Tierkunde, Augustusstrasse 2, 801 Dresden, Germany
MVZ	Museum of Vertebrate Zoology, University of California, Berkeley, California 94720, U.S.A.
MZT	Zoological Museum, Ul. Vanemuizhe 43, Tartu, Estonian S.S.R., U.S.S.R.
MZUP	Museo Zoologico, Università di Palermo, Via Archirafi 18, 90123 Palermo, Italy.
MZUS	Musee de Zoologie, Universite de Strasbourg, Strasbourg, France.
MZUSP	Museu de Zoologie, Universidade de Sao Paulo, Caixa Postal 7172, 04263 Sao Paulo, Sao Paulo, Brasil.
NMP	Natal Museum, 237 Loop Street, Pietermaritzburg, Natal, Republic of South Africa.
NMW	Naturhistorisches Museum, Postfach 417, Burgring 1, A-1014 Wien I, Austria.
NRM	Naturhistoriska Riksmuseet, Box 50007, S-104 05 Stockholm, Sweden.
NUH	Laboratory of Natural Science Collection, National University, Hanoi, Socialist Republic of Vietnam.
OUM	Oxford University Museum, Parks Road, Oxford, Oxfordshire, United Kingdom.
QM	Queensland Museum, Gregory Terrace, Fortitude Valley, Brisbane, Queensland 4006, Australia.
RCSM	Royal College of Surgeon's Museum, Lincoln's Inn Fields, London WC2, United Kingdom.
RMNH	Rijksmuseum van Natuurlijke Histoire, Postbus 9517, 2300 Leiden, Holland.
RSM	Royal Scottish Museum, Chambers Street, Edinburgh EH1 1JF, Scotland, United Kingdom.
SIZ	Shanxi Institute of Zoology, Shanxi Province, People's Republic of China.

- SM (BCB) Strecker Museum (SMBU), Bryce C. Brown personal collection, Baylor University, Waco, Texas, U.S.A.
- SMF Natur-Museum und Forschung-Institut Senckenberg, Senckenberg Anlage 25.6000 Frankfurt-am-Main 1, Germany.
- SMNS Staatliches Museum für Naturkunde in Stuttgart Arsenplatz 3 Ludwigsburg, Germany.
- TCWC Texas Cooperative Wildlife Collection, Texas A and M University, College Station, Texas, 77843, U.S.A.
- TMP Transvaal Museum, Paul Kruger Street, P.O. Box 413, Pretoria 0001, Transvaal, Republic of South Africa.
- TNHC Texas Natural History Collection, Texas Memorial Museum, 24th and Trinity, Austin, Texas 78705, U.S.A.
- TU Tulane University, Herpetological Collections, Department of Biology, 6823 St. Charles Avenue, New Orleans, Louisiana 70118, U.S.A.
- UCM University of Colorado Museum of Natural History, Broadway between 15th and 16th Streets, Boulder, Colorado 80309, U.S.A.
- UF Florida Museum of Natural History, University of Florida, Gainesville, Florida 32611, U.S.A.
- UIMNH University of Illinois, Museum of Natural History, Urbana, Illinois 61801, U.S.A.
- UMMZ University of Michigan Museum of Zoology, Ann Arbor, Michigan 48109, U.S.A.
- USNM National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560, U.S.A.
- UU University of Utah, Herpetology Collection, Salt Lake City, Utah 84112, U.S.A.
- ZIL Academy of Sciences, Zoological Institute, Leningrad Centre 199164 Leningrad, U.S.S.R.
- ZIUS Stockholms Universitet Zoologisk Institut, S-106 91 Stockholm, Sweden.
- ZMB Museum für Naturkunde, Universität Humboldt, Invalidenstrasse 43, 104 Berlin, Germany.
- ZMH Zoologisches Institut und Museum, Universität Hamburg, Martin-Luther-King Platz 3, D-2000 Hamburg 13, Germany.
- ZMUP Museo Zoologica, (Istituto di Zoologia, Zoologia Comparativo e Genetico) Università di Padova, Italy.
- ZMUU Zoologiska Museet, Uppsala Universitet, P.O. Box 561, S-751 22 Uppsala, Sweden.
- ZSH Zoologisches Institut und Museum, Universität Hamburg, Martin-Luther-King Platz 3, D-2000 Hamburg 13, Germany.
- ZSI Zoological Survey of India, Fire Proof Spirit Building, 27 Jawaharlal Nehru Road, 700 016 Calcutta, West Bengal, India.
- ZSM Zoologisches Sammlung des Bayerischen Staates, 19 Menzinger 71, 8000 München 19, Bayern, Germany.

## Acknowledgments

While compiling this list, I have sought the input of most of the world's turtle biologists. It is thus really a cooperative effort, although I have been the primary compiler. It could not have even been started without the generosity of curators in supplying lists and authors in supplying information.

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## ERRATA

The correct ISBN number is 0-9617431-1-5.

On page xi T. Pauler and T. Zachar were erroneously left off the Acknowledgment list.

### SUMMARY OF TURTLE DIVERSITY

Number of taxa at each hierarchical level within each turtle family as listed in this Checklist. Numbers in parentheses under genera and species are percentage of total for column; those under third column are percentage of number of species for family in column two. Seven new genera (most in the Trionychidae), 11 new species (most in the Batagurinae), and 21 new subspecies (most in the Batagurinae and Testudinidae) have been described or resurrected since the first edition of my checklist (1986).

Family	Number of Genera	Number of species	Number of species with subspecies	Number of subspecies
Chelidae	10 (11.5)	40 (15.6)	1 (2.5)	2
Pelomedusidae	5 (5.7)	25 (9.7)	4 (16.0)	10
Carettochelyidae	1 (1.1)	1 (0.4)	0 (0)	0
Cheloniidae	5 (5.7)	7 (2.7)	1 (14.3)	2
Chelydridae	2 (2.3)	2 (0.8)	1 (50.0)	4
Dermatemydidae	1 (1.1)	1 (0.4)	0 (0)	0
Dermochelyidae	1 (1.1)	1 (0.4)	0 (0)	0
Emydidae	33 (37.9)	94 (36.6)	28 (29.8)	96
Batagurinae	23 (26.4)	59 (23.0)	11 (18.6)	32
Emydinae	10 (11.5)	35 (13.6)	17 (48.6)	64
Kinosternidae	3 (3.4)	22 (8.6)	7 (31.8)	24
Platysternidae	1 (1.1)	1 (0.4)	1 (100.0)	5
Testudinidae	11 (12.6)	40 (15.6)	10 (25.0)	40
Trionychidae	14 (16.1)	23 (8.9)	3 (13.0)	11
Totals	87	257	55 (21.4)	194

## ORDER TESTUDINES

Order TESTUDINES Linnaeus, 1758:194  
Turtles, tortoises and terrapins

**Distribution:** Marine species in all temperate and tropical oceans of the world; terrestrial/freshwater species on all continents except Greenland, Antarctica, and New Zealand

**Comment:** Bour and Dubois (1984c) believed that the proper name of the order should be *Chelonii* Brongniart (1800:80); however, Smith and Smith (1979) and Dundee (1990:403) argued in favor of the order name Testudines. Gaffney (1975b) studied the phylogeny of the order and generated a new higher classification; he recognized two Infraorders: *Pleurodira* Cope (1864:181; as *Pleurodera*), including the families Chelidae and Pelomedusidae, and *Cryptodira* Cope (1868a:119), including all other families. Mlynarski (1976) reviewed the fossil forms and their classification. Bickham and Baker (1976a) and Bickham and Carr (1983) presented a phylogeny based on karyotypes (see below). Wermuth and Mertens (1977) presented synonymies for most of the living species. Pritchard (1979) summarized available information on living turtle identification and some aspects of their biology. Pritchard (in Harless and Morlock, 1979) reviewed the zoogeography of the higher taxa. Chen et al. (1980) presented a phylogeny of most families based on plasma albumin differences. Smith and Smith (1979) summarized the taxonomic history of the order, as well as reviewed all Mexican taxa. Cogger et al. (1983) reviewed the literature on all living Australian species. Gaffney (1984) reviewed the history of higher classification of turtles. Pritchard and Trebbau (1984) reviewed all living taxa found in Venezuela. Indian species are reviewed by Tikader and Sharma (1985) and Das (1991). In a general review of turtles, Obst (1985 in German; 1986 in English) provided a list of all species and subspecies. Iverson (1986b) reviewed the distributions of all living species. Mao et al. (1987) studied the phylogenetic relationships of several families based on immunological cross-reactivity of serum albumins. South African species are reviewed by Boycott and Bourquin (1988). Gaffney and Meylan (1988) published a phylogeny of all genera (see below); however, Dryden (1989) questioned the monophyly of the sea turtles (*Chelonioidae* = *Cheloniidae* and *Dermochelyidae*) as well as the *Cryptodira*. Yin et al. (1989) compared the chemical and physical properties of blood albumens in six families of turtles. King and Burke (1989) listed nearly all species. Ernst and Barbour (1989) summarized much of the available information on the biology of most species. Gaffney et al. (1991) provided a phylogenetic analysis of living and extinct turtle higher taxa.

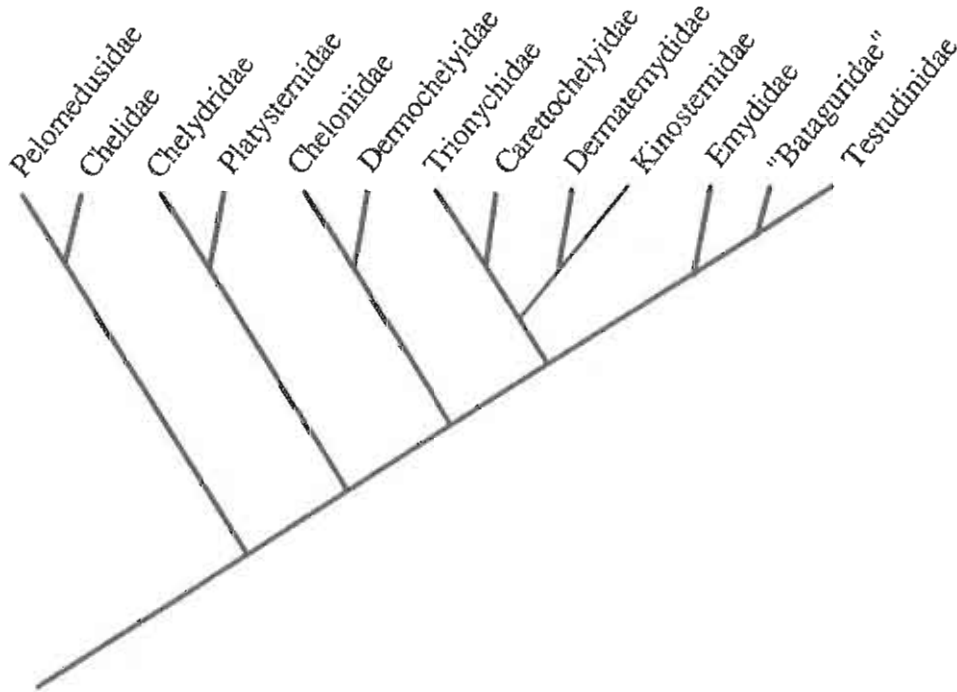
**Key to the families:** (modified from Pritchard, 1979, and Ernst and Barbour, 1989)

- 1a. Carapace and plastron covered with clearly demarcated horny scutes.....2
- 1b. Carapace and plastron covered with a continuous layer of undivided skin.....10
- 2a. Front limbs in form of elongate flippers, without separate digits; each forelimb with one or two claws; bony skull roof complete.....**Cheloniidae** (p. 80)
- 2b. Front limbs with distinct digits, each bearing four or five claws; bony skull roof usually emarginate behind.....3
- 3a. Neck retracted in horizontal plane; pelvis fused to shell.....4
- 3b. Neck retracted in vertical plane; pelvis not fused to shell; intergular scute absent.....5
- 4a. Skull roof usually emarginate from behind, not or only slightly emarginate from below; mesoplastral bones present; splenial bone absent from lower jaw.....**Pelomedusidae** (p. 50)
- 4b. Skull roof emarginate from below, not or only slightly from behind; mesoplastral bones absent; splenial bone present in lower jaw.....**Chelidae** (p. 4)
- 5a. Less than twelve plastral scutes present; entoplastron present or absent and front part of plastron moveable about a hinge between epiplastral and hyoplastral bones or entoplastron present and plastron rigid but composed of only eight scutes and attached to carapace by a flexible and very narrow bridge.....**Kinosternidae** (p. 213)
- 5b. Twelve plastral scutes present; entoplastron present; plastron, if hinged, with hinge situated between hyo- and hypoplastral bones (or between epiplastral and hyoplastral bones, and humeral and pectoral scutes in *Pyxis*, or between hypoplastral and xiphiplastral bones, and abdominal and femoral scutes in some female *Testudo*); bridge not both very narrow and flexible.....6
- 6a. One or more inframarginal scutes present between axillary and inguinal scutes on each side of plastron, separating pectoral and abdominal scutes from marginal scutes.....7
- 6b. No inframarginal scutes present; pectoral and/or abdominal scutes in contact with marginal scutes.....9

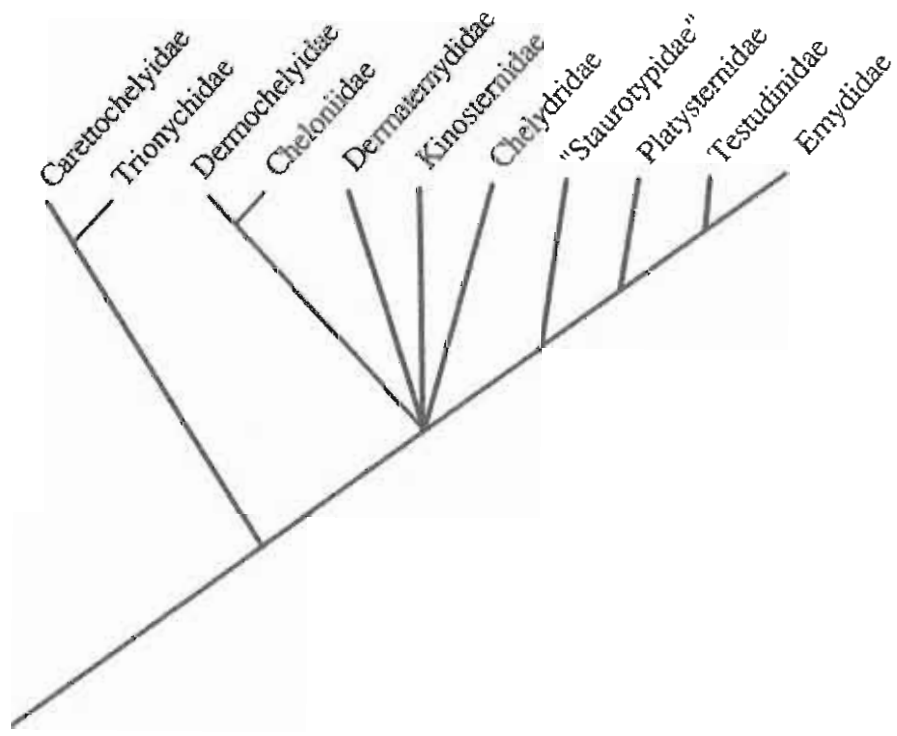
## ORDER TESTUDINES

- 7a. Tail relatively short; head small, jaw margins denticulate, beak unhooked; seams between carapace scutes absent in adults.....**Dermatemydidae** (p. 97)
- 7b. Tail long and armored; head very large, jaws non-denticulate, beak hooked; seams between carapace scutes present in adults.....8
- 8a. Plastron reduced and cruciform, rounded anteriorly; bridges rigid, abdominal scutes widely separated from midline, skull roof emarginate.....**Chelydridae** (p. 92)
- 8b. Plastron moderately large, truncated anteriorly; bridges flexible, abdominal scutes with median line of contact, skull roof complete.....**Platysternidae** (p. 240)
- 9a. Habitat terrestrial, hind feet elephantine; osteoderms usually present in forelimbs; never more than two phalanges in each digit of hind foot; toes not webbed.....**Testudinidae** (p. 242)
- 9b. Habitat typically aquatic, hind feet not elephantine; no osteoderms in forelimbs; always more than two phalanges in at least one digit of hind foot; toes usually with some degree of webbing.....**Emydidae** (p. 101)
- 10a. Carapace raised into seven prominent longitudinal ridges; upper jaw strongly cusped; snout not tube-like; limbs clawless.....**Dermochelyidae** (p. 98)
- 10b. Carapace not ridged; upper jaw not strongly cusped; snout tube-like; claws present.....11
- 11a. Hind part of carapace flexible; plastral bones reduced.....**Trionychidae** (p. 292)
- 11b. Entire carapace rigid; plastron completely ossified.....**Carettochelyidae** (p. 79)

**Phylogenetic hypotheses:** (after Gaffney and Meylan, 1988 [below] and Bickham and Carr, 1983 [next page])



# ORDER TESTUDINES



## CHELIDAE

Family *Chelidae* Gray, 1831b:37  
Austro-American Side-necked Turtles

**Original name:** Chelidina

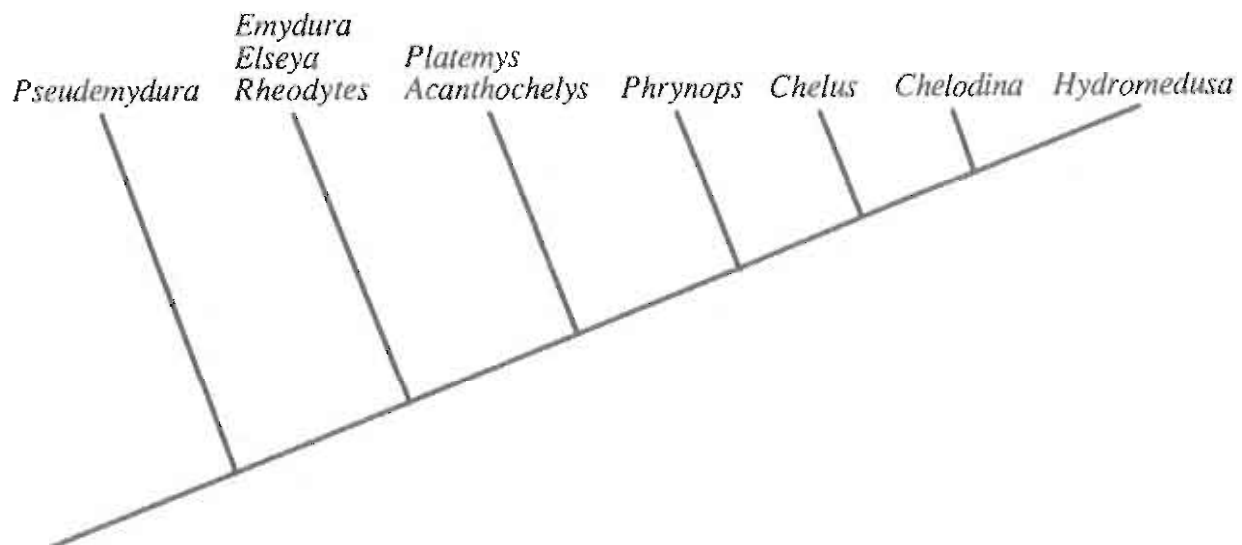
**Distribution:** South America, Australia, and New Guinea

**Comment:** Gray (1831b:37) was apparently the first to designate a family level taxonomic name ("Chelydae, or Chelydidae") for this group. Higher taxonomy and phylogeny within the family are discussed by Gaffney (1977). Synonymy and literature review for Australian taxa are in Cogger et al. (1983); for most South American taxa, see Pritchard and Trebbau (1984). Phylogenetic relationships based on morphology are discussed by Rhodin (1989); those of the Australian and New Guinean taxa based on morphology and serology are in Burbidge et al. (1974); those of Australian taxa based on allozyme electrophoretic studies are in Georges and Adams (1989). Karotypes are reviewed by Bull and Legler (1980), and serological variation is discussed by Frair (1980). See also Comments under *Chelodina*, *Elseya*, and *Emydura*.

**Key to the genera:** (modified from Ernst and Barbour, 1989)

- 1a. Four claws on the forefeet.....2  
 1b. Five claws on the forefeet .....3  
 2a. Intergular scute extends to anterior plastral rim, completely separating the gular scutes.....  
     .....*Hydromedusa* (p. 32)  
 2b. Intergular scute does not extend to anterior plastral rim as the gular scutes meet anterior to it...  
     .....*Chelodina* (p. 10)  
 3a. Neural bones usually present.....4  
 3b. Neural bones usually absent .....5  
 4a. Intergular scute completely separating the gular scutes; four to six neural bones.....  
     .....*Phrynops* (p. 34)  
 4b. Gular scutes meet posterior to the intergular; seven neural bones.....*Chelus* (p. 20)  
 5a. Intergular scute separates the humeral scutes.....*Pseudemydura* (p. 49)  
 5b. Intergular scute does not separate the humeral scutes.....6  
 6a. First vertebral scute broader or about as broad as the second vertebral scute.....7  
 6b. First vertebral scute narrower than the second vertebral scute.....9  
 7a. Medial vertebral groove absent; hind side of thigh without enlarged tubercles.....  
     .....*Rheodytes* (p. 48)  
 7b. Medial vertebral groove present; hind side of thigh may contain enlarged pointed tubercles.....  
     .....8  
 8a. Dorsal surface of head covered with smooth skin; carapace with a deep medial groove.....  
     .....*Platemys* (p. 47)  
 8b. Dorsal surface of head covered with scales; carapace with a shallow medial groove.....  
     .....*Acanthochelys* (p. 5)  
 9a. Temporal region of head covered with smooth skin; cervical scute present.....*Emydura* (p. 25)  
 9b. Temporal region of head covered with scales; cervical scute usually absent.....*Elseya* (p. 21)

**Phylogenetic hypothesis:** (after Gaffney, 1977, 1978, and Gaffney and Meylan, 1988)



## CHELIDAE

Subfamily **Chelinae** Gray 1825:211  
Austro-American Side-necked Turtles

**Original name:** Chelidina

**Distribution:** As for the family

**Comment:** Gray (1825:211) was the first to designate clearly a higher taxonomic category (Chelidina) between the genus and family level which included at least part of this group (i.e., *Chelus*, but not *Chelodina*). Australian forms are under study by J. M. Legler; those in South America and New Guinea, by A. G. J. Rhodin and R. A. Mittermeier.

*Acanthochelys* Gray, 1873d:305  
South American Side-necked Swamp Turtles

**Type species:** *Acanthochelys spixii* Duméril and Bibron (1835) by original designation

**Distribution:** South America from southeastern Brazil to Uruguay, Paraguay, eastern Bolivia, and northern Argentina.

**Comment:** Removed from the synonymy of the genus *Platemys* by McBee et al. (1985) and supported by Derr et al. (1987:370) and Iverson (1986b:197).

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Carapace yellowish-brown to olive; thigh has a series of large tubercles with at least one larger than the rest.....*A. pallidipectoris* (p. 7)
- 1b. Carapace dark gray to black or blackish-brown; thigh has tubercles of moderate size, none greatly enlarged.....2
- 2a. Dorsal surface of neck with numerous long, pointed tubercles.....*A. spixii* (p. 9)
- 2b. Dorsal surface of neck with numerous low, rounded tubercles.....3
- 3a. Carapace length usually greater than 5.0 times the head width at the level of the tympanum....  
.....*A. radiolata* (p. 8)
- 3b. Carapace length usually less than 4.9 times the head width at the level of the tympanum.....  
.....*A. macrocephala* (p. 6)

**Phylogenetic hypothesis:** None has been published.



## CHELIDAE

*Acanthochelys macrocephala* (Rhodin, Mittermeier and McMorris, 1984:38)  
Pantanal Swamp Turtle

**Original name:** *Platemys macrocephala*

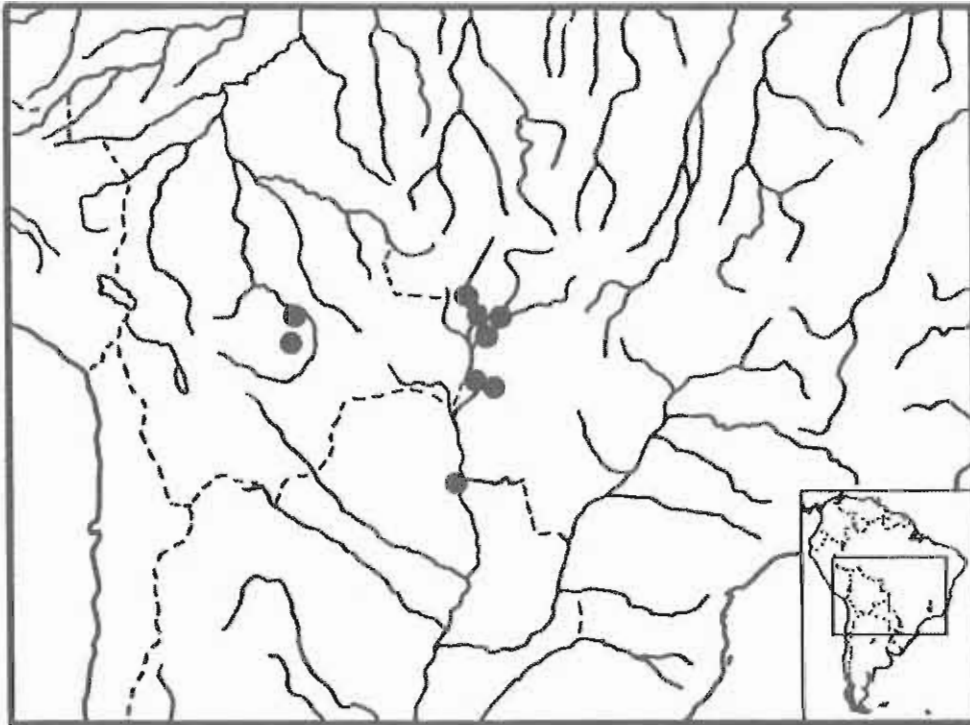
**Holotype:** NMW 1293

**Type locality:** "Caiçara, Rio Paraguai, Mato Grosso, Brazil (16° 03'S, 57° 43'W)"

**Distribution:** Upper Rio Mamoré basin of central Bolivia to the Pantanal region of the upper Paraguai of Brazil

**Subspecies:** None

**Comment:** Reviewed by Rhodin, Mittermeier, and Ernst (1990).



## CHELIDAE

*Acanthochelys pallidipectoris* (Freiberg, 1945:19)  
Chaco Side-necked Turtle

**Original name:** *Platemys pallidipectoris*

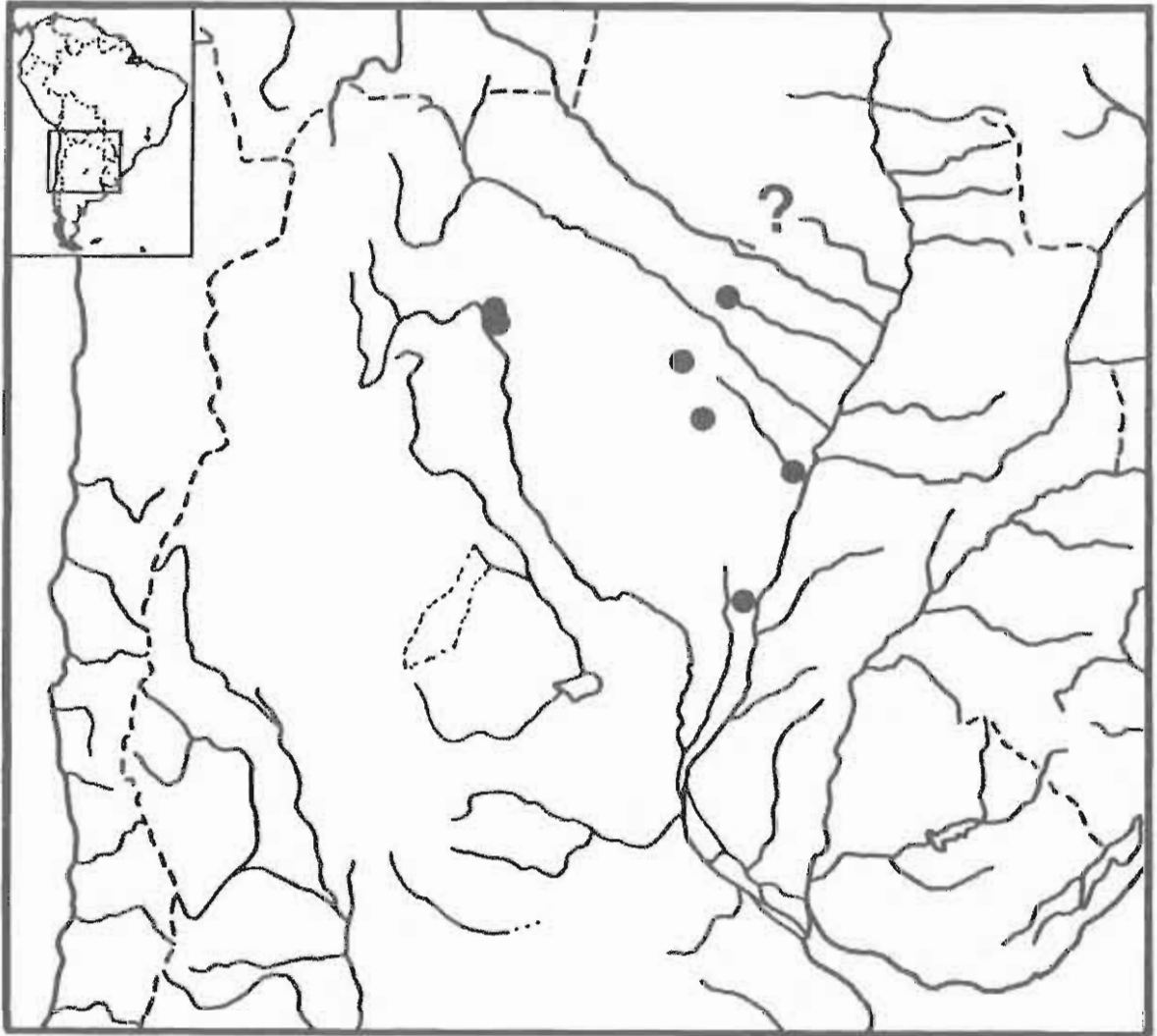
**Holotype:** MACN 1731

**Type locality:** "Pcia. [= Presidencia] Roque Sáenz Peña, Chaco [Province]", [Argentina]

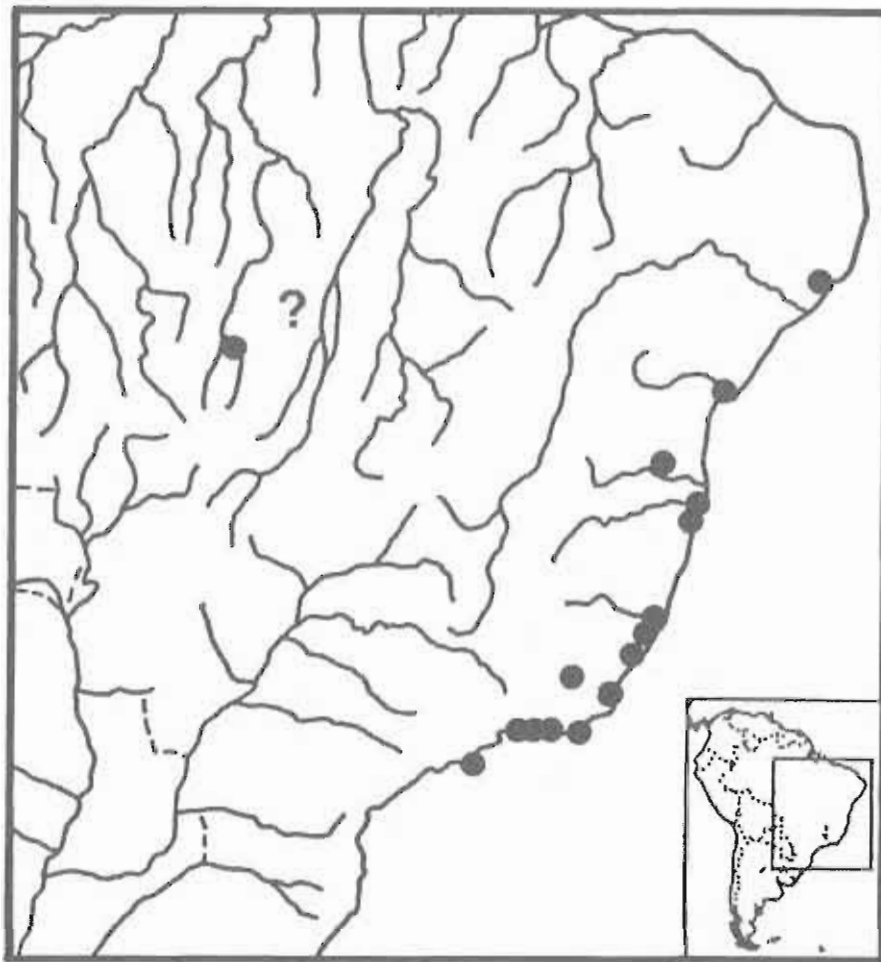
**Distribution:** The Chaco of northern Argentina to Paraguay; possibly also in eastern Bolivia

**Subspecies:** None

**Comment:** Reviewed by Ernst (1983a; as *Platemys pallidipectoris*), Groombridge (1982; as *Platemys pallidipectoris*), and Waller (1988).



## CHELIDAE

*Acanthochelys radiolata* (Mikan, 1820:Fig.)  
Brazilian Radiolated Swamp Turtle**Original name:** *Emys radiolata***Holotype:** NMW 23390**Type locality:** "Sebastianopoli" [= Rio de Janeiro, Brazil]**Distribution:** Basins near the Atlantic coast from the mouth of the Rio São Francisco to São Paulo state in eastern Brazil, as well as an isolated record from the upper Rio Xingu basin in Mato Grosso state, Brazil**Subspecies:** None**Comment:** Reviewed by Ernst (1983c; as *Platemys radiolata*; although his distribution map is in error), Rhodin, Mittermeier, and McMorris (1984; as *Platemys radiolata*), and Rhodin, da Rocha e Silva, and Mittermeier (1984; as *Platemys radiolata*).

## CHELIDAE

*Acanthochelys spixii* (Duméril and Bibron, 1835:409)  
Spiny-neck Turtle**Original name:** *Platemys Spixii***Holotype:** originally MNHN 8751; but ZSM 3003/0 designated lectotype by Hoogmoed and Gruber (1983:345); see Comment**Type locality:** "Brésil"; restricted to "Rio São Francisco, near Rio dos Pandeiros, Minas Gerais, Brazil" by Rhodin, da Rocha e Silva, and Mittermeier (1984b:783)**Distribution:** Upper Rio São Francisco and coastal basins in São Paulo state southward to Rio Paraná basin in Argentina, Uruguay, and southern Brazil; probably also occurs in Paraguay; introduced near Mendoza, Argentina**Subspecies:** None**Comment:** This taxon was originally described as *Emys depressa* by Spix (1824:5), but that name had already been used by Merrem (1820:22) to describe material now referable to *Phrynops geoffroanus*. Duméril and Bibron (1835:409) provided the first unique name for this taxon (*Platemys Spixii*) based on MNHN 8751. However, because the latter is only a replacement name for *Emys depressa* Spix, the type material of the latter become the types of *Platemys Spixii* (e.g., see Rhodin, da Rocha e Silva, and Mittermeier, 1984). Hoogmoed and Gruber (1983:345) examined the only remaining syntype of *E. depressa* Spix (ZSM 3003/0) and designated it as the lectotype of that taxon, and by convention, of *P. spixii* as well. Reviewed by Groombridge (1982; as *Platemys spixii*), Ernst (1983b; as *Platemys spixii*; although his distribution map is in error), Rhodin, Mittermeier, and McMorris (1984; as *Platemys spixii*), Rhodin, da Rocha e Silva, and Mittermeier (1984; as *Platemys spixii*), Waller (1988), and Buskirk (1991).

## CHELIDAE

*Chelodina* Fitzinger, 1826:6  
Snake-necked Turtles

**Type species:** *Emys longicollis* (= *Testudo longicollis* Shaw 1794), by original designation

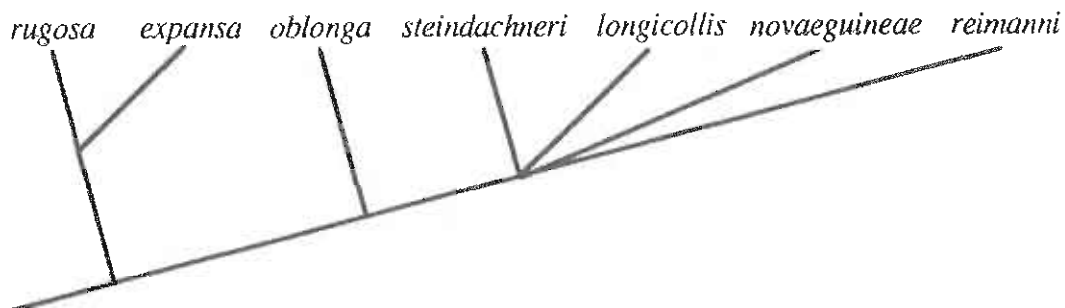
**Distribution:** Australia and New Guinea

**Comment:** Species variation in this genus is poorly defined; there are numerous undescribed species and subspecies. Reviewed by Cogger et al. (1983). Wells and Wellington (1985) partitioned most of the species of this genus into the new genera *Hesperochelodina* and *Macrochelodina* (see individual species accounts), but that usage is not followed here, in anticipation of a decision by the ICZN on a petition (Case 2531) to suppress the work (see also Shea, 1987).

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Plastron broad, almost covering all of carapacial opening; the forelobe broader than the hindlobe; intergular scute at least twice as long as the interpectoral seam.....2
- 1b. Plastron narrow, the forelobe scarcely broader than the hind lobe, allowing much of carapacial opening to remain uncovered; intergular scute less than 1.5 times longer than interpectoral seam.....5
- 2a. Forelobe of plastron very broad, extending laterally to or beyond marginal scutes of carapace.....*C. longicollis* (p. 12)
- 2b. Forelobe of plastron not extending laterally to carapacial marginals.....3
- 3a. Carapace round, broadest at center, and very flat.....*C. steindachneri* (p. 19)
- 3b. Carapace oval to elliptical, broadest behind center, and not very flattened.....4
- 4a. Head very broad; neck relatively short .....*C. reimanni* (p. 16)
- 4b. Head narrow; neck long.....*C. novaeguineae* (p. 13)
- 5a. Head heavily marked with cream, yellow, or pale-green markings.....*C. parkeri* (p. 15)
- 5b. Head uniformly dark with no spotting.....6
- 6a. Plastron long and narrow, more than twice as long as width immediately in front of bridge.....*C. oblonga* (p. 14)
- 6b. Plastron moderate in width, less than twice as long as width immediately in front of bridge.....7
- 7a. Plastral hindlobe broad across femorals, not greatly tapered posteriorly ..*C. siebenrocki* (p. 18)
- 7b. Plastral hindlobe distinctly tapered posteriorly at femorals.....8
- 8a. Plastral forelobe beginning to taper anteriorly immediately in front of bridge.....*C. rugosa* (p. 17)
- 8b. Plastral forelobe not tapering anteriorly until near level of seam separating humeral and pectoral scutes.....*C. expansa* (p. 11)

**Phylogenetic hypothesis:** (after Georges and Adams, 1992)



## CHELIDAE

*Chelodina expansa* Gray, 1857:370  
Giant Snake-necked Turtle

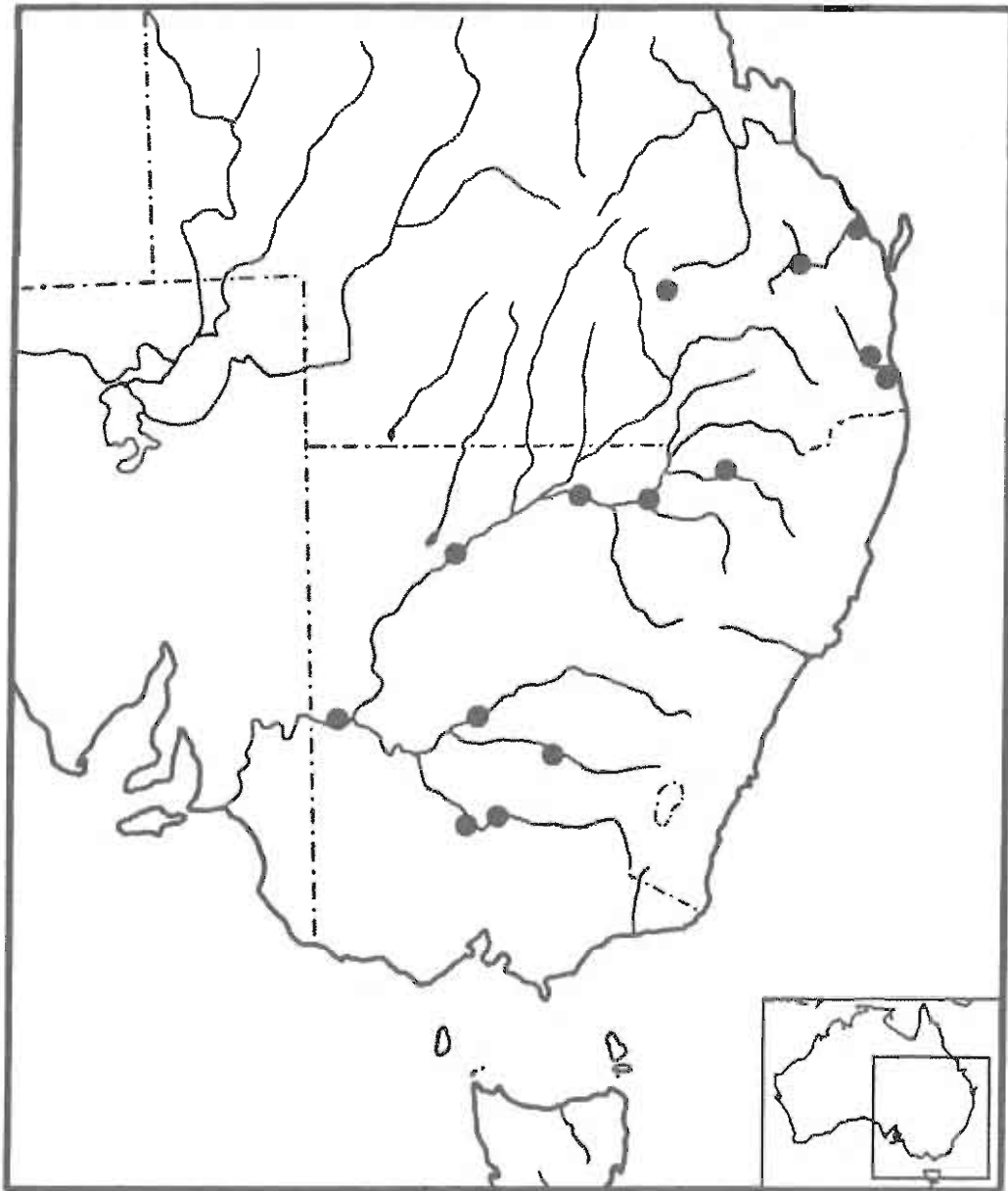
**Syntypes:** (2 specimens) BMNH 1947.3.4.21 and 1947.3.5.88

**Type locality:** "Australia"; incorrectly restricted to "nördliches Australia" by Wermuth and Mertens (1977:122)

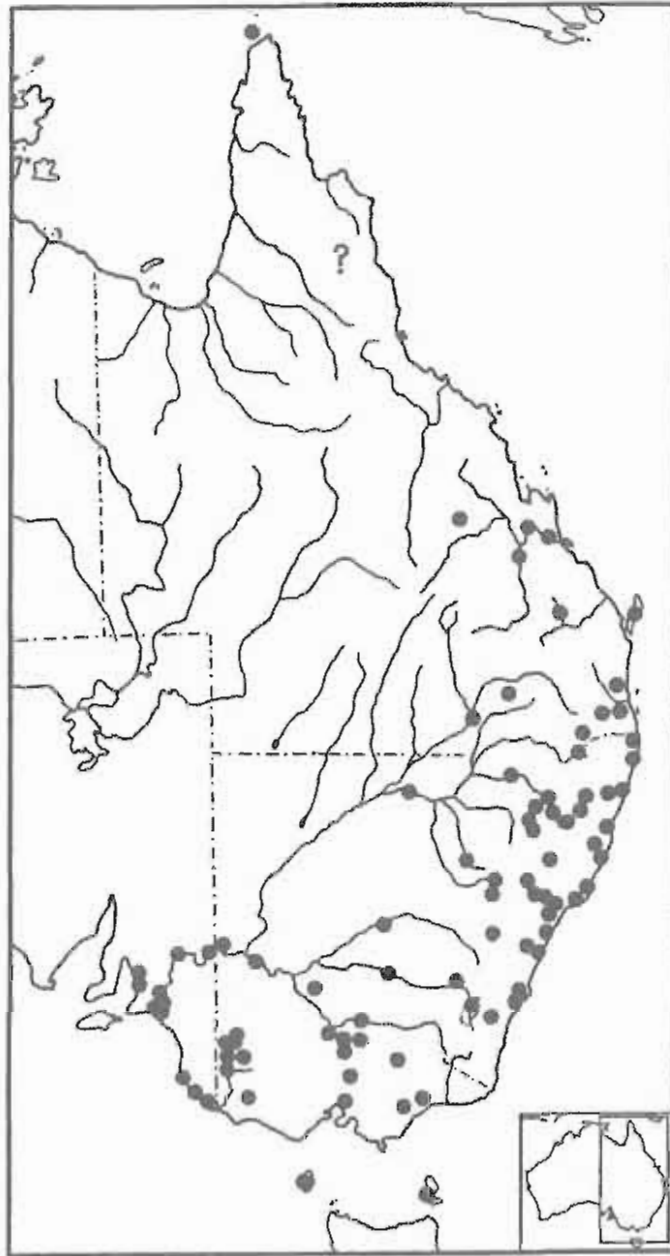
**Distribution:** Australia: Murray-Darling River system of South Australia, New South Wales, and Queensland, and coastal basins of southeastern Queensland

**Subspecies:** None

**Comment:** Reviewed by Cogger et al. (1983). Geographic variation may be significant enough to warrant subspecies recognition (P. C. H. Pritchard, pers. comm.). With no justification, Wells and Wellington (1985:13) placed this species in their new genus *Macrochelodina*, which itself was not diagnosed.

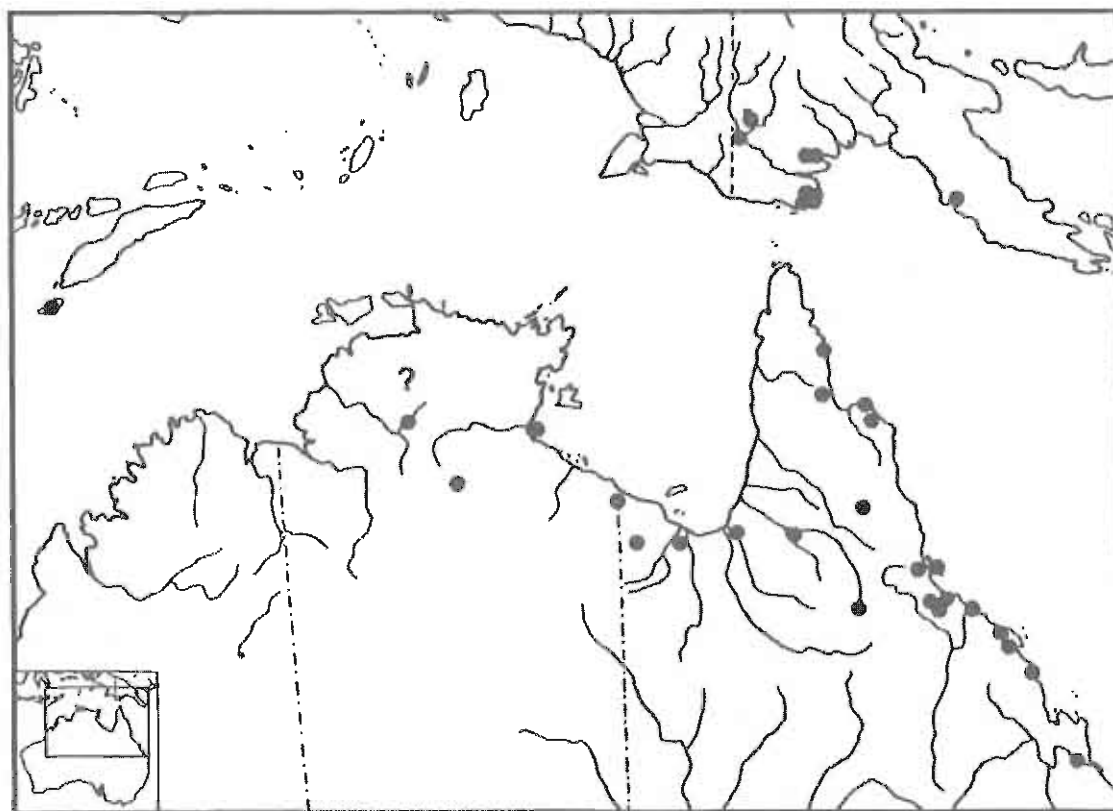


## CHELIDAE

*Chelodina longicollis* (Shaw, 1794:19)  
Common snake-necked Turtle**Original name:** *Testudo longicollis***Holotype:** Not designated: BMNH 1947.3.5.86 presumed to be the holotype by Cogger et al. (1983:61) since it was the specimen Shaw (1802:62) used to redescribe the species.**Type locality:** "Australasia or New Holland"**Distribution:** southeastern South Australia to eastern Queensland, Australia**Subspecies:** None**Comment:** Includes *Chelodina sulcifera* according to Mertens (1972) and Rautert (1982). Reviewed by Cogger et al. (1983).



## CHELIDAE

*Chelodina novaeguineae* Boulenger, 1888a:450  
New Guinea Snake-necked Turtle**Original name:** *Chelodina novae-guineae***Syntypes:** (2 specimens) MSNG C.E. 8407 and BMNH 1946.1.22.36 (figured in Boulenger, 1889; plates V-VI)**Type locality:** "Katow" [= Mawatta, Binaturi River, Papua, New Guinea]**Distribution:** northeastern Queensland and possibly northern Northern Territory, Australia; southwestern Papua New Guinea; Roti Island (van Lidth de Jeude, 1895:120).**Subspecies:** None**Comment:** Reviewed by Cogger et al. (1983). The Roti Island population represents a distinct species according to A. G. J. Rhodin (pers. comm.), who is also describing another population in southeastern Papua New Guinea as a full species. Wells and Wellington (1985:11) named the Australian populations as *Chelodina rankini* without a diagnosis or adequate description; they also designated BMNH 1946.1.22.36 as the lectotype.

## CHELIDAE

*Chelodina oblonga* Gray, 1841:446  
Narrow-breasted Snake-necked Turtle

**Holotype:** BMNH 1947.3.5.89

**Type locality:** "Western Australia"

**Distribution:** southwestern Western Australia (at least Hill to Phillips river basins), Australia

**Subspecies:** None

**Comment:** Reviewed by Cogger et al. (1983). With no justification, Wells and Wellington (1985:13) designated this species as type species of their new genus *Macrochelodina*, which itself was not diagnosed.



## CHELIDAE

*Chelodina parkeri* Rhodin and Mittermeier, 1976:477  
Parker's Snake-necked Turtle

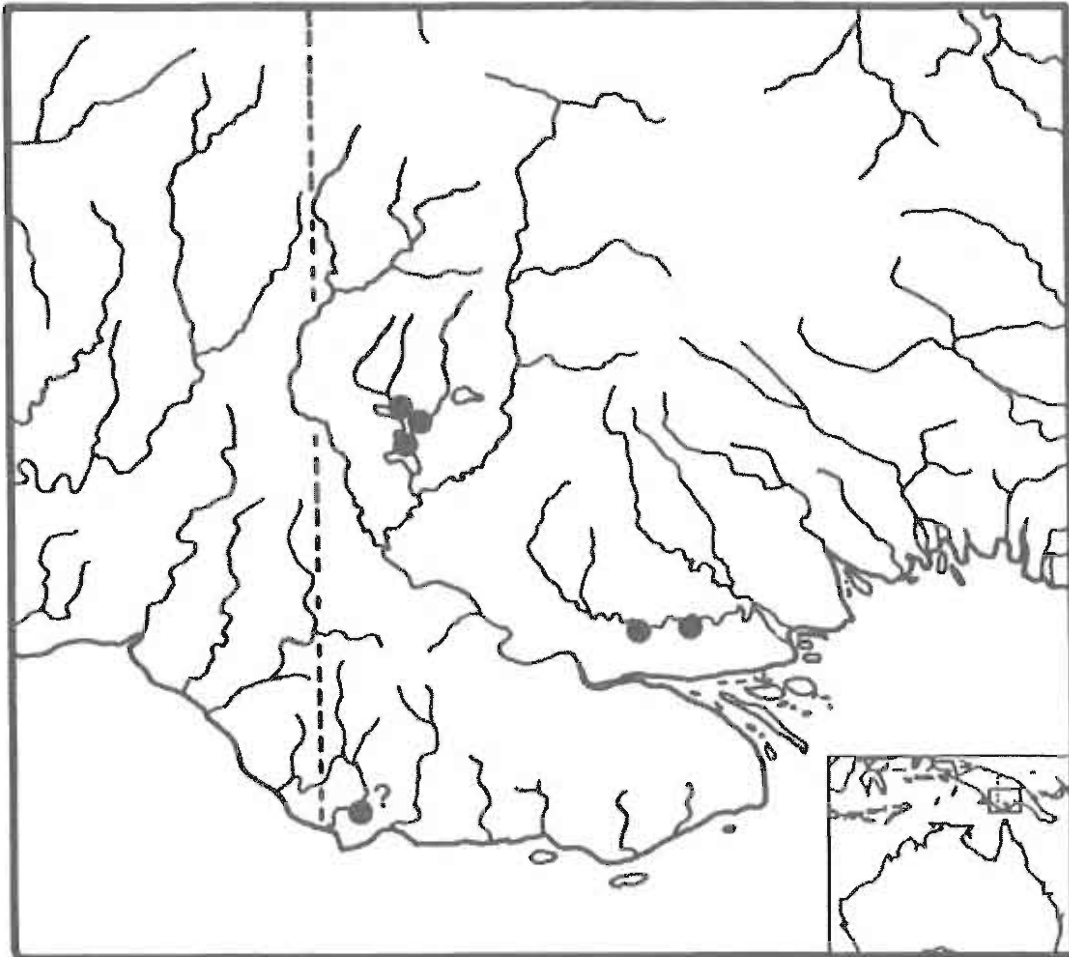
**Holotype:** AMS R21425

**Type locality:** "Mawa, Lake Murray, Western District, Papua New Guinea"

**Distribution:** southern New Guinea (Irian Jaya, Indonesia and Papua)

**Subspecies:** None

**Comment:** Closely related to *Chelodina siebenrocki*, according to the original description.



## CHELIDAE

*Chelodina reimanni* Philippen and Grossmann, 1990:96  
Reimann's Snake-necked Turtle

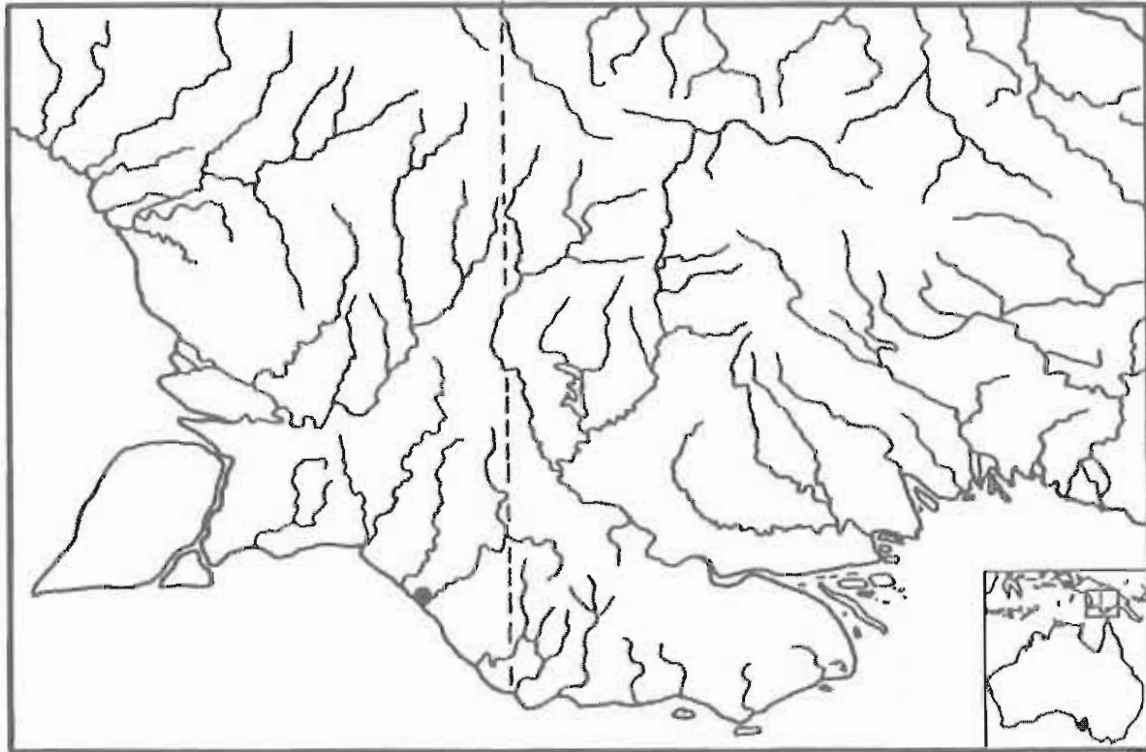
**Holotype:** MTKD D 29178

**Type locality:** "Merauke-River, West-Irian, Neuguinea" [Indonesia]

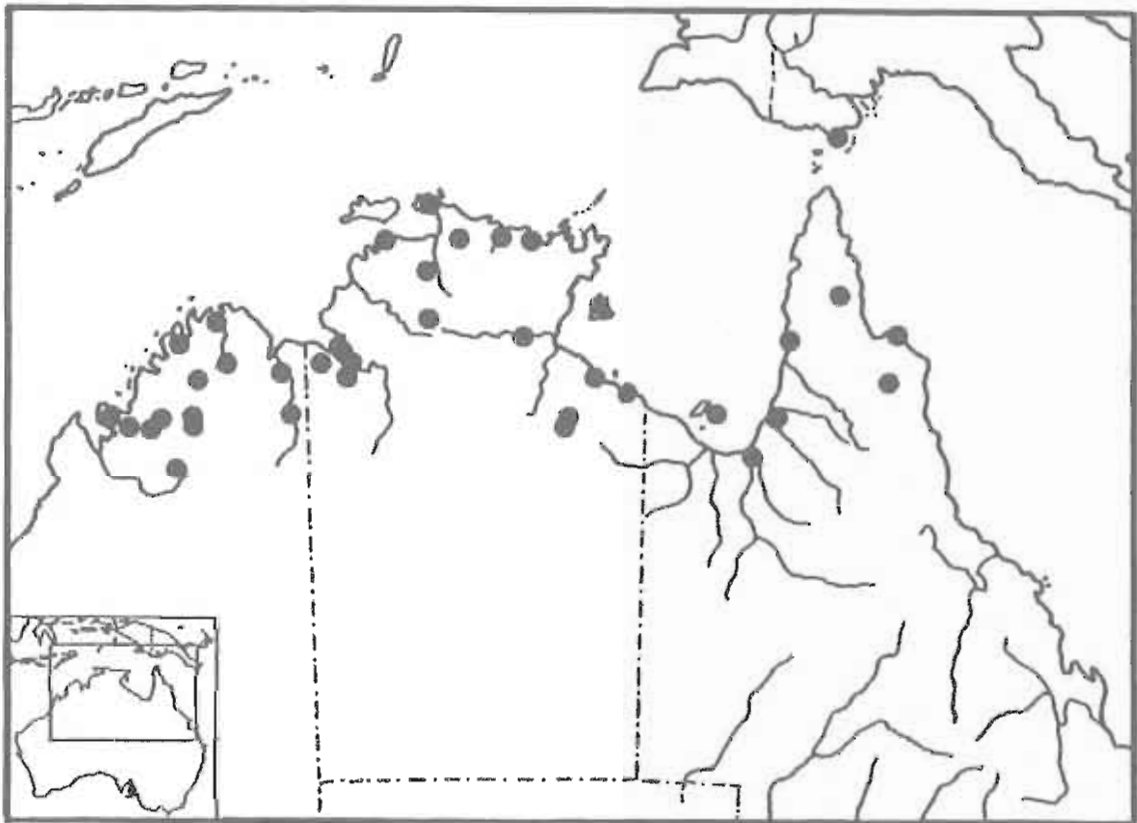
**Distribution:** southeastern Irian Jaya, Indonesia and southwestern Papua New Guinea

**Subspecies:** None

**Comment:** None



## CHELIDAE

*Chelodina rugosa* Ogilby, 1890:56  
Northern Australian Snake-necked Turtle**Holotype:** AMS R6256**Type locality:** "Cape York, Q[ueensland]." [Australia]**Distribution:** northern Australia, from Cape York Peninsula of Queensland across Northern Territory to Kimberley District, Western Australia**Subspecies:** None**Comment:** May include *Chelodina siebenrocki* according to Rhodin and Mittermeier (1976). Reviewed by Cogger et al. (1983). With no justification, Wells and Wellington (1985:13) placed this species in their new genus *Macrochelodina*, which itself was not diagnosed; they also named the populations west of the Cape York peninsula in Northern Territory as *M. billabong*, but without a diagnosis or adequate description.

## CHELIDAE

*Chelodina siebenrocki* Werner, 1901b:602  
Siebenrock's Snake-necked Turtle

**Original name:** *Chelodina Siebenrocki*

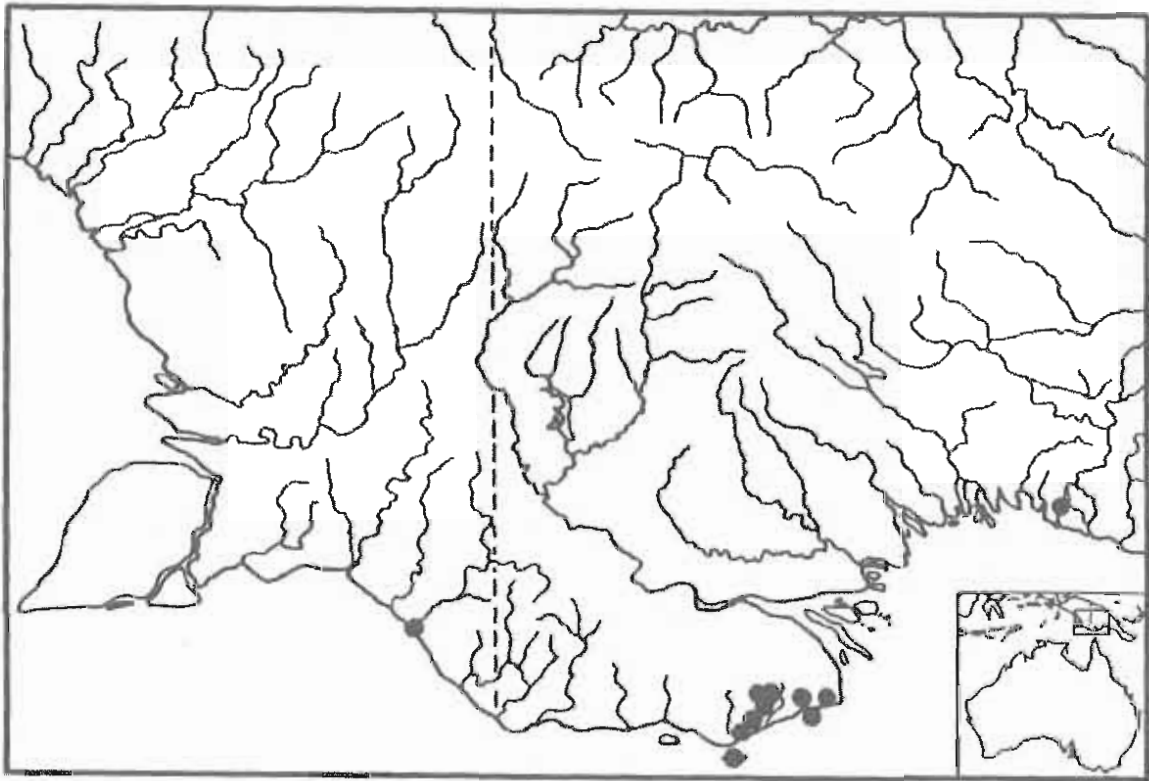
**Holotype:** ZMB 16491; but now lost

**Type locality:** "Deutsch-Neu-Guinea" [= Papua New Guinea]

**Distribution:** south coast of New Guinea (Irian Jaya, Indonesia and Papua) and some islands in the Torres Strait

**Subspecies:** None

**Comment:** Possibly a synonym of *Chelodina rugosa* according to Rhodin and Mittermeier (1976). With no justification, Wells and Wellington (1985:13) placed this species in their new genus *Macrochelodina*, which itself was not diagnosed.



## CHELIDAE

*Chelodina steindachneri* Siebenrock, 1914:386  
Steindachner's Snake-necked Turtle

**Holotype:** NMW 19798

**Type locality:** "Marloo Station am Grey [= DeGrey] River in Westaustralien" [= Western Australia]

**Distribution:** western Australia (at least the DeGrey River to the Irwin river basins), Australia

**Subspecies:** None

**Comment:** Reviewed by Cogger et al. (1983). With no justification, Wells and Wellington (1985:13) designated this species as type species of their new genus *Hesperochelodina*, which itself was not diagnosed.





## CHELIDAE

*Chelus Duméril*, 1806:76  
Matamata Turtles

**Type species:** *Testudo fimbriata* Schneider (1783), by monotypy

**Distribution:** As for the single species

**Comment:** Zug (1977) discussed the correct spelling of the generic name.

*Chelus fimbriata* (Schneider, 1783:349)  
Matamata Turtle

**Original name:** *Testudo Fimbriata*

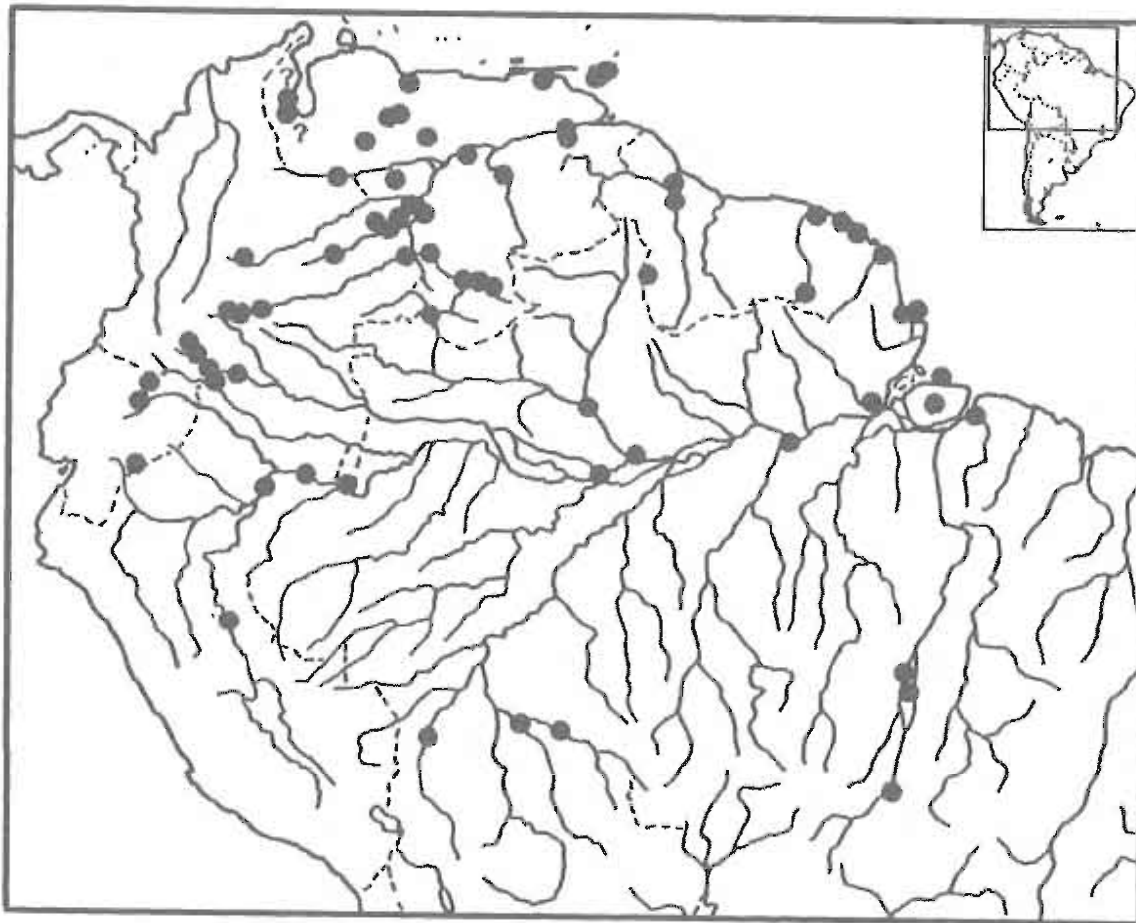
**Holotype:** Not traced

**Type locality:** "Arouague [=Guisanbourg]" . . . "Rémire [Island], French Guiana"

**Distribution:** northern and central South America from the Orinoco (and its nearby coastal drainages) to the Amazon river basins of Venezuela, Colombia, Ecuador, Peru, Bolivia, Guyana, French Guiana, (probably) Surinam, and Brazil; unconfirmed reports from the Lake Maracaibo basin of Venezuela are known (Pritchard and Trebbau, 1984)

**Subspecies:** None

**Comment:** Reviewed by Pritchard and Trebbau (1984).



# CHELIDAE

*Eelseya* Gray, 1867:44  
Australian Snapping Turtles

**Type species:** *Chelymys dentata* Gray (1863b), by subsequent designation of Lindholm (1929:291).

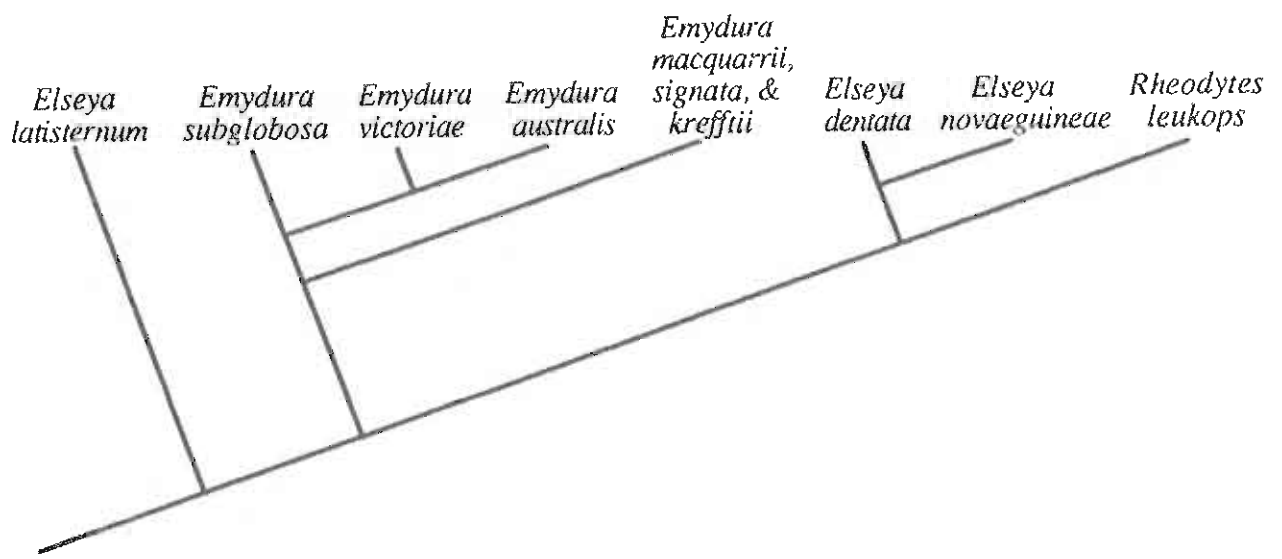
**Distribution:** northern and eastern Australia

**Comment:** See Comment under *Emydura*. Reviewed by Cogger et al. (1983). With no justification, Wells and Wellington (1985:12) synonymized *Rheodytes* Legler and Cann (1980) with *Eelseya*.

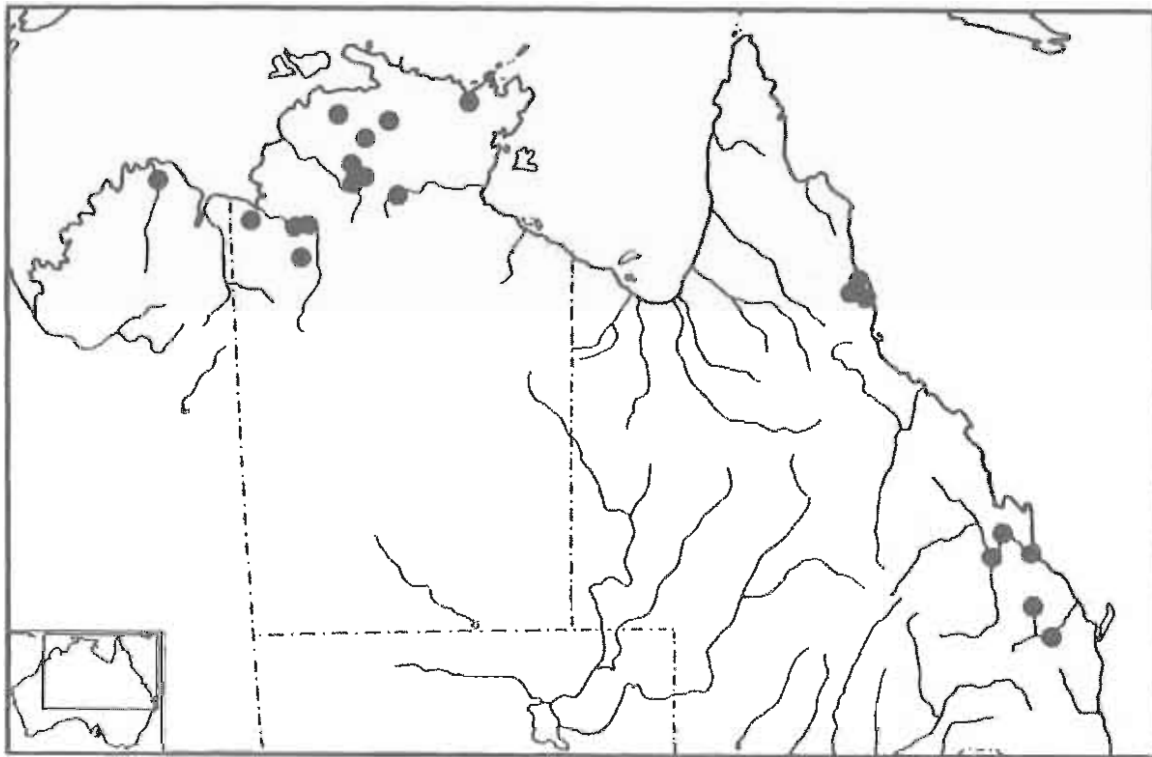
**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Sides of horny plate on head turned downward toward the tympanum; posterior rim of carapace strongly serrated in adults.....*E. latisternum* (p. 23)
- 1b. Sides of horny headplate not turning downward toward the tympanum; posterior rim of carapace smooth or only slightly serrated in adults.....2
- 2a. Triturating surface of maxilla with a medial ridge; vertebral keel usually absent.....*E. dentata* (p. 22)
- 2b. Triturating surface of maxilla without a medial ridge; vertebral keel usually present.....*E. novaeguineae* (p. 24)

**Phylogenetic hypothesis:** (after Georges and Adams, 1992)



## CHELIDAE

*Elseya dentata* (Gray, 1863b:98)  
Northern Australian Snapping Turtle**Original name:** *Chelymys dentata***Syntypes:** (2 specimens) BMNH 1947.3.6.2-3**Type locality:** "N. Australia [Northern Territory]; Upper Victoria [River], in Beagle's Valley"**Distribution:** Australia: eastern Queensland (including Burnett and Fitzroy river basins), the Cape York Peninsula, Queensland, and Arnhem Land, Northern Territory to the Kimberley district, Western Australia**Subspecies:** None**Comment:** Synonymy should include *Platemys novaeguineae* Meyer (1874; = *Elseya novaeguineae*) according to McDowell (1983), but a more thorough study is needed. Reviewed by Cogger et al. (1983). This taxon is apparently a composite of several distinct species according to John Legler (pers. comm.) and Georges and Adams (1989). Wells and Wellington (1985:12) named the Queensland population *Elseya sterlingi*, but without diagnosis or adequate description; they also designated BMNH 1947.3.6.3 as lectotype.

## CHELIDAE

*Eseya latisternum* Gray, 1867:44  
Serrated Snapping Turtle

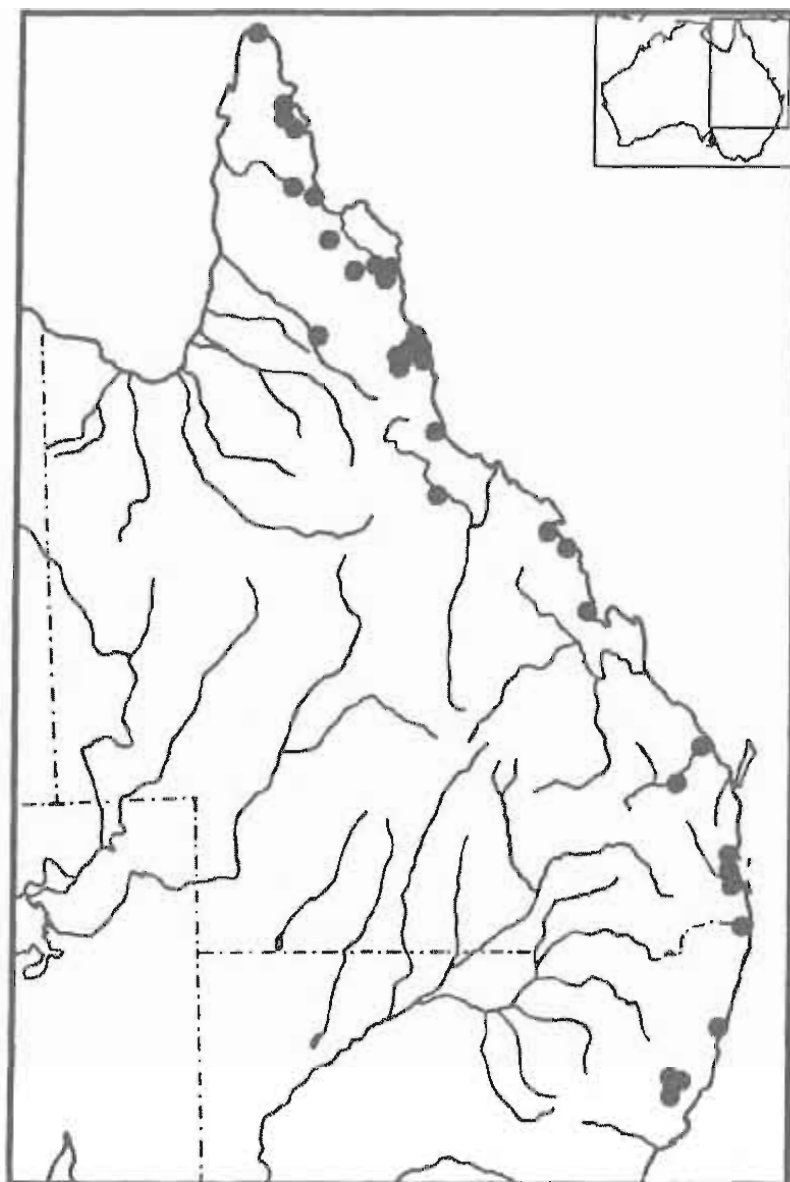
**Holotype:** BMNH 1947.3.4.13

**Type locality:** "North Australia"

**Distribution:** northeastern New South Wales to the Cape York Peninsula, Queensland, Australia

**Subspecies:** None

**Comment:** Reviewed by Cogger et al. (1983). Some populations in isolated basins in New South Wales may deserve species recognition, according to John Legler (pers. comm.). Wells and Wellington (1985:12) named the northeastern New South Wales populations as *Eseya purvisi*, but without diagnosis or adequate description.



## CHELIDAE

*Elseya novaeguineae* (Meyer, 1874:128)  
New Guinea Snapping Turtle

**Original name:** *Platemys Novae Guineae*

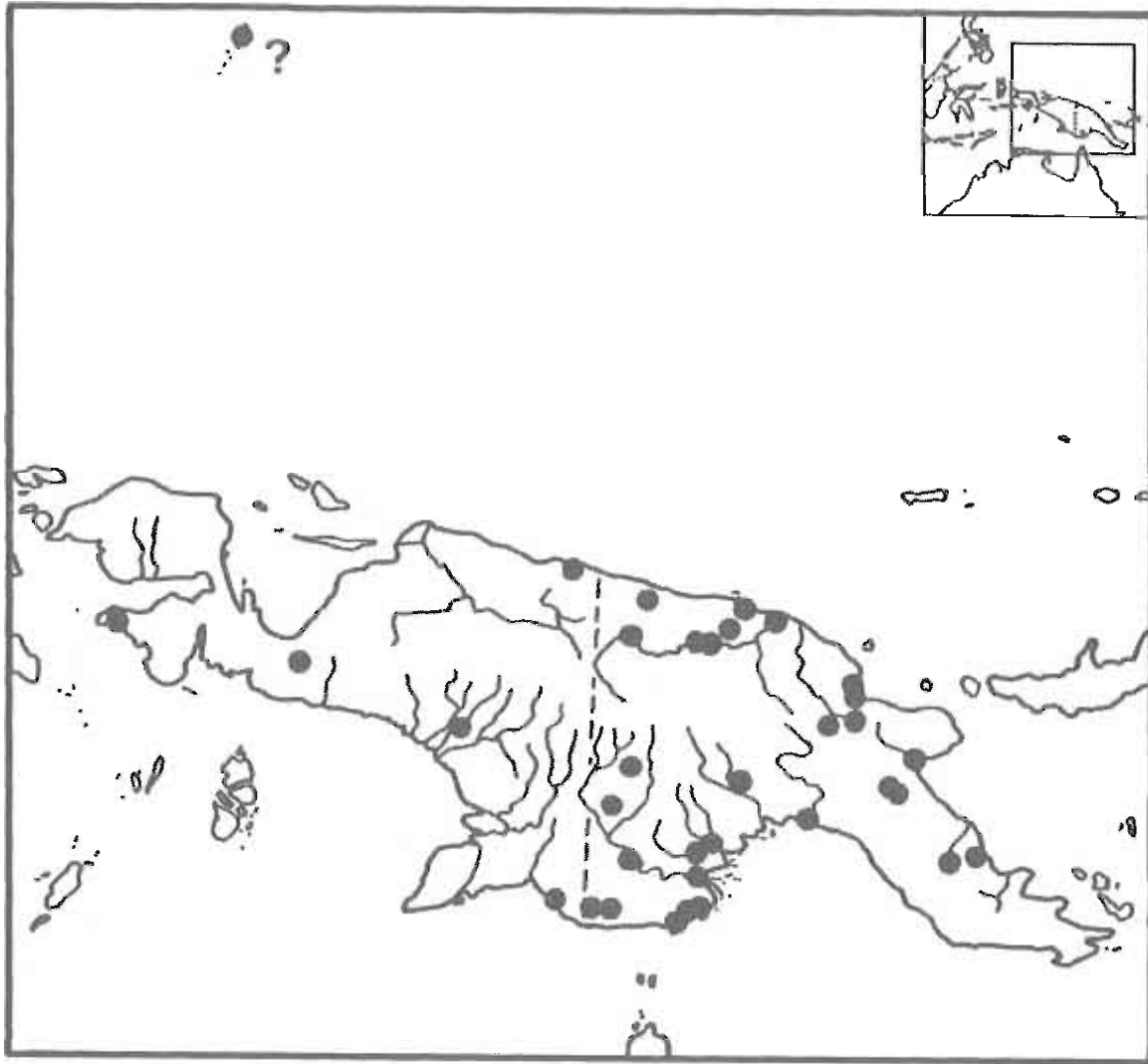
**Holotype:** MTKD D8222, according to Obst (1976:43)

**Type locality:** "Neu Guinea"

**Distribution:** New Guinea (Irian Jaya, Indonesia and Papua). Supposedly also occurs in the Palau islands (Aoki, 1977)

**Subspecies:** None

**Comment:** See Comment under *Elseya dentata*.



## CHELIDAE

*Emydura* Bonaparte, 1836:7  
Australian Short-necked Turtles

**Type species:** *Emys macquaria* Cuvier (1829; *nomen nudum*) [= *Chelys (Hydraspis) macquarrii* Gray (1831b)], by monotypy

**Distribution:** Australia and New Guinea

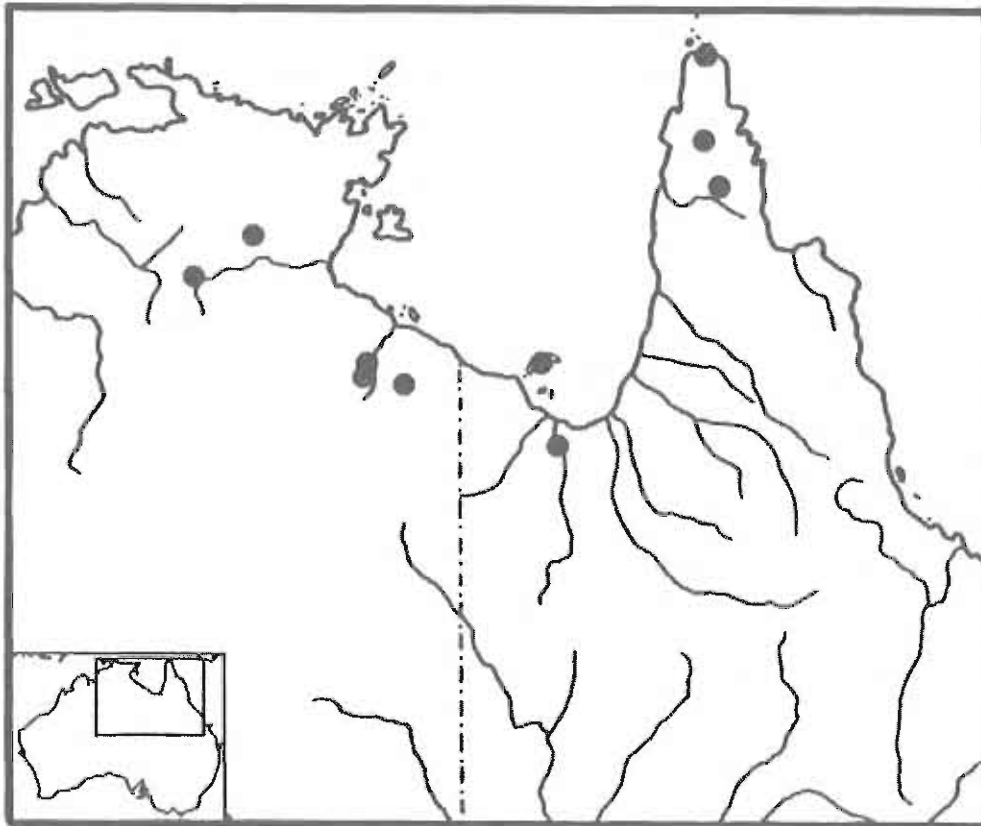
**Comment:** Stimson (1986) discussed the history of the genus name, and demonstrated that it is not a *nomen nudum* as suggested by Cogger et al. (1983) and Wells and Wellington (1983). McDowell (1983) argued for the synonymy of *Elseya* Gray (1867) with *Emydura*, but Legler (1981, 1985), Cogger et al. (1983), and all subsequent authors except Wells and Wellington (1985) disagree. Wells and Wellington (1985:12) inappropriately resurrect the genus *Chelymys* Gray (1844) for several species. They also (1985:13-14) placed the remaining species in their new genus *Tropicochelymys* (see individual species accounts), but that usage is not followed here, in anticipation of a decision by the ICZN on a petition (Case 2531) to suppress the work.

**Key to the species:** (modified from Cogger, 1979)

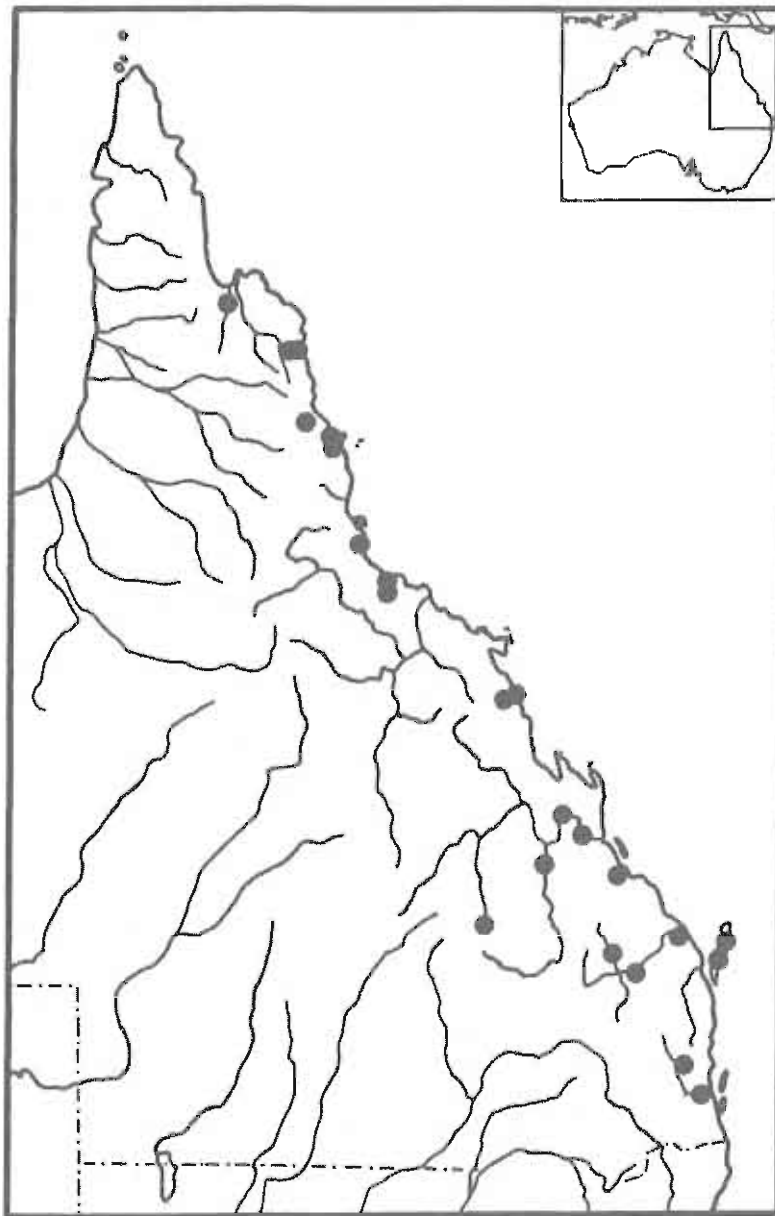
- 1a. A continuous light-colored postocular stripe from eye to above tympanum or beyond (sometimes obscure in old adults).....2
- 1b. No postocular stripe or occasionally a discontinuous one from eye to above tympanum.....5
- 2a. Length of mandibular symphysis more or less equal to horizontal diameter of the tympanum; postocular stripe cream or yellow.....3
- 2b. Length of mandibular symphysis about 1.5 times the horizontal diameter of the tympanum; postocular stripe pink, red, or salmon.....*E. victoriae* (p. 26)
- 3a. Body and shell without bright red or pink markings; postocular stripe cream or light yellow..4
- 3b. Lower jaw, sides of neck, limbs, tail and outer lower margins of plastron and carapace with bright red or pink markings; postocular stripe bright yellow.....*E. subglobosa* (p. 30)
- 4a. Found in coastal basins east of the Great Dividing Range in eastern Australia.....*E. krefftii* (p. 27)
- 4b. Found west of the Great Dividing Range in eastern Australia.....*E. australis* (p. 26)
- 5a. Adult size large (to 40 cm carapace length); light head stripe just contacting lower margin of tympanum.....*E. macquarrii* (p. 28)
- 5b. Adult size moderate (to 25 cm carapace length); light head stripe enclosing lower portion of tympanum.....*E. signata* (p. 29)

**Phylogenetic hypothesis:** See *Elseya* account (p. 21)

## CHELIDAE

*Emydura australis* (Gray, 1841:445)  
Australian Big-headed Turtle**Original name:** *Hydraspis australis***Holotype:** BMNH 1947.3.4.36**Type locality:** "Western Australia?", restricted to "Macquarie River" [N.S.W., Australia] by Gray (1872:506).**Distribution:** northern Australia from Cape York peninsula, Queensland to Arnhem Land, Northern Territory**Subspecies:** None**Comment:** Synonymy should include *Chelymys krefftii* Gray (1871b; = *Emydura krefftii*), and *Euchelymys subglobosa* Krefft (1876; = *Emydura subglobosa*), according to McDowell (1983). Considered a synonym of *Emydura macquarrii* by Cogger et al. (1983) and King and Burke (1989:120), without discussion. However, these poorly substantiated changes are rejected until John Legler's taxonomic review is complete.

## CHELIDAE

*Emydura krefftii* (Gray, 1871b:366)  
Krefft's River Turtle**Original name:** *Chelymys krefftii***Holotype:** BMNH 1947.3.6.1**Type locality:** "Burnett's River" [Queensland, Australia]**Distribution:** eastern and northeastern Queensland from the Brisbane region to Cape Charlotte Bay, Australia**Subspecies:** None**Comment:** See Comment under *Emydura australis*. Reviewed by Cogger et al. (1983). Wells and Wellington (1985:13-14) placed this species in their new genus *Tropicochelymys*; they also named the Jardine River population in Queensland as *T. goodei*, the Fraser Island population in Queensland as *T. insularis*, and the Leichhardt River population of Queensland as *T. leichhardti*, all three without diagnosis or adequate description.



## CHELIDAE

*Emydura macquarrii* (Gray, 1831b:40)  
Murray River Turtle

**Original name:** *Hydraspis macquarrii*

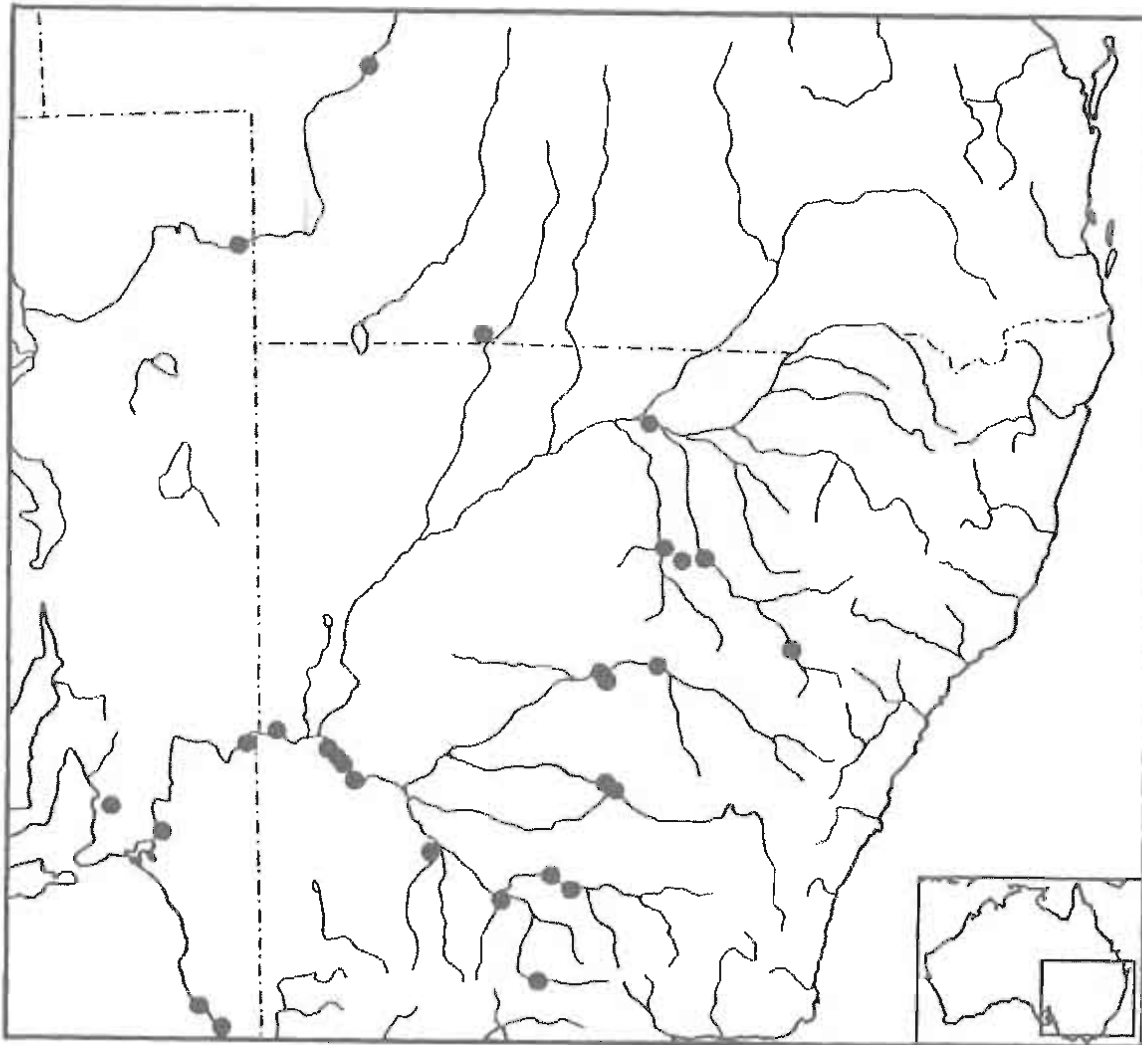
**Holotype:** MNHN 9409

**Type locality:** "Novâ Hollandiâ, Macquarrie River" [Australia]

**Distribution:** Murray-Darling river basin in South Australia, New South Wales and Victoria, and coastal basins in extreme southeastern South Australia

**Subspecies:** None

**Comment:** Reviewed by Cogger et al. (1983). See Comment under *Emydura australis*. Wells and Wellington (1985:12) erroneously placed this species in the genus *Chelymys* Gray (1844; see Comment under *Emydura*); they also named the Cooper Creek - Strzelecki Creek populations of southwestern Queensland as *C. windorah*, but without a diagnosis or an adequate description.



## CHELIDAE

*Emydura signata* Ahl, 1932:127  
Brisbane Short-necked Turtle

**Holotype:** ZMB 34102

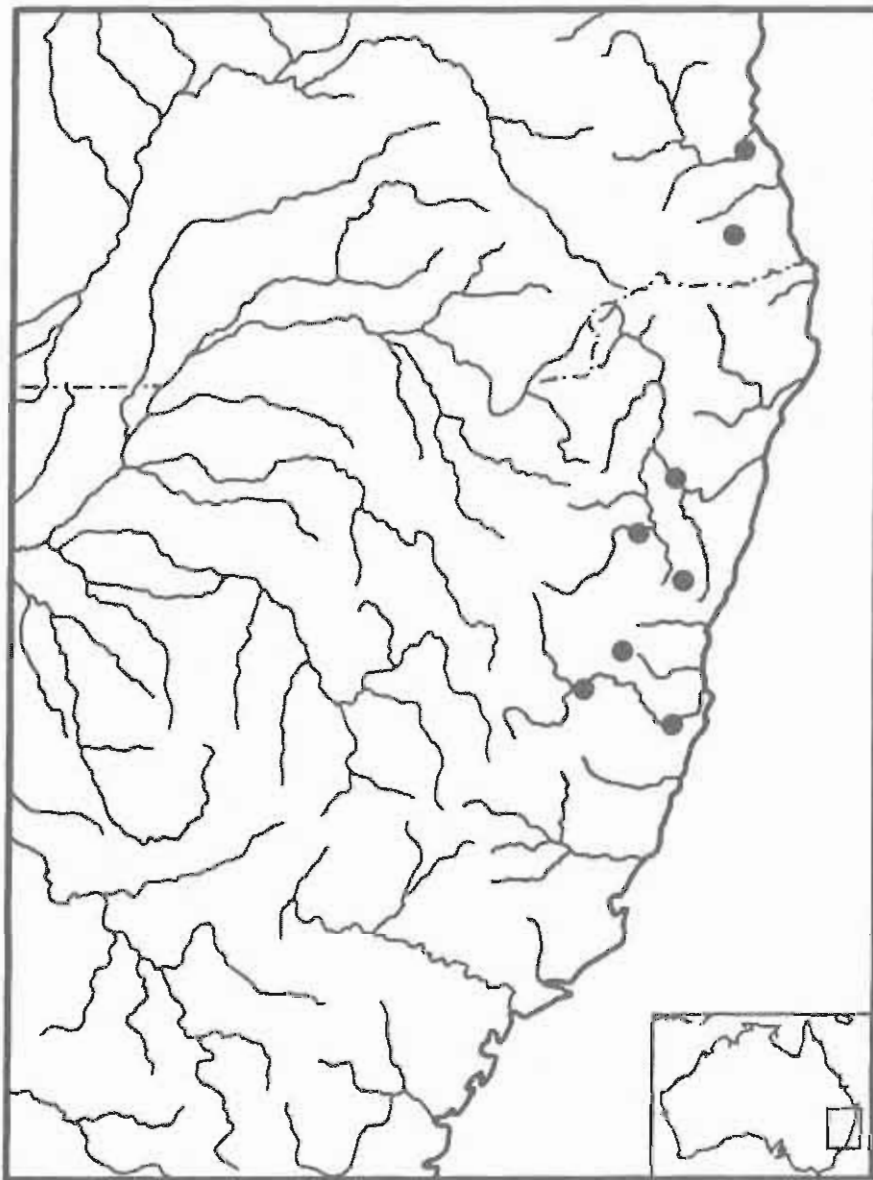
**Type locality:** "Umgebung von BRISBANE [Queensland], Australien"

**Distribution:** coastal basins in northeastern New South Wales and southeastern Queensland, Australia

**Subspecies:** None

**Comment:** Considered a subspecies of *Emydura macquarii* by Wermuth and Mertens (1977:128).

Actually includes several distinct, allopatric species according to Cann (1978) and John Legler (pers. comm.). Reviewed by Cogger et al. (1983). Erroneously placed in the genus *Chelymys* Gray (1844) by Wells and Wellington (1985:12); they also named the Macleay River population of New South Wales as *C. cooki*, and the upper Hunter River basin population in New South Wales as *C. joncanni*, each without a diagnosis or adequate description.



## CHELIDAE

*Emydura subglobosa* (Krefft, 1876:390)  
Red-bellied Short-necked Turtle

**Original name:** *Euchelymys subglobosa*

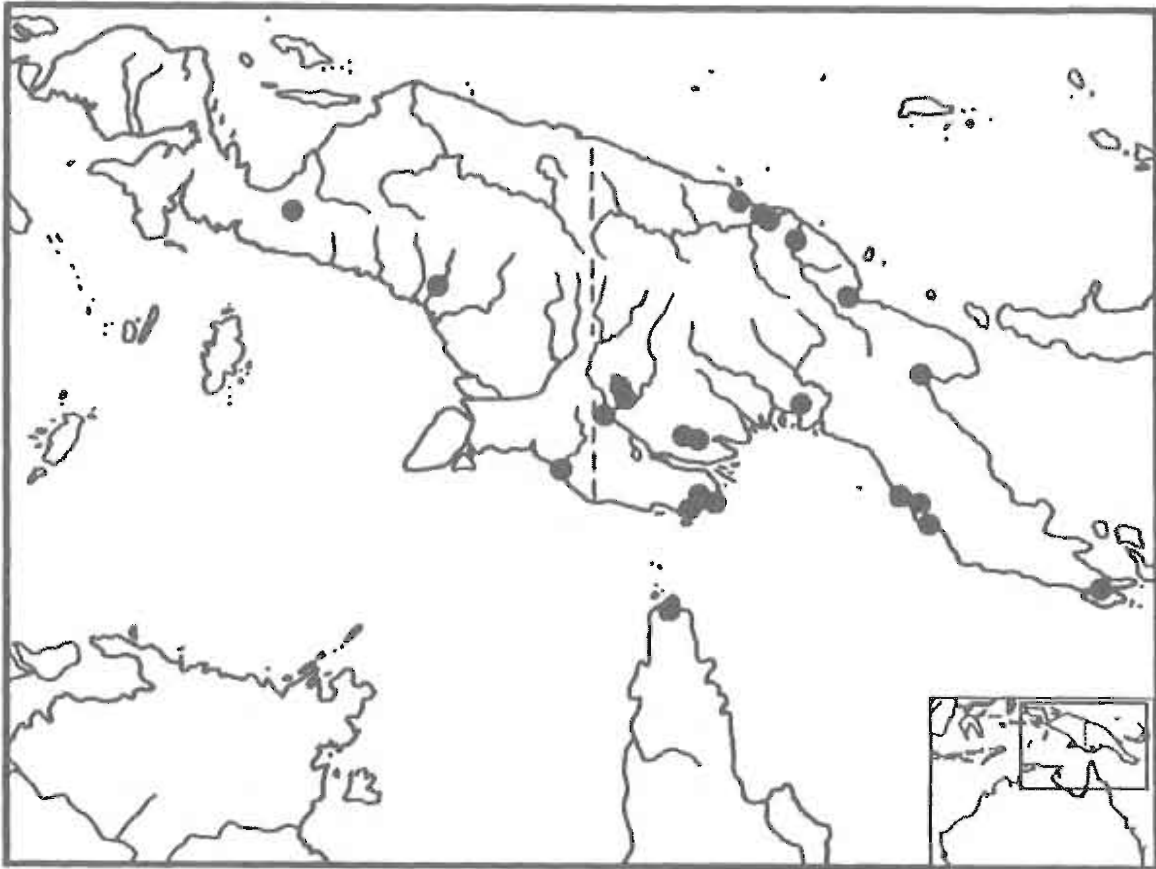
**Holotype:** MSNG C.E. 2320 (according to Ogilby, 1905)

**Type locality:** "Amana River S.E. [Papua] New Guinea"

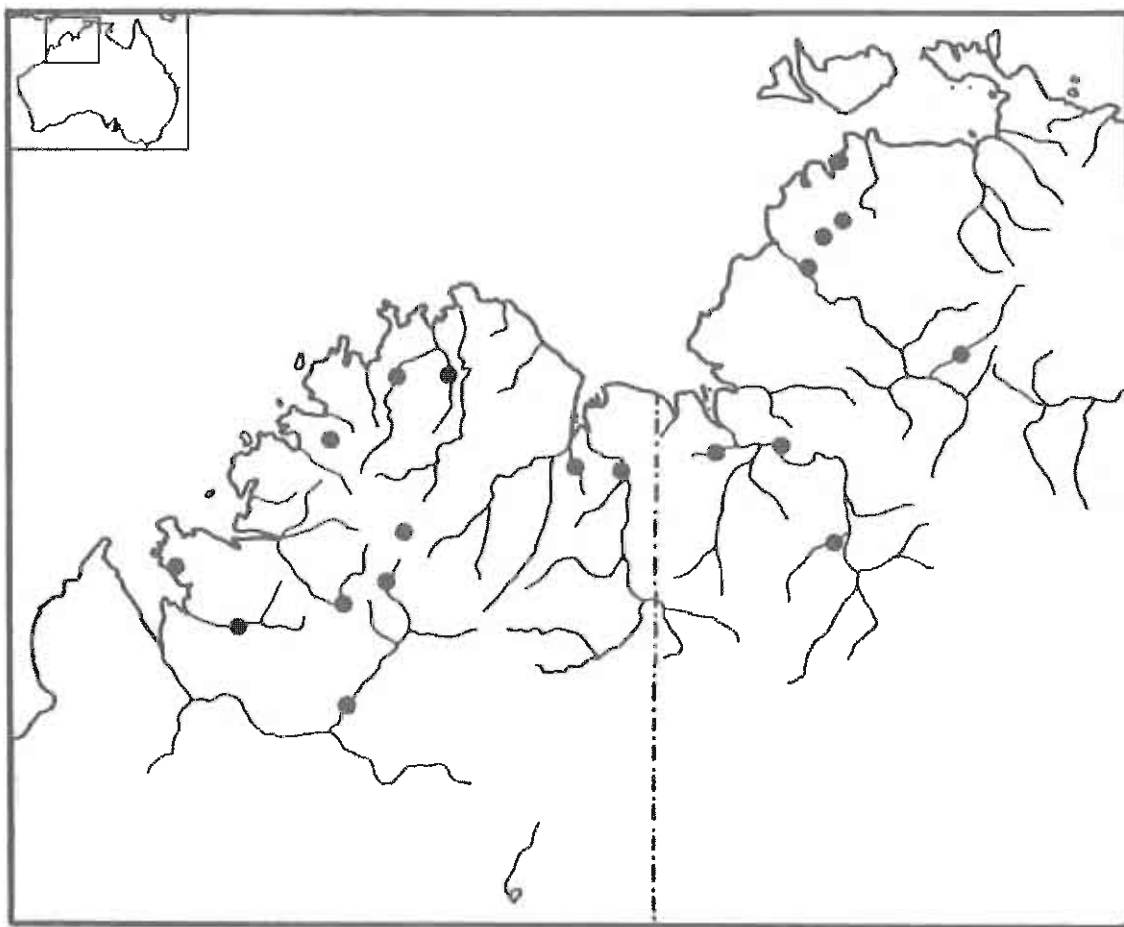
**Distribution:** Extreme northern tip of Cape York Peninsula, Queensland Australia and New Guinea (Irian Jaya, Indonesia and Papua)

**Subspecies:** None

**Comment:** See Comment under *Emydura australis*. Synonymy includes *Emydura albertsii* Boulenger (1888a). Reviewed by Cogger et al. (1983). Wells and Wellington (1985:13) placed this species in their new genus *Tropicochelymys*.



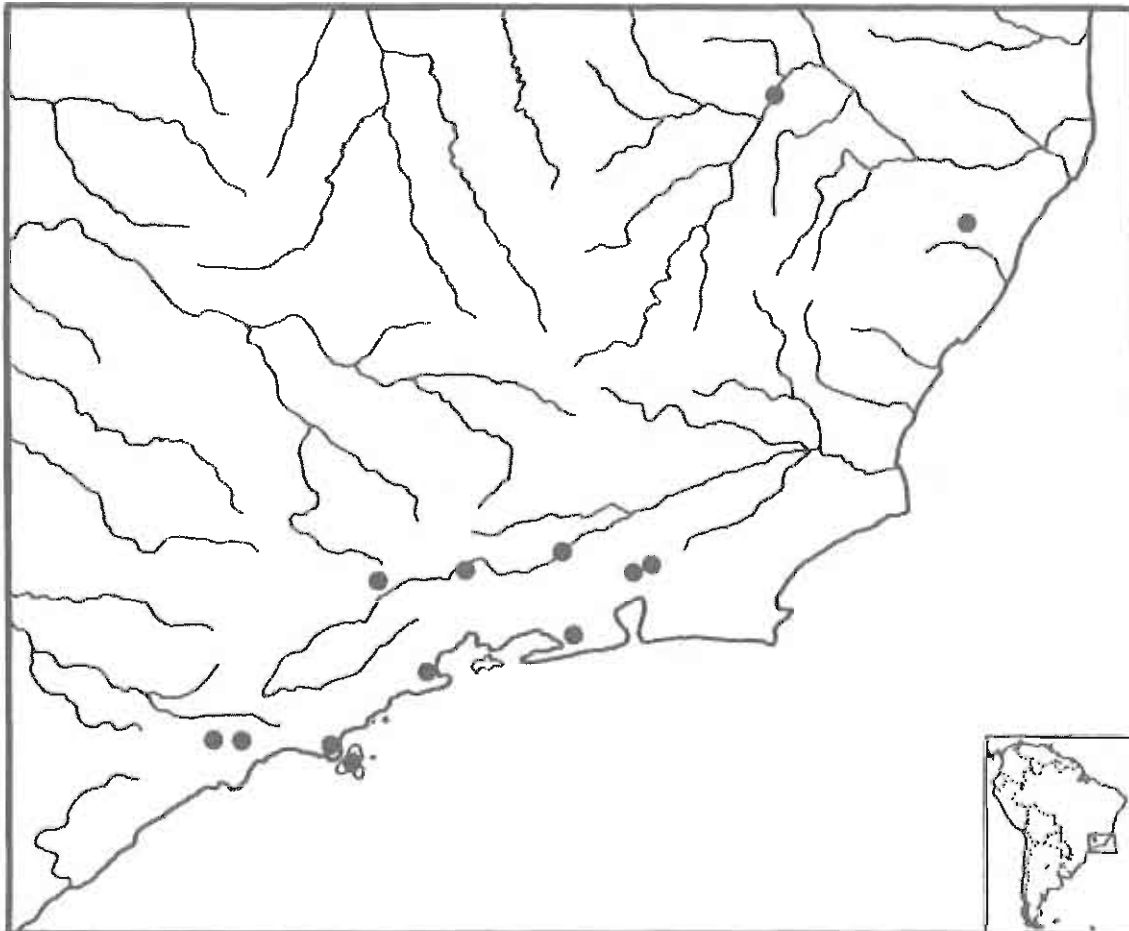
## CHELIDAE

*Emydura victoriae* (Gray, 1842:55)  
Victoria Short-necked Turtle**Original name:** *Hydraspis victoriae***Syntypes:** (2 specimens) BMNH 1947.3.5.95 and 1947.3.5.96**Type locality:** "Victoria River, North-west coast of New Holland" [Northern Territory, Australia]**Distribution:** Kimberly district of northern Western Australia to Darwin region in northwestern Northern Territory (at least Fitzroy to Daly river basins)**Subspecies:** None**Comment:** Considered a subspecies of *Emydura australis* by Wermuth and Mertens (1977:127).Reviewed by Cogger et al. (1983). Wells and Wellington (1985:14) placed this species in their new genus *Tropicochelymys* and designated BMNH 1947.3.5.95 as lectotype; they also named the populations in the Batten Creek and MacArthur River area of north Territory as *T. worrelli*, but without diagnosis or adequate description.

## CHELIDAE

*Hydromedusa* Wagler, 1830:135  
South American Snake-necked Turtles**Type species:** *Emys maximiliani* Mikan (1820), by monotypy**Distribution:** southeastern South America**Comment:** Briefly discussed by Wood and Moody (1976).**Key to the species:**

- 1a. Valve-like flap present at corner of mouth; no black-bordered light stripe on side of face; shortest plastral midline seam found between the abdominal scutes; cone-like protuberances absent from costal scutes.....*H. maximiliani* (p. 32)
- 1b. Valve-like flap not present at corner of mouth; black-bordered light stripe begins on upper jaw and extends backward to neck; shortest plastral midline seams found between the humeral and pectoral scutes; cone-like protuberances present on costal scutes.....*H. tectifera* (p. 33)

*Hydromedusa maximiliani* (Mikan, 1820:Table)  
Brazilian Snake-necked Turtle**Original name:** *Emys maximiliani***Holotype:** NMW 23391**Type locality:** "Capitania St. Paulo" [= São Paulo, Brazil]**Distribution:** Basins near the coast in the states of Espírito Santo, Minas Gerais, Rio de Janeiro, and São Paulo in southeastern Brazil**Subspecies:** None**Comment:** None

## CHELIDAE

*Hydromedusa tectifera* Cope, 1869:147  
South American Snake-necked Turtle

**Holotype:** Not located

**Type locality:** "Monte Video" [Uruguay]

**Distribution:** southeastern Brazil, Uruguay, northeastern Argentina and (apparently) Paraguay

**Subspecies:** None

**Comment:** None



## CHELIDAE

*Phrynops* Wagler, 1830:135  
Toad-headed Turtles

**Type species:** *Emys Geoffroana* Schweigger (1812), by monotypy

**Distribution:** South America

**Comment:** Subgenera noted in species accounts (i.e., *Batrachemys*, *Mesoclemmys*, and *Phrynops*) follow Wermuth and Mertens (1977).

**Key to the species:** (modified from Ernst and Barbour, 1989, and Pritchard and Trebbau, 1984)

- 1a. Head width less than 20% of carapace length.....2
- 1b. Head width more than 20% of carapace length.....3
- 2a. Jaws with dark bars; keel present on vertebrals 3-5; dark pigment occurs on all plastral scutes.....*P. gibbus* (p. 37)
- 2b. Jaws without dark bars; medial groove usually present on carapace; dark pigment on plastron usually restricted to area from pectorals to femorals.....*P. vanderhaegei* (p. 44)
- 3a. Chin with a dark horseshoe-shaped mark; intergular much shorter than combined lengths of interhumeral and interpectoral seams.....*P. williamsi* (p. 45)
- 3b. Chin lacking a dark horseshoe-shaped mark; intergular almost as long or longer than combined lengths of interhumeral and interpectoral seams.....4
- 4a. Head with bright red pigment; carapace medially peaked.....*P. rufipes* (p. 42)
- 4b. Head lacking bright red pigment; carapace not medially peaked.....5
- 5a. Plastron with scattered small dark spots.....*P. hilarii* (p. 38)
- 5b. Plastron without scattered small dark spots.....6
- 6a. Plastron with an extensive red and black pattern.....*P. geoffroanus* (p. 36)
- 6b. Plastron without an extensive red and black pattern.....7
- 7a. Head relatively narrow.....*P. hoguei* (p. 39)
- 7b. Head very large and wide.....8
- 8a. Cervical scute wider than long.....*P. tuberculatus* (p. 43)
- 8b. Cervical scute small or longer than wide.....9
- 9a. Width of posterior lobe of plastron less than 35% of carapace length; interspectoral seam length less than 9.2% of carapace length; interfemoral seam length more than 17.5% of carapace length.....*P. zuliae* (p. 46)
- 9b. Width of posterior lobe of plastron more than 35% of carapace length; interpectoral seam length more than 9.2% of carapace length; interfemoral seam length less than 18.2% of carapace length.....10
- 10a. Width of anterior lobe of plastron more than 48% of carapace length; width of posterior lobe of plastron more than 40% of carapace length; interpectoral seam length less than 11.7% of carapace length.....*P. nasutus* (p. 40)
- 10b. Width of anterior lobe of plastron less than 48% of carapace length; width of posterior lobe of plastron less than 41.5% of carapace length; interpectoral seam length more than 10.2% of carapace length.....11
- 11a. Nuchal scute width less than 25% of its length; interpectoral seam length less than 12.7% of carapace length; intergular scute length less than 88% of the interhumeral plus interpectoral seam length.....*P. raniceps* (p. 41)
- 11b. Nuchal scute width more than 25% of its length; interpectoral seam length more than 12.0% of carapace length; intergular scute length more than 83% of the interhumeral plus interpectoral seam length.....*P. dahli* (p. 35)

**Phylogenetic hypothesis:** None has been published.

## CHELIDAE

*Phrynops dahli* Zangerl and Medem, 1958:376  
Dahl's Toad-headed Turtle

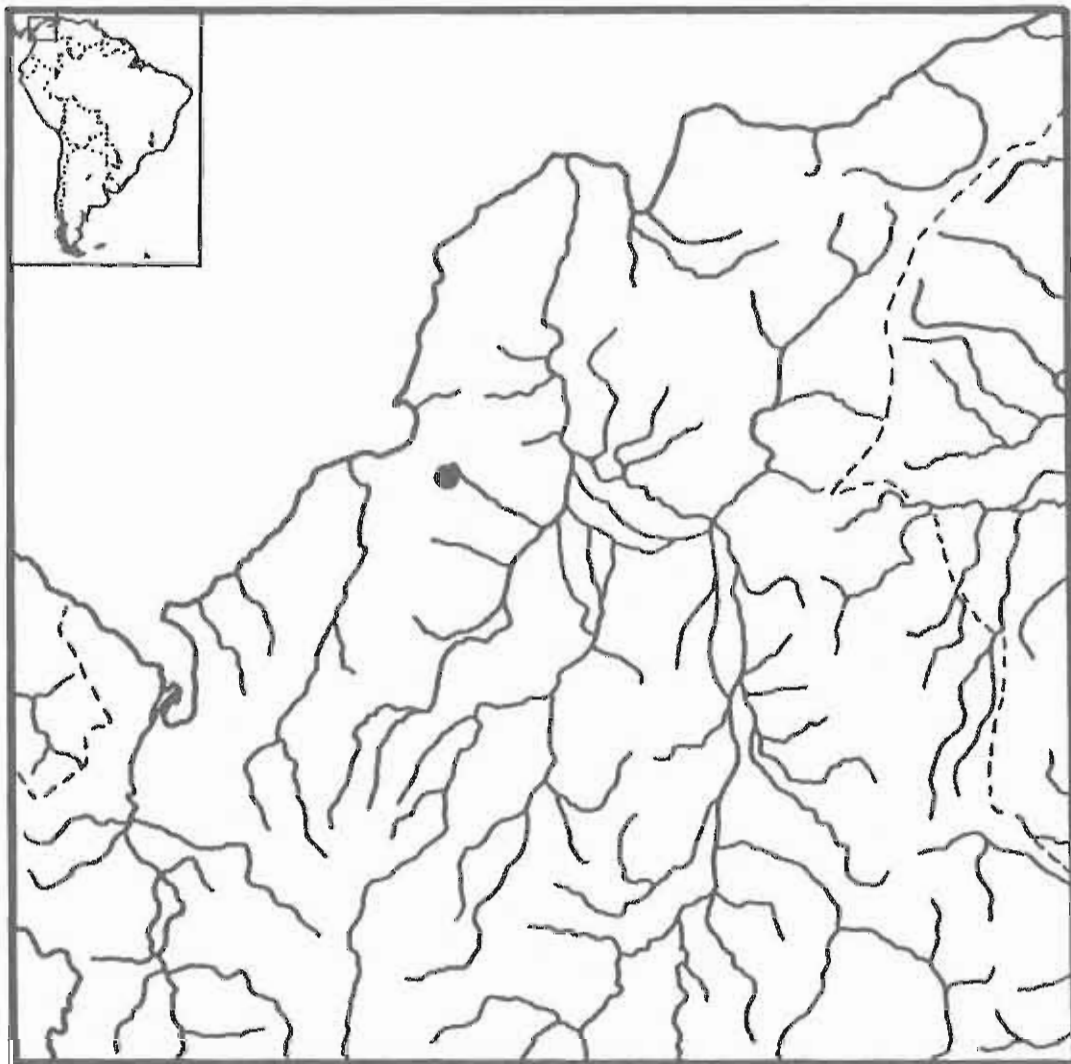
**Holotype:** FMNH 75980

**Type locality:** "Vicinity of Sincelejo, Bolivar, Colombia"

**Distribution:** Known only from the region of the type locality in northeastern Colombia

**Subspecies:** None

**Comment:** Subgenus *Batrachemys*. Considered by some to be a subspecies of *Phrynops nasutus* (e.g., Wermuth and Mertens, 1977). Reviewed by Medem (1966) and Groombridge (1982).





## CHELIDAE

*Phrynops Geoffroanus* (Schweigger, 1812:302)  
Geoffroy's Side-necked Turtle**Original name:** *Emys geoffroana***Holotype:** MNHN 9417**Type locality:** "Brasilia"**Distribution:** Orinoco to Amazon and São Francisco to Parana river basins of Colombia, Venezuela, the Guianas, Brazil, Paraguay, and possibly northern Argentina**Subspecies:** None, although A. G. J. Rhodin and R. A. Mittermeier (pers. comm.) believe the species is polytypic**Comment:** Subgenus *Phrynops*. Includes *Phrynops tuberosus* (Peters, 1870:311) according to Wermuth and Mertens (1977), although this taxon may deserve species status (see Pritchard and Trebbau, 1984; who review *Phrynops geoffroanus*).

## CHELIDAE

*Phrynops gibbus* (Schweigger, 1812:299)  
Gibba Turtle

**Original name:** *Emys gibba*

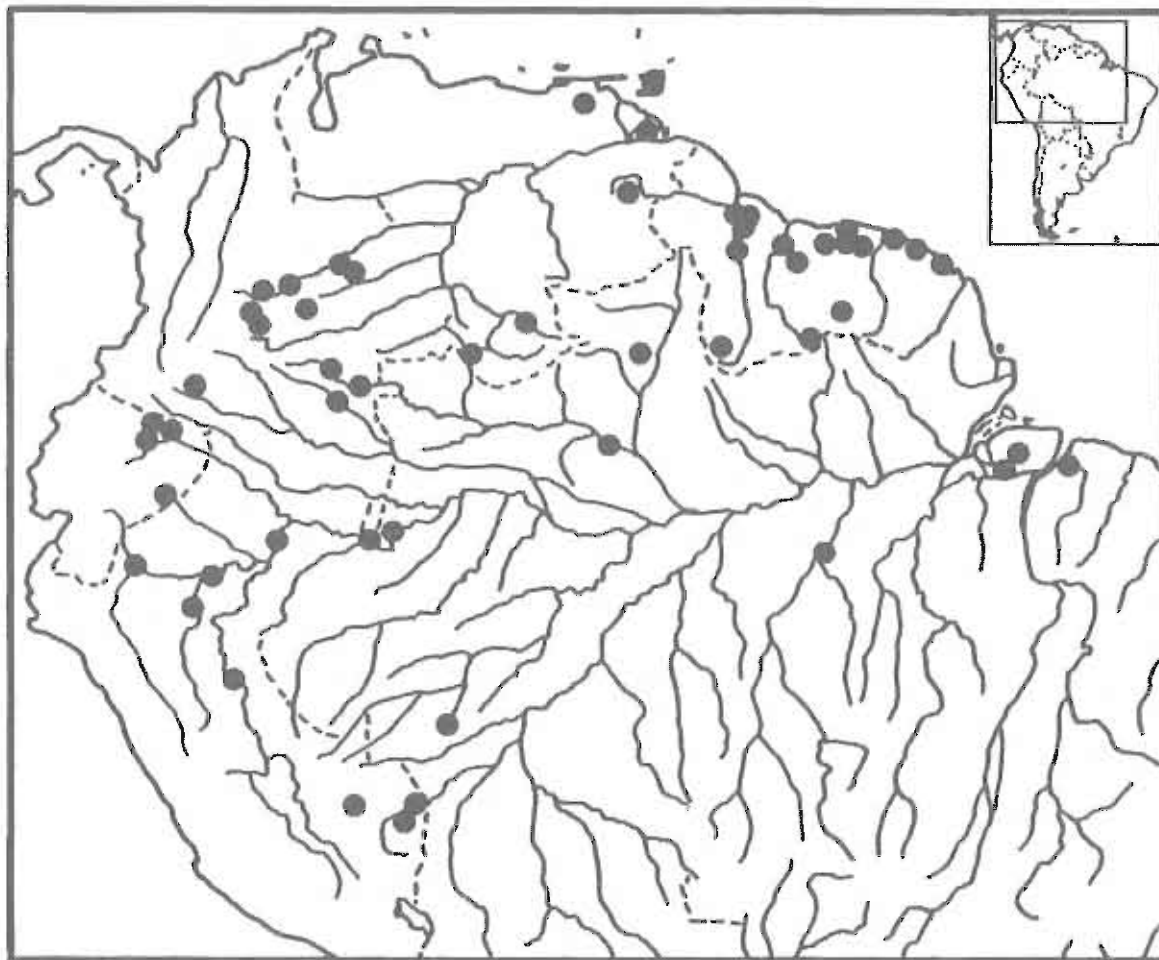
**Holotype:** MNHN 8756

**Type locality:** "Patria ignota" [= locality unknown]; designated as "Amér.[ique] mérid.[ionale]" by Duméril and Duméril (1851:20) and recorded as "Amérique du Sud" in MNHN catalog (Bour, pers. comm.); restricted to "environs de Cayenne, Guyane française" by Bour and Pauler (1987:7).

**Distribution:** Orinoco to Amazon river basins in Colombia, eastern Ecuador, Peru, Venezuela, the Guianas and northern Brazil; Trinidad

**Subspecies:** None

**Comment:** Subgenus *Mesoclemmys*. Reviewed by Mittermeier et al. (1978), Ernst (1981e), Pritchard and Trebbau (1984), and Bour and Pauler (1987). See Comment under *Phrynops vanderhaegei*.



## CHELIDAE

*Phrynops hilarii* (Duméril and Bibron, 1835:428)  
Hilaire's Side-necked Turtle

**Original name:** *Platemys hilarii*

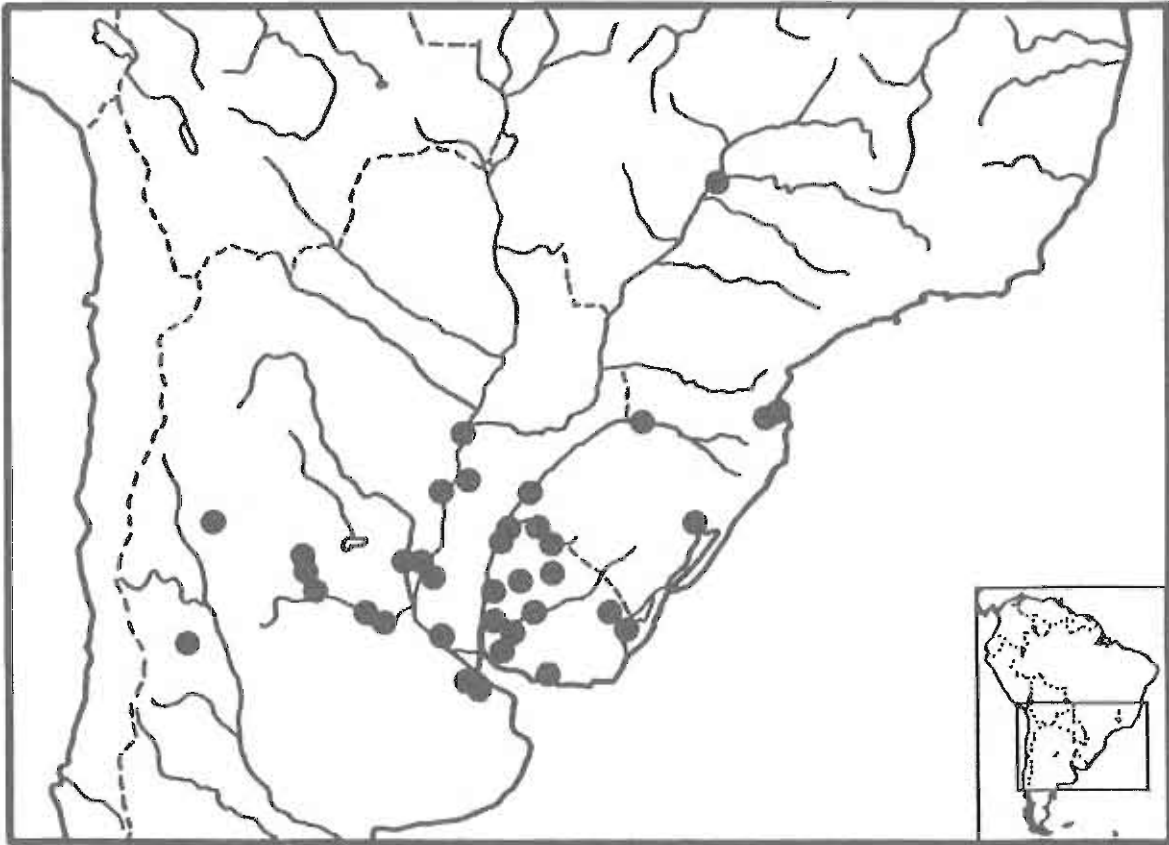
**Holotype:** MNHN 8757

**Type locality:** "Brésil"

**Distribution:** Rio Paraná and adjacent basins in southern Brazil, Uruguay, northern Argentina, and (apparently) Paraguay; may also occur in Bolivia

**Subspecies:** None

**Comment:** Subgenus *Phrynops*.



## CHELIDAE

*Phrynops hoguei* Mertens, 1967a:74  
Hoge's Side-necked Turtle

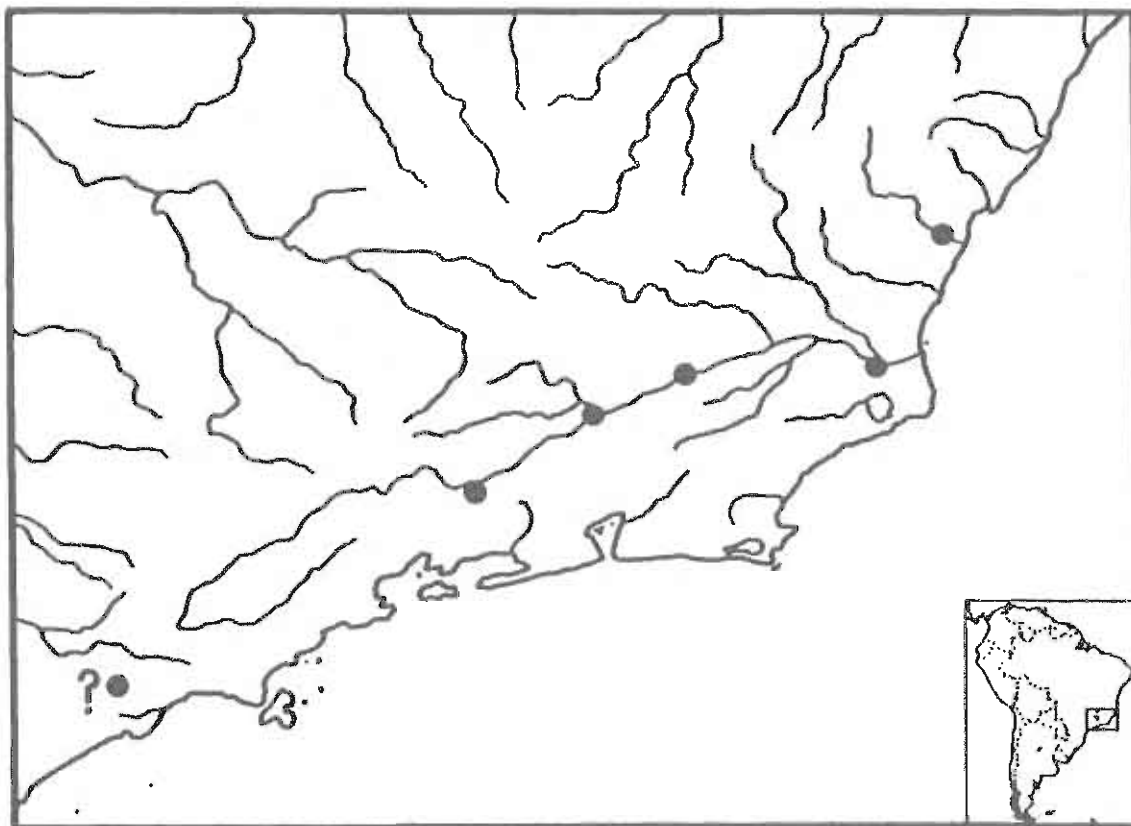
**Holotype:** SMF 62530

**Type locality:** "Rio Pequena, südwestlich von São Paulo, Brasilien"

**Distribution:** coastal basins (at least the Rio Itapemirim to Rio Paraíba) in southeastern Brazil in the states of Espírito Santo, Minas Gerais, and Rio de Janeiro; apparently does not occur at the type locality according to Rhodin et al. (1982).

**Subspecies:** None

**Comment:** Subgenus *Phrynops*. Reviewed by Rhodin et al. (1982), Groombridge (1982), and Reed et al. (1991).



## CHELIDAE

*Phrynops nasutus* (Schweigger, 1812:298)  
Common Toad-headed Turtle

**Original name:** *Emys nasuta*

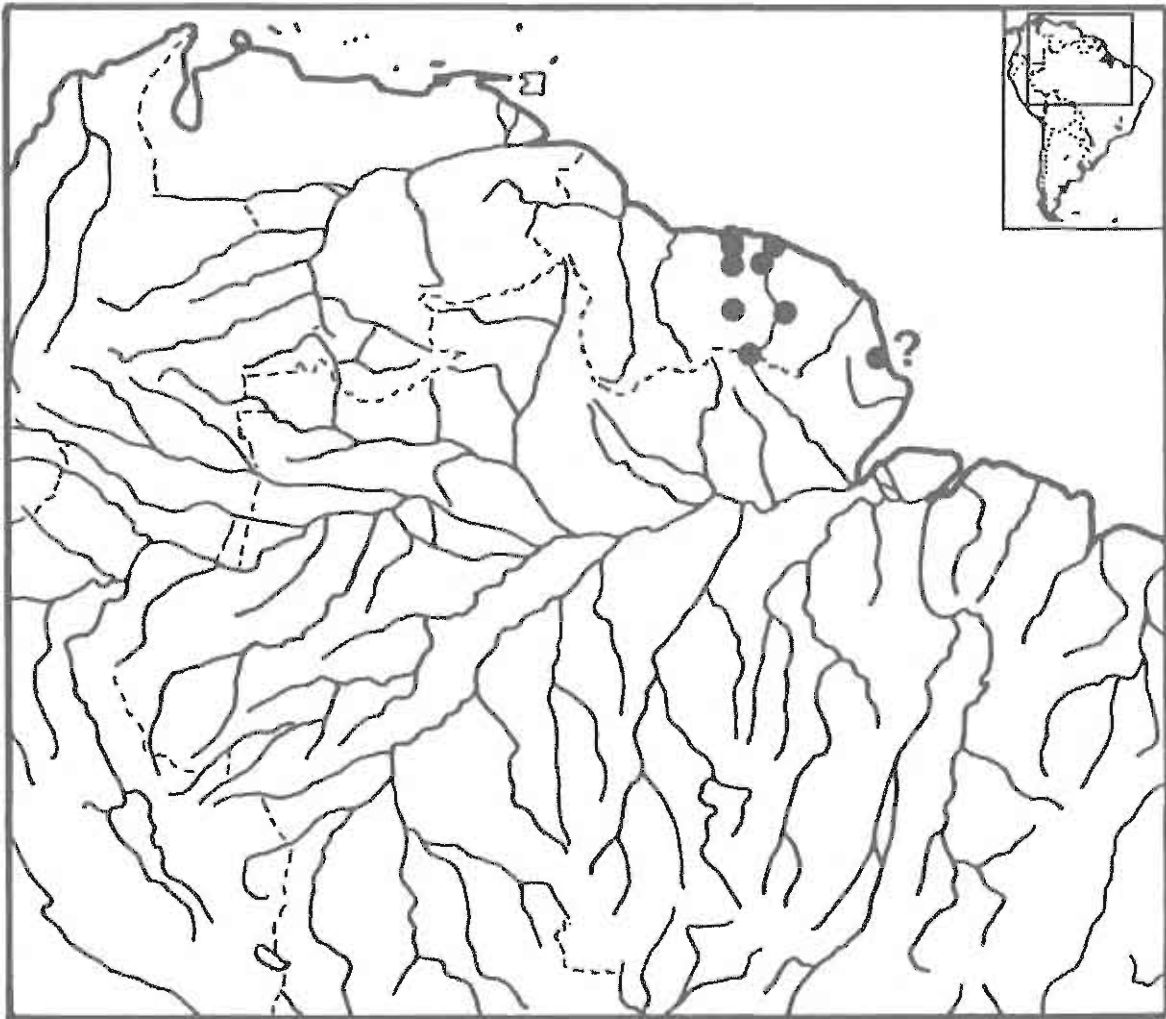
**Holotype:** MNHN 4140; photographed in Bour and Pauler (1987:21).

**Type locality:** "Patria ignota" [= locality unknown]; designated as "Amérique méridionale" by Duméril and Bibron (1835:437), and "Guyanas et au nord-est de l'Amazonie" by Lescure and Fretey (1975:1318); restricted to "rivières Ouaiqui et Inini, bassin du Maroni en amont de Maripasoula, Guyane française" by Bour and Pauler (1987:6).

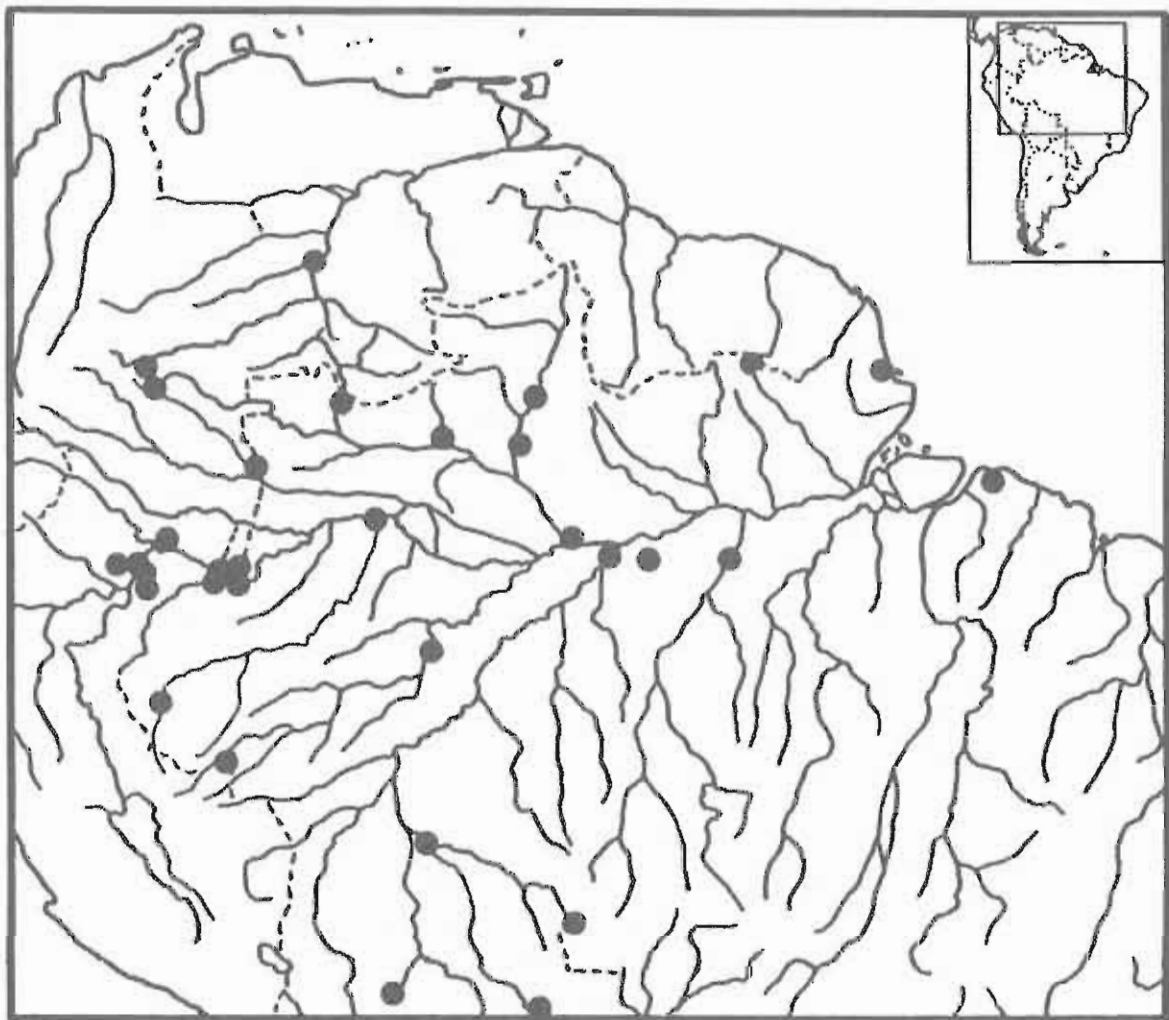
**Distribution:** French Guiana and Surinam and possibly adjacent Brazil

**Subspecies:** None

**Comment:** Subgenus *Batrachemys*. See Comments under *Phrynops dahl*i and *P. raniceps*. Reviewed by Lescure and Fretey (1975), Pritchard and Trebbau (1984), and Bour and Pauler (1987).



## CHELIDAE

*Phrynops raniceps* (Gray, 1855:55)  
Amazon Toad-headed Turtle**Original name:** *Hydraspis raniceps***Holotype:** Not stated; BMNH 1947.3.5.92 designated lectotype by Bour and Pauler (1987:8), after Boulenger (1889:219); figured in Gray (1855:Plate XXIII; figure reproduced in Bour and Pauler, 1987:21).**Type locality:** "Brazils; Para"; "Parà, Brésil" according to Bour and Pauler (1987:8)**Distribution:** Upper Orinoco to Amazon river basins in eastern Colombia, southern Venezuela, Peru, Brazil, and Bolivia**Subspecies:** None**Comment:** Subgenus *Batrachemys*. Removed from the synonymy of *Phrynops nasutus* by Bour and Pauler (1987). Includes *Phrynops wernuthi* Mertens (1969c:132) according to Bour and Pauler (1987).

## CHELIDAE

*Phrynops rufipes* (Spix, 1824:7)  
Red Side-necked Turtle

**Original name:** *Emys rufipes*

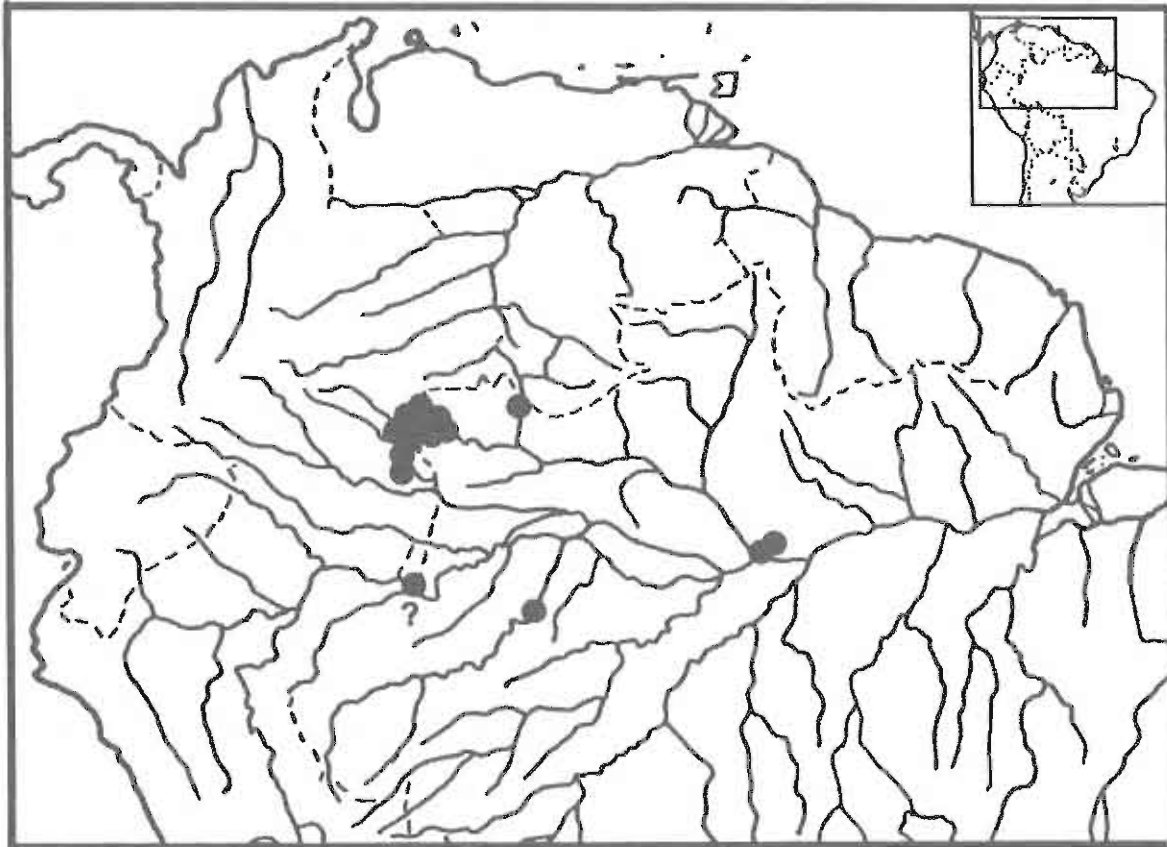
**Holotype:** ZSM 3006/0

**Type locality:** "Rio Solimoens" [= Rio Solimoes, South America]

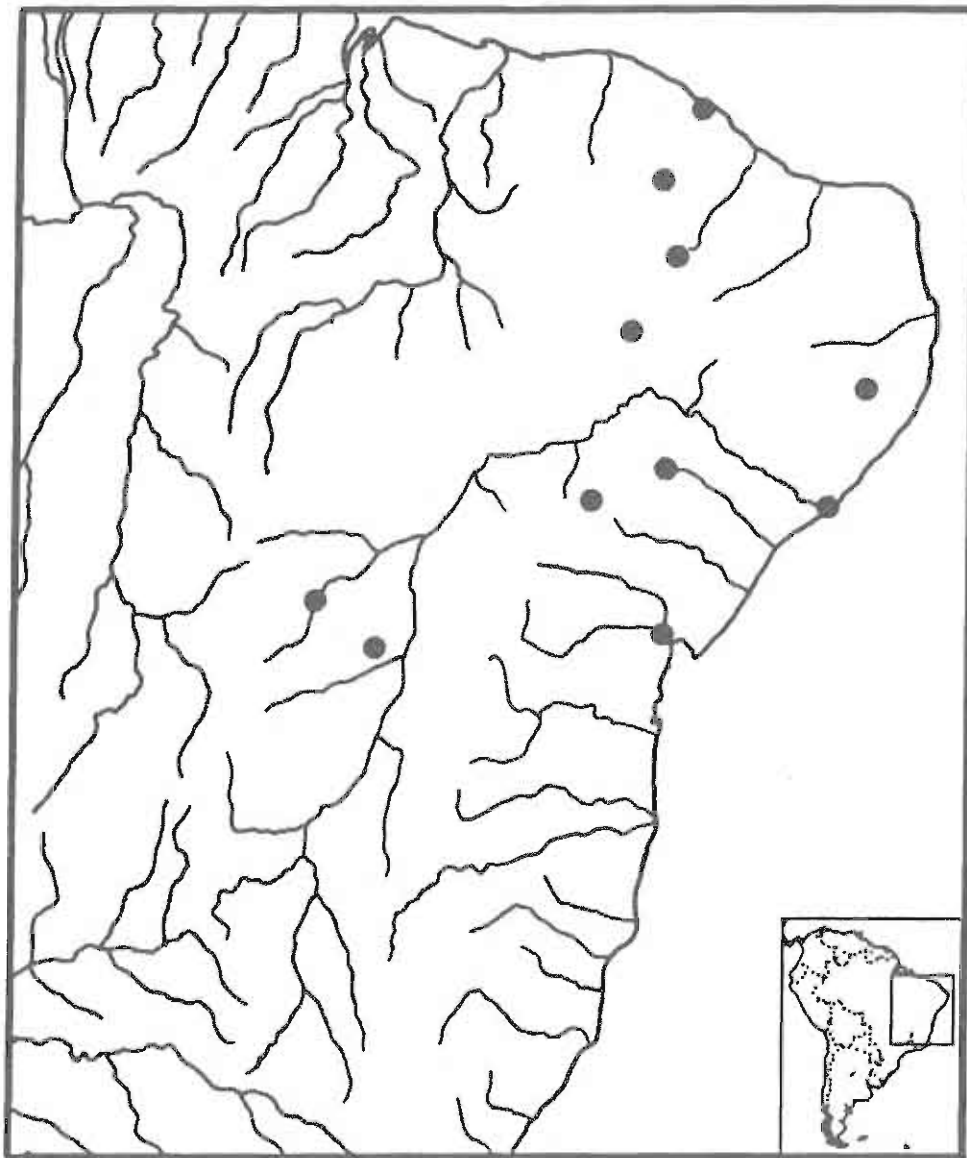
**Distribution:** Amazon river basin in southeastern Colombia, (possibly) Peru, and northwestern Brazil

**Subspecies:** None

**Comment:** Subgenus *Phrynops*. Reviewed by Lamar and Medem (1984) and Groombridge (1982).



## CHELIDAE

*Phrynops tuberculatus* (Luederwaldt, 1926:428, 437, 445)  
Tuberculate Toad-headed Turtle**Original name:** *Rhinemys tuberculata***Syntypes:** (2 specimens) MZUSP 43 and 81; MZUSP 43 designated lectotype by Bour and Pauler (1987:9), since MZUSP 81 is apparently lost.**Type locality:** "Villa Nova (Est. da Bahia)" [Brazil]; and "Fortaleza (Ceará)" [Brazil]; "Estado de Ceará" [Brazil] by lectotype designation.**Distribution:** eastern Brazil in the Rio São Francisco and adjacent basins**Subspecies:** None**Comment:** Subgenus *Batrachemys*. Reviewed by Bour (1973) and Bour and Pauler (1987). See Comment under *Phrynops vanderhaegei*.



## CHELIDAE

*Phrynops vanderhaegei* Bour, 1973:184  
Vanderhaege's Toad-headed Turtle

**Original name:** *Phrynops tuberculatus vanderhaegei*

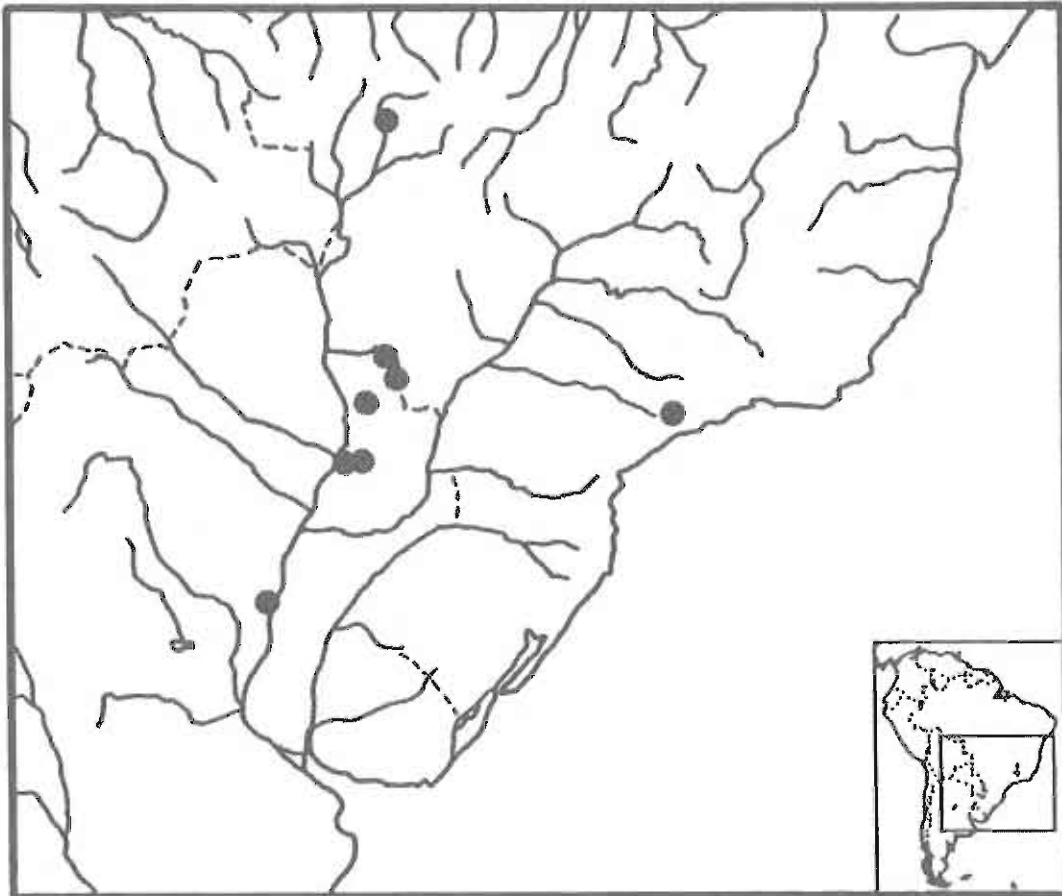
**Holotype:** MNHN 1977-50; photograph in Bour and Pauler (1987:22)

**Type locality:** "probablement les environs d'Asunción au Paraguay" [= near Asunción, Paraguay]; restricted to "Tobati (25° 15'S, 57° 04'W), La Cordillera, Paraguay" by Bour and Pauler (1987:10).

**Distribution:** Rio Parana basin in southern Brazil, Paraguay and northern Argentina; possibly also in Uruguay and Bolivia

**Subspecies:** None

**Comment:** Subgenus *Batrachemys*. Considered by Wermuth and Mertens (1977:133) to be a subspecies of *Phrynops tuberculatus* and by McDiarmid and Foster (1987) to be a subspecies of *Phrynops gibbus*; however, Bour and Pauler (1987:10) have argued for full species status.



## CHELIDAE

*Phrynops williamsi* Rhodin and Mittermeier, 1983:59  
Williams' Side-necked Turtle

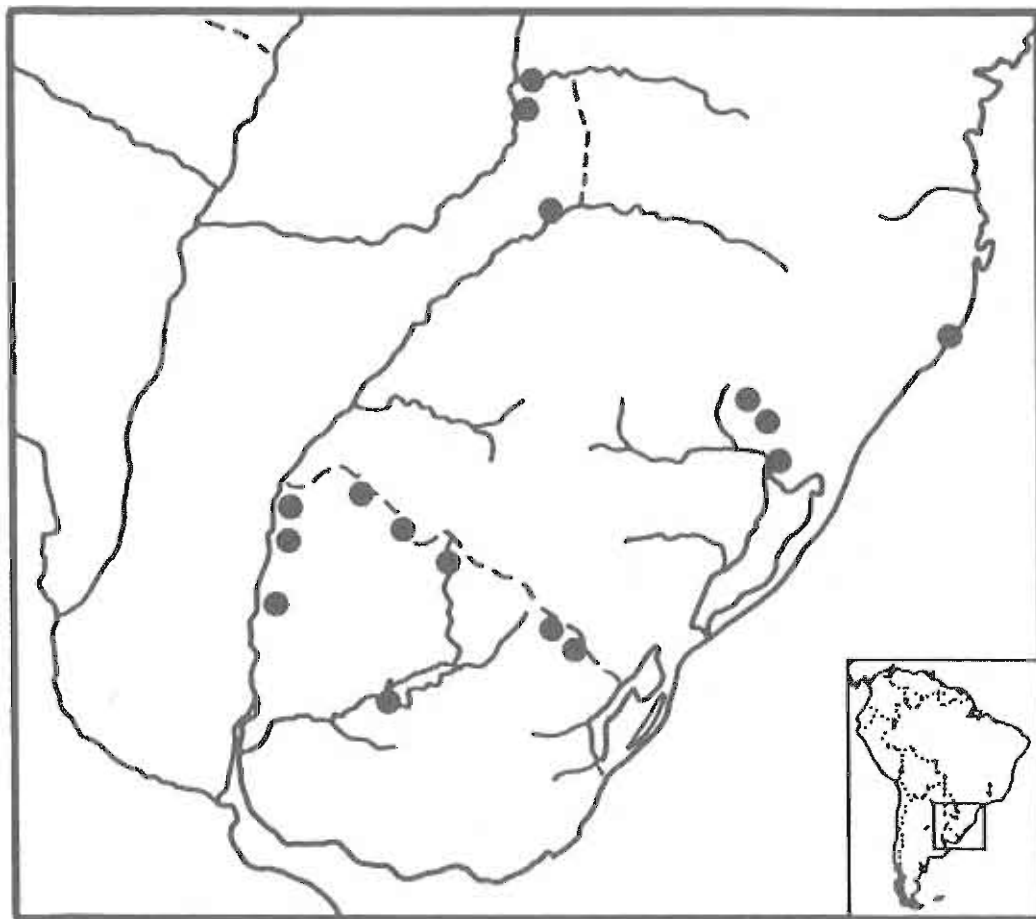
**Holotype:** MCZ 64135

**Type locality:** "Rio Cadéa, Rio Grande do Sul, Brazil"

**Distribution:** Extreme southern Brazil, Uruguay, Paraguay, and northeastern Argentina

**Subspecies:** None

**Comment:** Subgenus *Phrynops*. Reviewed by Rhodin and Mittermeier (1983) and Rhodin et. al. (1988).



## CHELIDAE

*Phrynops zuliae* Pritchard and Trebbau, 1984:135  
Zulia Toad-headed Turtle

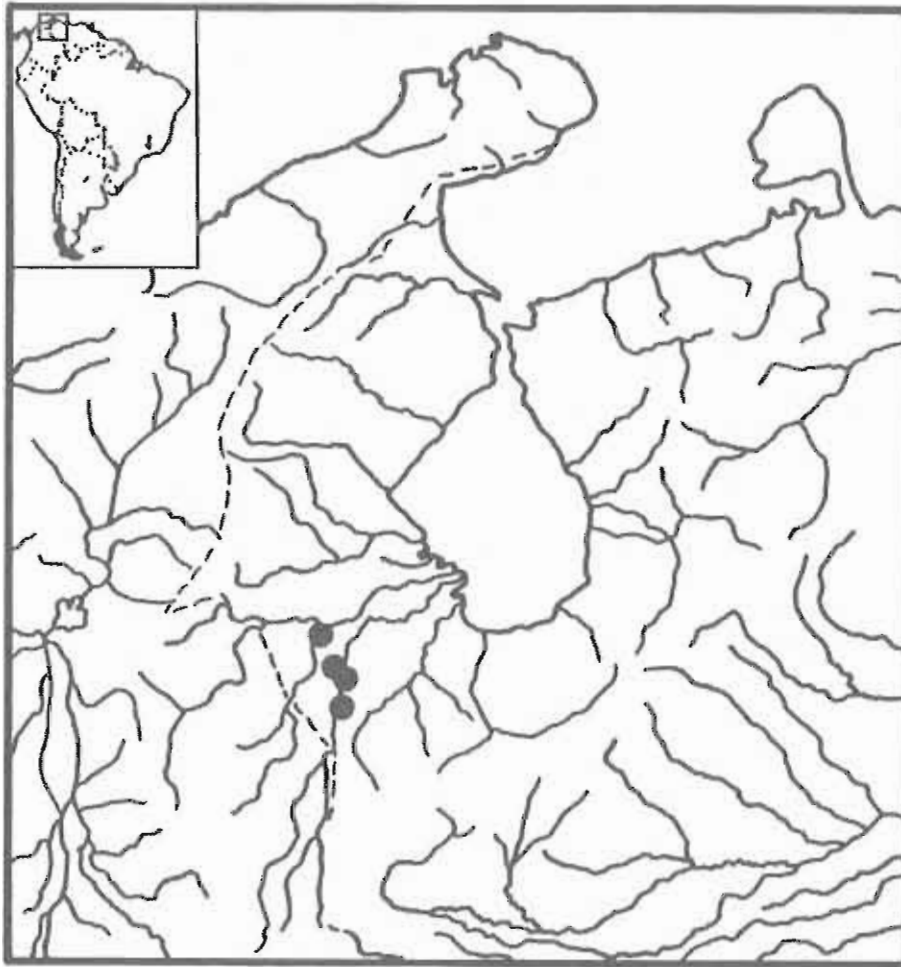
**Holotype:** UF 53439

**Type locality:** "Caño Madre Vieja near El Guayabo, Distrito Colon, Edo. Zulia, Venezuela (8° 53'N, 72° 30'W)"

**Distribution:** Basins draining into the western shore of Lake Maracaibo, Venezuela

**Subspecies:** None

**Comment:** Subgenus *Batrachemys*. Reviewed by Pritchard and Trebbau (1984) and Pritchard (1987).



## CHELIDAE

*Platemys* Wagler, 1830:135  
Twisted-necked Turtles

**Type species:** *Testudo planiceps* Schoepff (1801) [= *Testudo platycephala* Schneider (1792)], by monotypy

**Distribution:** As for the single species

**Comment:** Reduced to a monotypic genus by McBee et al. (1985) and Iverson (1986b:197), and substantiated by Derr et al. (1987:370). Reviewed by Ernst (1987). See Comment under *Acanthochelys* account.

*Platemys platycephala* (Schneider, 1792:261)  
Twist-necked Turtle

**Original name:** *Testudo platycephala* and *Testudo planiceps*

**Holotype:** Not located

**Type locality:** "Ost-Indien" [= East Indies (in error)]; restricted to "Cayenne, French Guiana" by Ernst (1983d:350)

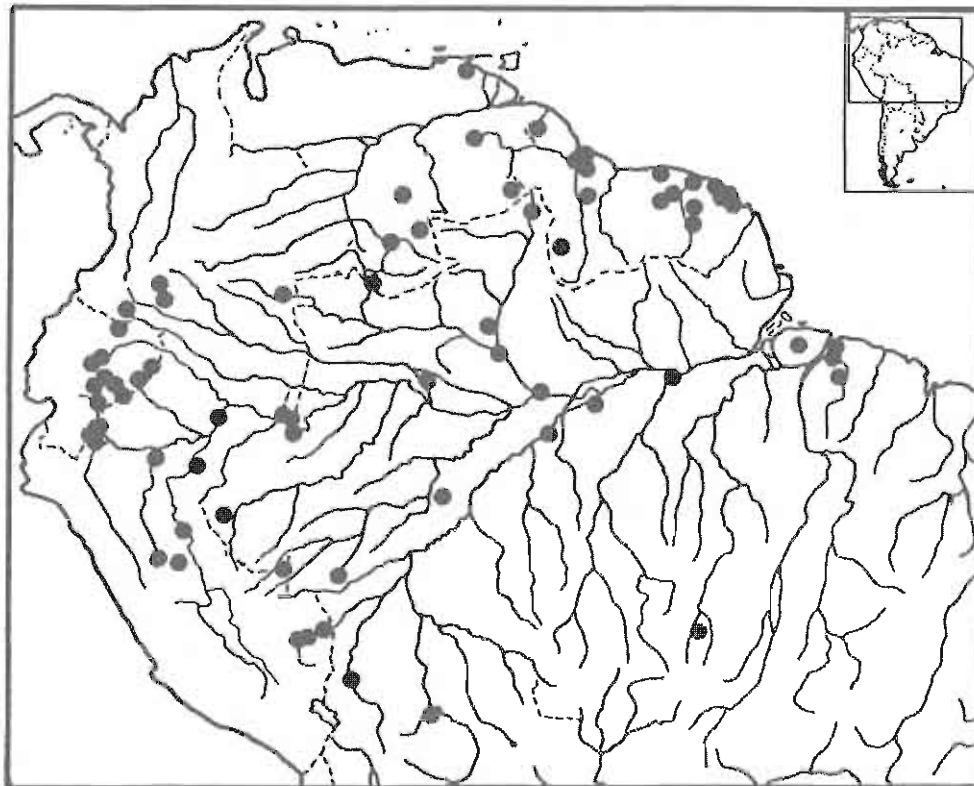
**Distribution:** Orinoco to Amazon river basins in Venezuela, Colombia, eastern Ecuador, Peru, northern Bolivia, the Guianas, and Brazil

**Subspecies:** Two are recognized:

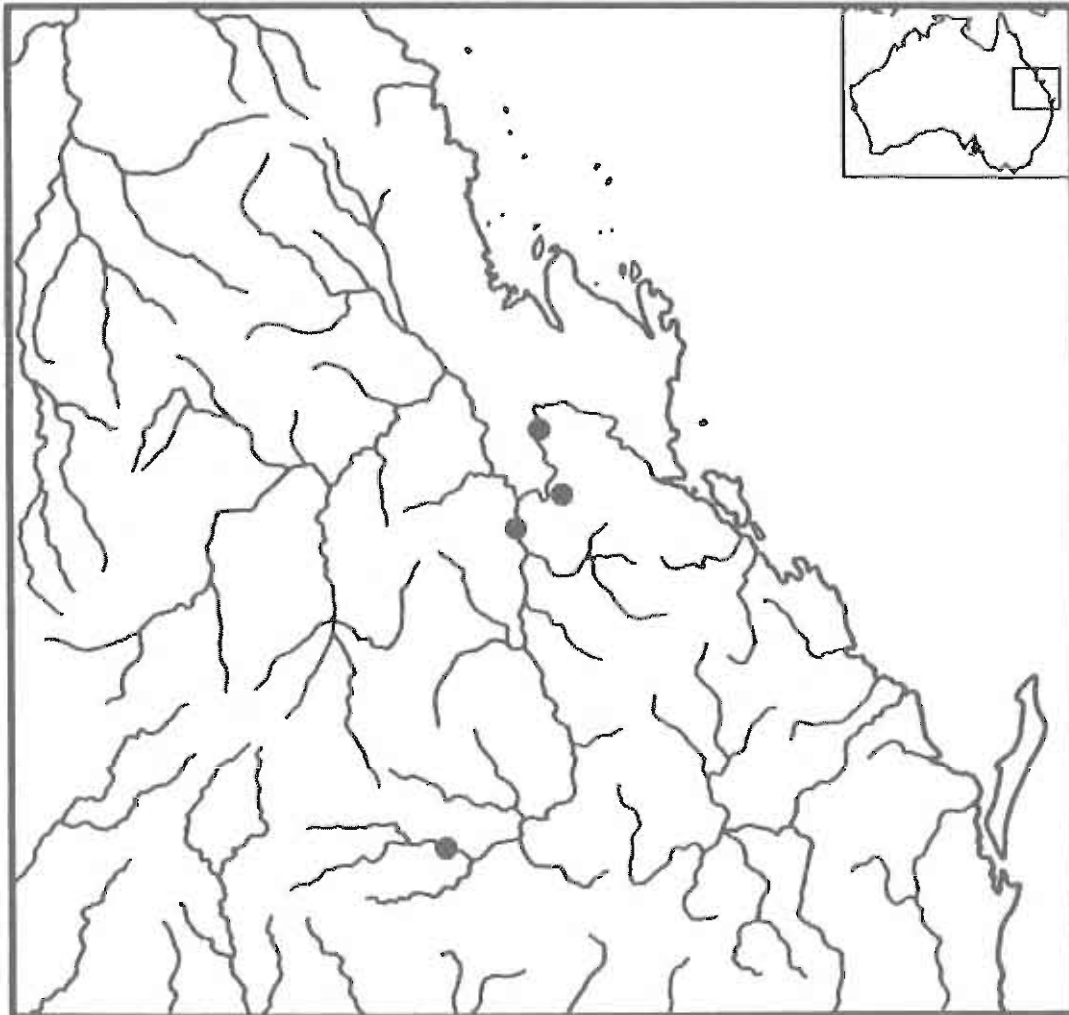
*P. p. platycephala* (Schneider, 1792:261) Common twist-necked turtle [Holotype: see above; type locality: see above; range: Orinoco to all but the upper Amazon basin in Venezuela, Colombia, Ecuador, Bolivia, the Guianas, and Brazil]

*P. p. melanonota* Ernst (1983d:350) Black-backed twist-necked turtle [Holotype: USNM 224136; type locality: "vicinity of Galilea, on the Rio Santiago, Amazonas, Perú (4°01'S, 77°47'W)"; range: upper Amazon basins of Perú and Ecuador]

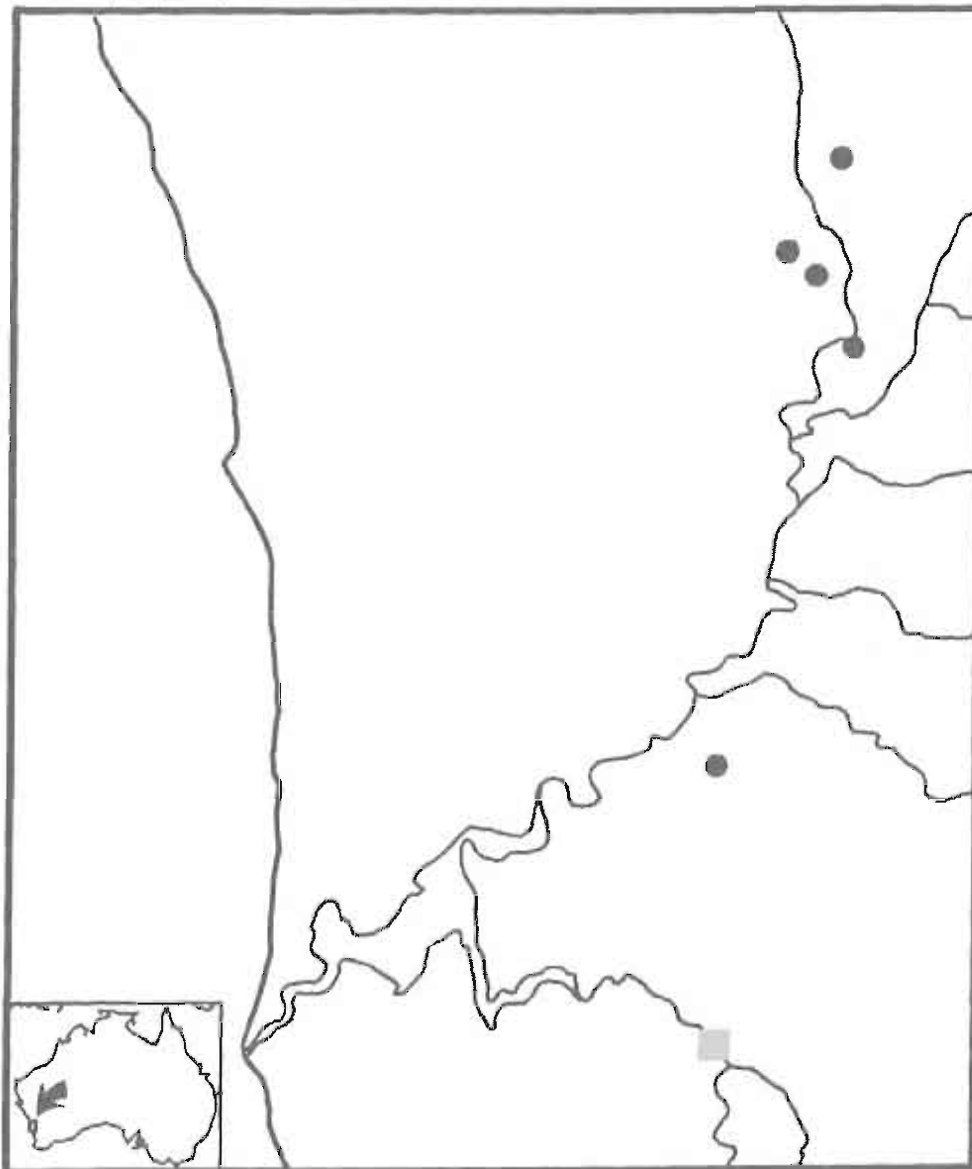
**Comment:** Reviewed by Ernst (1983d, 1987) and Pritchard and Trebbau (1984). See Comment under *Acanthochelys macrocephala*. Pritchard and Trebbau (1984) discuss the problem caused by Schneider's (1792) use of two names for the same species.



## CHELIDAE

*Rheodytes* Legler and Cann, 1980:2  
Fitzroy River Turtles**Type species:** *Rheodytes leukops* Legler and Cann (1980), by monotypy**Distribution:** As for the single species**Comment:** Without justification, Wells and Wellington (1985:13) placed *Rheodytes* in the synonymy of *Elseya* Gray (1867).**Phylogenetic hypothesis:** see *Elseya* account (p. 21)*Rheodytes leukops* Legler and Cann, 1980:2  
Fitzroy River Turtle**Holotype:** QM I31701**Type locality:** "Fitzroy River, 63 km N and 25 km E of Duaringa, elevation 40 m, 23° 09' S, 149° 55' E, Queensland, Australia"**Distribution:** Fitzroy river basin of eastern Queensland, Australia**Subspecies:** None**Comment:** Reviewed by Legler and Cann (1980).

## CHELIDAE

Subfamily **Pseudemydurinae** Gaffney, 1977:24  
Western Swamp Turtles**Distribution:** As for the single species**Comment:** None.*Pseudemydura* Siebenrock, 1901:248  
Western Swamp Turtles**Type species:** *Pseudemydura umbrina* Siebenrock (1901), by monotypy**Distribution:** As for the single species**Comment:** None.*Pseudemydura umbrina* Siebenrock, 1901:249  
Western Swamp Turtle**Holotype:** NMW 89 (8450) = 1296**Type locality:** "Australia"**Distribution:** Known only from swamps near Warbrook, northeast of Perth, Western Australia**Subspecies:** None**Comment:** Reviewed by Williams (1958), Burbidge (1981), Groombridge (1982), and Kuchling and Dejose (1989).

## PELOMEDUSIDAE

Family **Pelomedusidae** Cope, 1868a:119  
Afro-American Side-necked Turtles

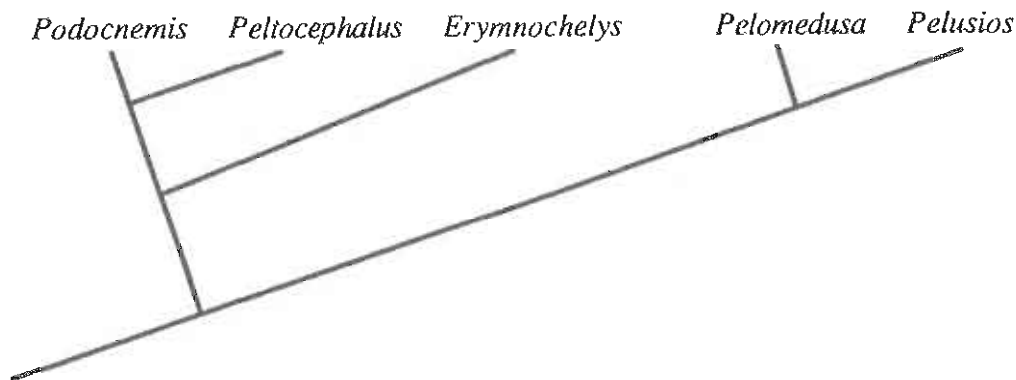
**Distribution:** South America and Africa (including Madagascar and the Seychelles Islands).

**Comment:** African species reviewed by Loveridge (1941); South American species by Pritchard and Trebbau (1984). Karyotypes are reviewed by Bull and Legler (1980) and serological variation is discussed by Frair (1980). Bour and Dubois (1984a) discuss the uncertain validity of the family name. Gaffney and Meylan (1988) recommended the division of this family into the Pelomedusinae (*Pelomedusa* and *Pelusios*) and the Podocneminae (*Erymnochelys*, *Peltocephalus*, and *Podocnemis*), and de Broin (1988:105) recommended that those two higher taxa both be elevated to family status.

**Key to the genera:** (after Ernst and Barbour, 1989)

- 1a. Hind feet with five claws.....2
- 1b. Hind feet with four claws.....3
- 2a. Plastron with moveable hinge between the pectoral and abdominal scutes; mesoplastra touching at plastral midline.....*Pelusios* (p. 54)
- 2b. Plastron rigid, lacking a moveable hinge between the pectoral and abdominal scutes; mesoplastra widely separated.....*Pelomedusa* (p. 52)
- 3a. Long intergular scute completely separates the adjacent gular scutes.....4
- 3b. Short intergular scute does not completely separate the gular scutes.....*Erymnochelys* (p. 51)
- 4a. Interorbital groove present; upper jaw not hooked.....*Podocnemis* (p. 72)
- 4b. Interorbital groove absent; upper jaw hooked.....*Peltocephalus* (p. 53)

**Phylogenetic hypothesis:** (after Gaffney, 1988, and Gaffney and Meylan, 1988)



## PELOMEDUSIDAE

*Erymnochelys* Baur, 1888b:421  
 Madagascan Big-headed Turtles

**Type species:** *Dumerilia madagascariensis* Grandidier (1867), by monotypy

**Distribution:** As for the single species

**Comment:** Frair et al. (1978) reviewed the evidence for the removal of this genus from the synonymy of *Podocnemis*.

*Erymnochelys madagascariensis* (Grandidier, 1867:232)  
 Madagascan Big-headed Turtle

**Original name:** *Dumerilia madagascariensis*

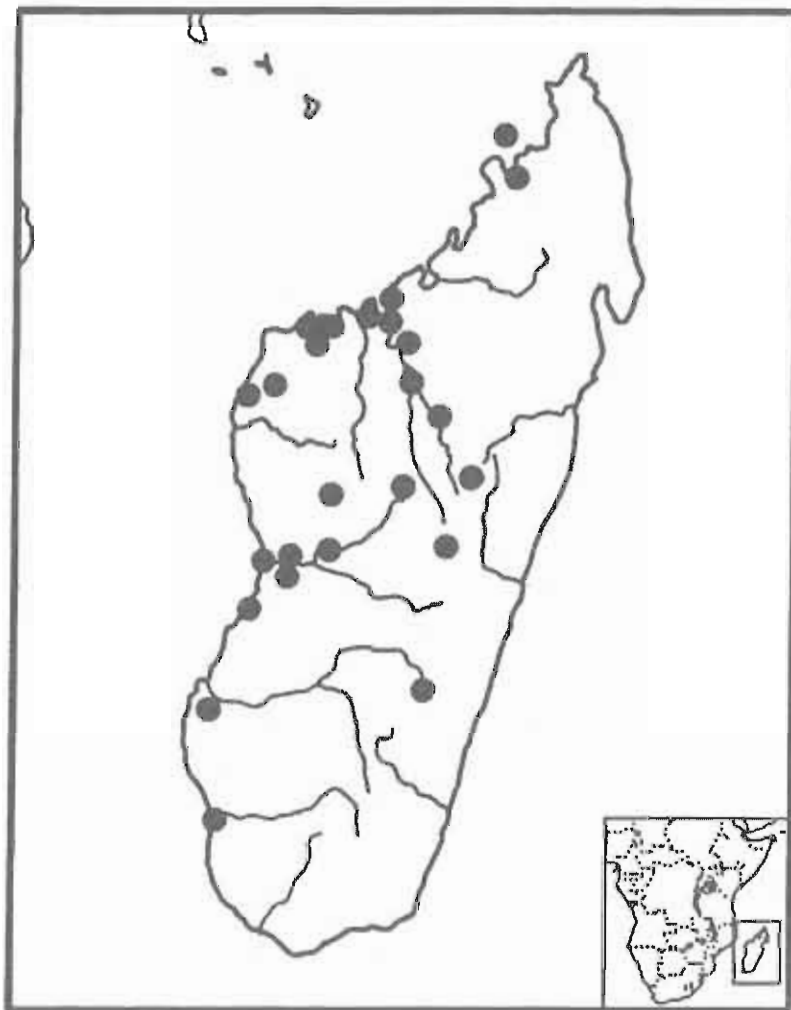
**Holotype:** MNHN 9544

**Type locality:** "Mouroundava Tsidsibouque flumina in occidentali insulae Madagascar littore" [= Morondava and Tsidsibou rivers on the western coast of Madagascar]

**Distribution:** western and northern Madagascar from the Mangoky River in the southwest to the Sambirano basin in the north

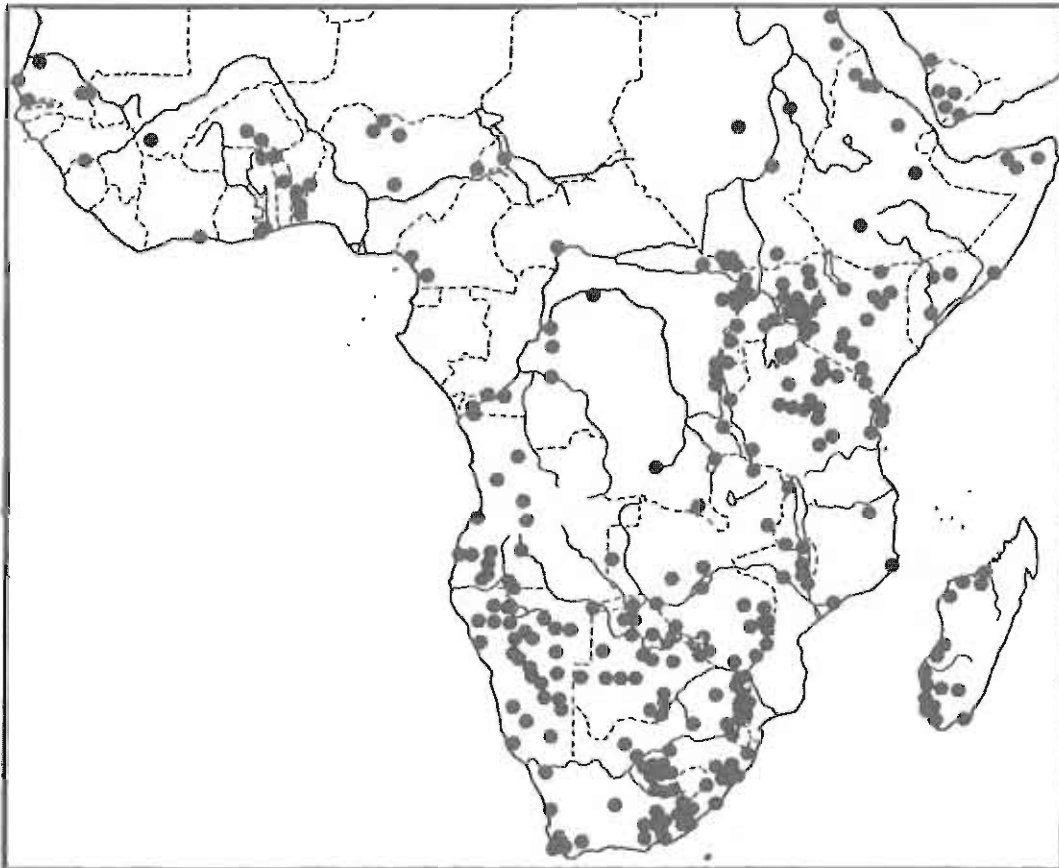
**Subspecies:** None

**Comment:** Reviewed by Tronc and Vuillemin (1974) and Groombridge (1982). The original genus (*Dumerilia* Grandidier, 1867) is preoccupied and therefore unavailable (Wermuth and Mertens, 1977:119).





## PELOMEDUSIDAE

*Pelomedusa* Wagler, 1830:136  
Helmeted Turtles**Type species:** *Testudo galeata* Schoepff (1792) [= *Testudo subrufa* Lacepède (1788)], by monotypy**Distribution:** As for the single species**Comment:** None*Pelomedusa subrufa* (Bonnaterre, 1789:28)  
Helmeted Turtle**Original name:** *Testudo Subrufa***Holotype:** MNHN 7970**Type locality:** "Indes" (in error); designated as "Kap der Guten Hoffnung" [= Cape of Good Hope, Republic of South Africa] by Mertens (1937:139); designated as "Taolanaro (Fort-Dauphin), République Malagasy (Madagascar)" by Bour (1982b:535).**Distribution:** Africa from Senegal and Ethiopia to Republic of South Africa, Madagascar, and southern Saudi Arabia and Yemen**Subspecies:** Three are recognized (see Bour, 1986a:37):*P. s. subrufa* (Bonnaterre, 1789:28) Common African helmeted turtle [Holotype: see above; type locality: see above; range: Somalia and Sudan west to Ghana and south to the Cape of Africa; Madagascar]*P. s. olivacea* (Schweigger 1812:307) North African helmeted turtle [Holotype: MNHN 7971; type locality: "in fabulosis Nigritiae" [= Senegal]; range: Ethiopia west to Senegal, Nigeria, and Cameroun; Saudi Arabia and Yemen]*P. s. nigra* (Gray 1863c:99) Black helmeted turtle [Syntypes: (3 specimens) BMNH 49.1.30.27 and 62.12.4.4-5; type locality: "Natal" [Republic of South Africa]; range: Natal to Orange Free State and east Cape Province in the Republic of South Africa]**Comment:** Originally described by Lacepède (1788:173), but that work was made unavailable by ICZN Opinion 1463 (1987). Includes *P. galeata* Schoepff (1792:12) according to all recent authors. Reviewed by Loveridge (1941), and Boycott and Bourquin (1988).

## PELOMEDUSIDAE

*Peltocephalus* Duméril and Bibron, 1835:377  
Big-headed Amazon River Turtles

**Type species:** *Emys tracaxa* Spix (1824) [= *Emys dumeriliana* Schweigger (1812)], by monotypy

**Distribution:** As for the single species

**Comment:** Frair et al. (1978) removed this taxon from the synonymy of *Podocnemis*.

*Peltocephalus dumerilianus* Schweigger 1812:300  
Big-headed Amazon River Turtle

**Original name:** *Emys Dumeriliana*

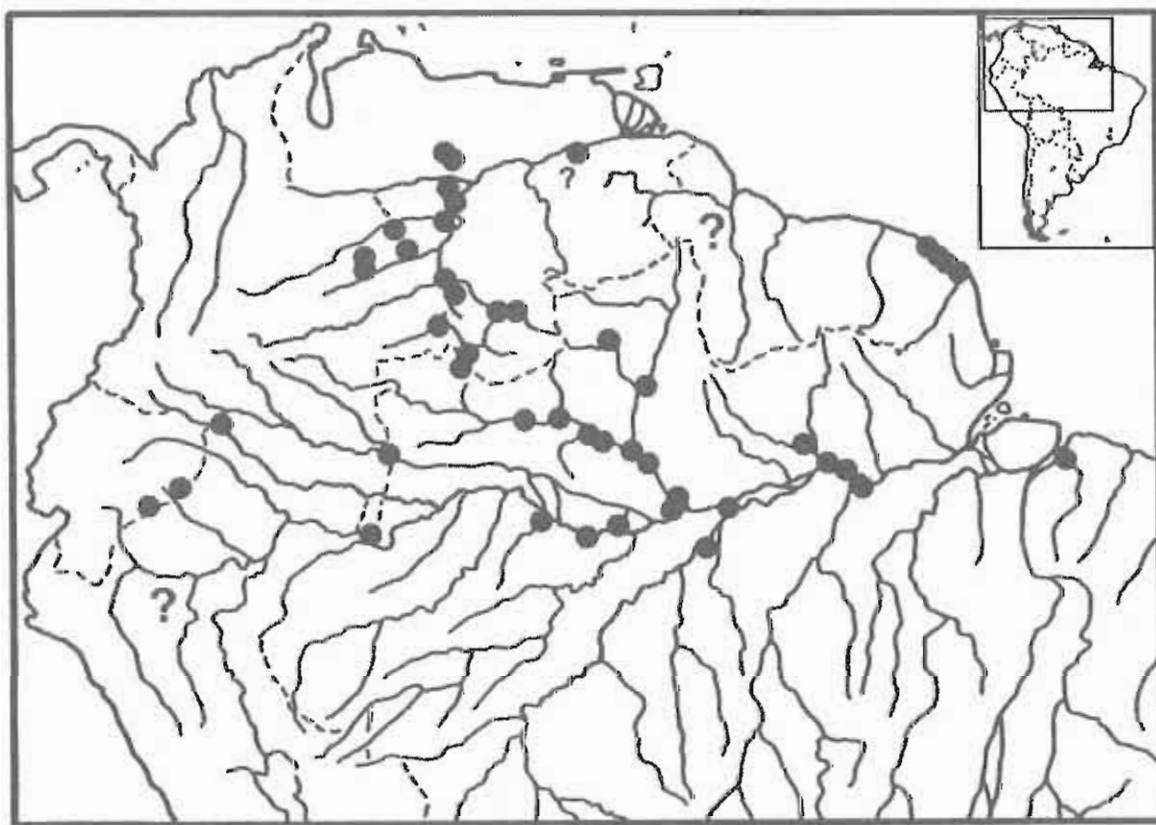
**Holotype:** Formerly in the MNHN, but apparently now lost; see Comment.

**Type locality:** "America meridionali".

**Distribution:** Orinoco to Amazon river basins in Venezuela, eastern Colombia, eastern Ecuador, northeastern Peru, French Guiana, and Brazil

**Subspecies:** None

**Comment:** Reviewed by Pritchard and Trebbau (1984). Fretey (1977:111) believed that the holotype of *Emys dumeriliana* was MNHN 7893, which he and Williams (1954a) identified as *Podocnemis unifilis*, making *Emys tracaxa* Spix (1824:6) the next available name (e.g., Hoogmoed and Gruber, 1983:345). However, Pritchard and Trebbau (1984) showed that MNHN 7893 was not the holotype, and Hoogmoed and Gruber (1983) identified the proper syntypes of *E. tracaxa* and designated the lectotype from among them.



## PELOMEDUSIDAE

*Pelusios* Wagler, 1830:137  
African Hinged Terrapins

**Type species:** *Testudo subnigra* Lacepède (1788), by subsequent designation of Fitzinger (1843:29)

**Distribution:** Africa; Madagascar; Seychelles, Mauritius, Cape Verde, Diego Garcia, and Gloriosa Islands

**Comment:** Reviewed by Laurent (1965), Broadley (1981b, 1983), and Bour (1983). Taxonomy follows Bour (1983), though disagreements are noted under Comments. Smith et al. (1980) and Bour and Dubois (1984a) discuss the nomenclatural problems associated with the priority of the name *Sternothaerus* Bell (1825:305), which has been suppressed by the ICZN (Opinion 1534; Melville, 1989). Wood (1974) recognized two species groups: *adansonii* (including *adansonii*, *broadleyi*, *gabonensis*, *nanus* and *niger*) and *subniger* (*subniger* and all other species), although Bour (1986a) questioned their distinctiveness.

**Key to the species:** (after Bour, 1983)

- 1a. Plastral forelobe at least twice as long as the length of the interabdominal seam; costals with at least some radiating dark lines.....2
- 1b. Plastral forelobe about 1.5 times as long as the length of the interabdominal seam; no radiating lines on costals.....5
- 2a. Interanal seam length much less than interfemoral seam length; head dark with light vermiculations; carapace lacking a black medial longitudinal stripe.....3
- 2b. Interanal seam length approximately equal to interfemoral seam length; head buff-colored with a broad, black Y-shaped stripe connecting the orbits and continuing backward to the neck; carapace with a distinct black medial longitudinal stripe.....*P. gabonensis* (p. 63)
- 3a. No vertebral keel present; intergular scute broadly rounded anteriorly; angle of anal notch obtuse.....*P. nanus* (p. 64)
- 3b. A low vertebral keel present; intergular scute angled anteriorly; angle of anal notch acute.....4
- 4a. Plastron mostly light in color; plastral forelobe barely moveable if at all; vertebral keel without prominent knobs.....*P. adansonii* (p. 56)
- 4b. Plastron mostly dark in color; plastral forelobe easily moveable; vertebral keel with prominent knobs on the third and fourth vertebral scutes.....*P. broadleyi* (p. 58)
- 5a. Axillary scute present; posterior margin of shell sinuous, serrate, or denticulate, never smooth; vertebral protuberances, forming a keel; plastron yellow medially, surrounded by a continuous, irregular, black, symmetrical figure.....*P. sinuatus* (p. 68)
- 5b. Axillary scute absent; posterior margin of shell regular or at most slightly denticulate; no strong vertebral protuberances; plastron plain or spotted, almost never with a continuous, black margin.....6
- 6a. Anterior plastral lobe short, about as long as interabdominal seam length, bordered posteriolaterally by an anterior expansion of the mesoplastra; plastral hinge at or anterior to level of anterior margin of fifth marginal scute; seam between first and second marginals approximately half the length of the lateral margin of the first vertebral scute; upper jaw hooked.....*P. niger* (p. 65)
- 6b. Anterior plastral lobe longer than interabdominal seam length, not bordered laterally by mesoplastra; plastral hinge at or posterior to level of middle of fifth marginal scute; seam between first and second marginals less than half the length of the lateral margin of the first vertebral scute; upper jaw without median hook.....7
- 7a. Intergular scute very large, width more than one-fourth of the length of the abdominofemoral seam.....8
- 7b. Intergular scute moderately large or narrow, width less than or equal to one-fourth of the length of the abdominofemoral seam.....9
- 8a. Third and fourth vertebral scutes typically short, wider than long, length of third less than length of second vertebral and seam between third and fourth greater than length of fourth; scales on front of forearm homogeneous; supralabial scale present and large; head uniformly dark or stippled with black; plastron light, marked with symmetrical triangular dark blotches; skin gray; surface of carapace smooth.....*P. subniger* (p. 69)
- 8b. Third and fourth vertebral scutes long, third equal to or longer than length of second vertebral, and seam between third and fourth less than the length of the fourth; large falciform scales on the forearm; supralabial scute usually absent or reduced; head dark with light vermiculations; plastron uniformly light or blotched with black peripherally; skin yellowish; surface of carapace rugose.....*P. williamsi* (p. 71)

## PELOMEDUSIDAE

- 9a. First marginal scute narrow, nearly square, posterior width less than 0.8 times the posterior width of the second marginal, and medial length about equal to length of seam between the first and second marginals.....10
- 9b. First marginal scute rectangular, posterior width more than 0.8 times the posterior width of second marginal, and medial length greater than the length of the seam between the first and second marginals.....13
- 10a. Anterolateral margins of intergular scute showing little or no convergence; free edge of intergular wider than free edge of gulars; forearm scales relatively homogeneous, without large falciform scales; no distinct maxillary notch present; head large, width greater than or equal to one half the length of the abdominofemoral seam.....11
- 10b. Anterolateral margins of intergular scute strongly converging; free edge of intergular not as wide as free edge of gular; forearm scales heterogeneous, with some large falciform scales; two distinct maxillary notches present; head narrow, width less than one half the length of the abdomin-femoral seam.....12
- 11a. Three barbels present, or two barbels and a granular tubercle between them; head black, with symmetrical yellow blotches; scales on anterior surface of forearm rectangular.....*P. bechuanicus* (p. 57)
- 11b. Two barbels present; head yellowish-brown, uniform, or with yellow vermiculations; scales on anterior surface of the forearm slightly falciform.....*P. upembae* (p. 70)
- 12a. Carapace tectiform in cross section; plastral width at level of distal femoroanal seam less than at level of distal abdominofemoral seam; femoroanal notch very shallow and obtuse; plastral seams usually straight.....*P. carinatus* (p. 59)
- 12b. Carapace obtuse, rounded or flat on top in cross section; plastral width at level of distal femoroanal seam equal to or greater than at level of distal abdominofemoral seam; femoro-anal notch deep and angular; many plastral seams sinuous.....*P. rhodesianus* (p. 66)
- 13a. Plastral hinge at level of or posterior to level of seam between fifth and sixth marginals; lateral borders of first vertebral scute straight or slightly sinuous; second vertebral scute not as long as wide; interhumeral seam length 1 to 2 times interpectoral seam length.....*P. castanoides* (p. 61)
- 13b. Plastral hinge at level of middle of fifth marginal scute; lateral borders of first vertebral scute obtusely angled, the anterior portion diverging laterally; second vertebral scute longer than wide; interhumeral seam length 2 to 10 times interpectoral seam length.....14
- 14a. Anterior seam of first vertebral scute 1.15 to 1.40 times the combined posterior lengths of the first marginal scutes; posterior height of first marginal scute less than posterior height of second marginal; length of intergular scute less than or equal to one half the anterior plastral lobe length; carapace convex or tectiform in cross section.....*P. chapini* (p. 62)
- 14b. Anterior seam of first vertebral scute 0.95 to 1.05 times the combined posterior lengths of the first marginal scutes; posterior height of first marginal scute about equal to posterior height of second marginal; length of intergular scute usually greater than one half anterior plastral lobe length; carapace flat across vertebrals in cross section.....15
- 15a. Interhumeral seam length 3 to 10 times interpectoral seam length; intergular scute regularly elliptical, its anterolateral sides much longer than its posterolateral ones...*P. castaneus* (p. 60)
- 15b. Interhumeral seam length about 2 times interpectoral seam length; intergular scute pentagonal, its four lateral sides subequal; carapace black.....*P. seychellensis* (p. 67)

**Phylogenetic hypothesis:** None has been published.

## PELOMEDUSIDAE

*Pelusios adansonii* (Schweigger, 1812:308)  
Adanson's Mud Turtle

**Original name:** *Emys Adansonii*

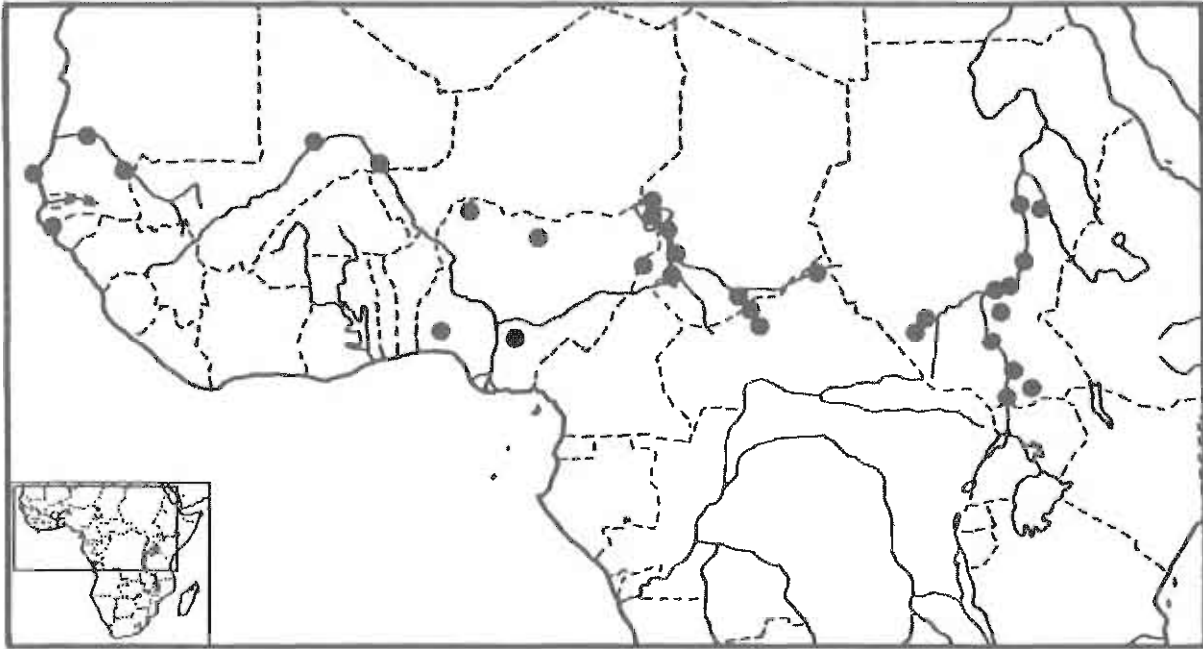
**Holotype:** MNHN 7972

**Type locality:** "Nigritia"; restricted to "Cap Vert" by Duméril and Bibron (1835:394) and to "Cape Verde, Senegal" by Loveridge (1941:483)

**Distribution:** central Africa from Senegal to Sudan

**Subspecies:** None

**Comment:** Reviewed by Bour (1983). Kenyan (Lake Turkana) populations (Wood, 1984), previously included in this species, have been described as *Pelusios broadleyi* (Bour, 1986a).



## PELOMEDUSIDAE

*Pelusios bechuanicus* FitzSimons, 1932:37  
Okavango Mud Turtle

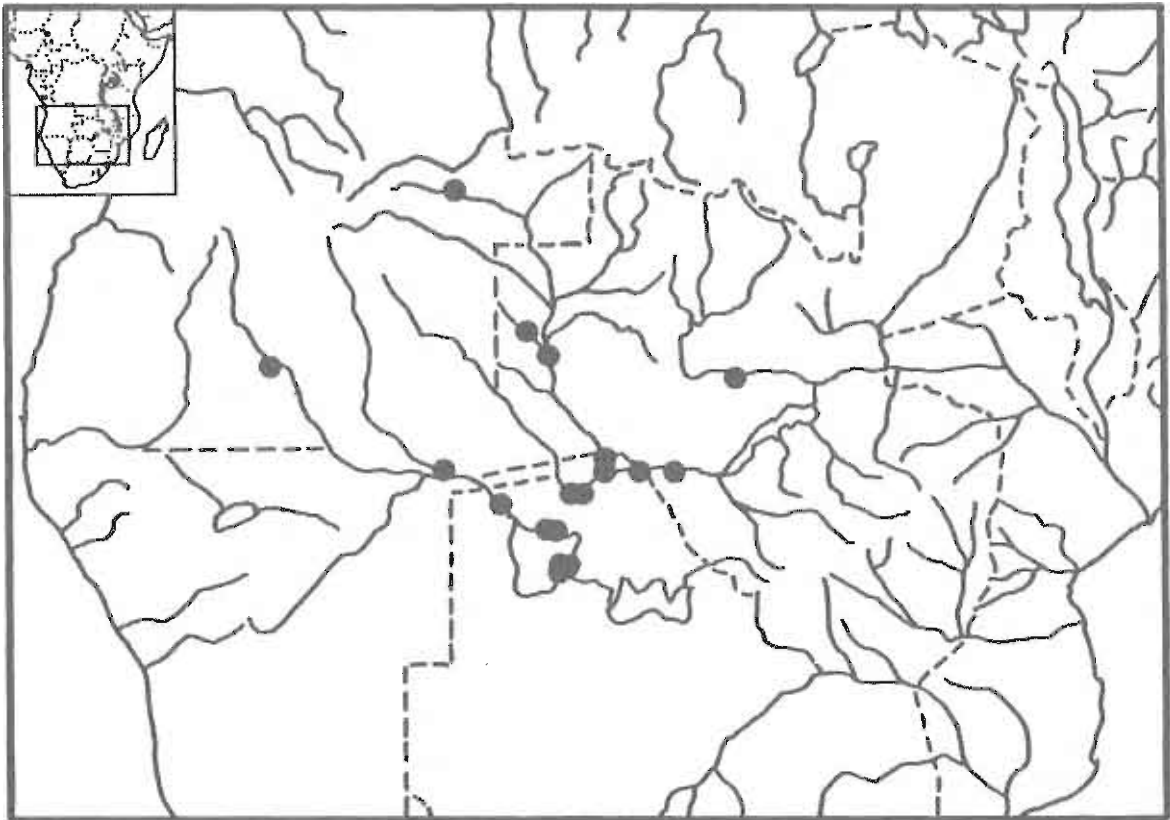
**Holotype:** TMP 14688

**Type locality:** "Thamalakane River at Maun, Ngamiland" [Botswana]

**Distribution:** Angola and Namibia to Zambia, Botswana, and Zimbabwe

**Subspecies:** None

**Comment:** Reviewed by Broadley (1981b) and Bour (1983).



## PELOMEDUSIDAE

*Pelusios broadleyi* Bour, 1986a:31  
Turkana Mud Turtle

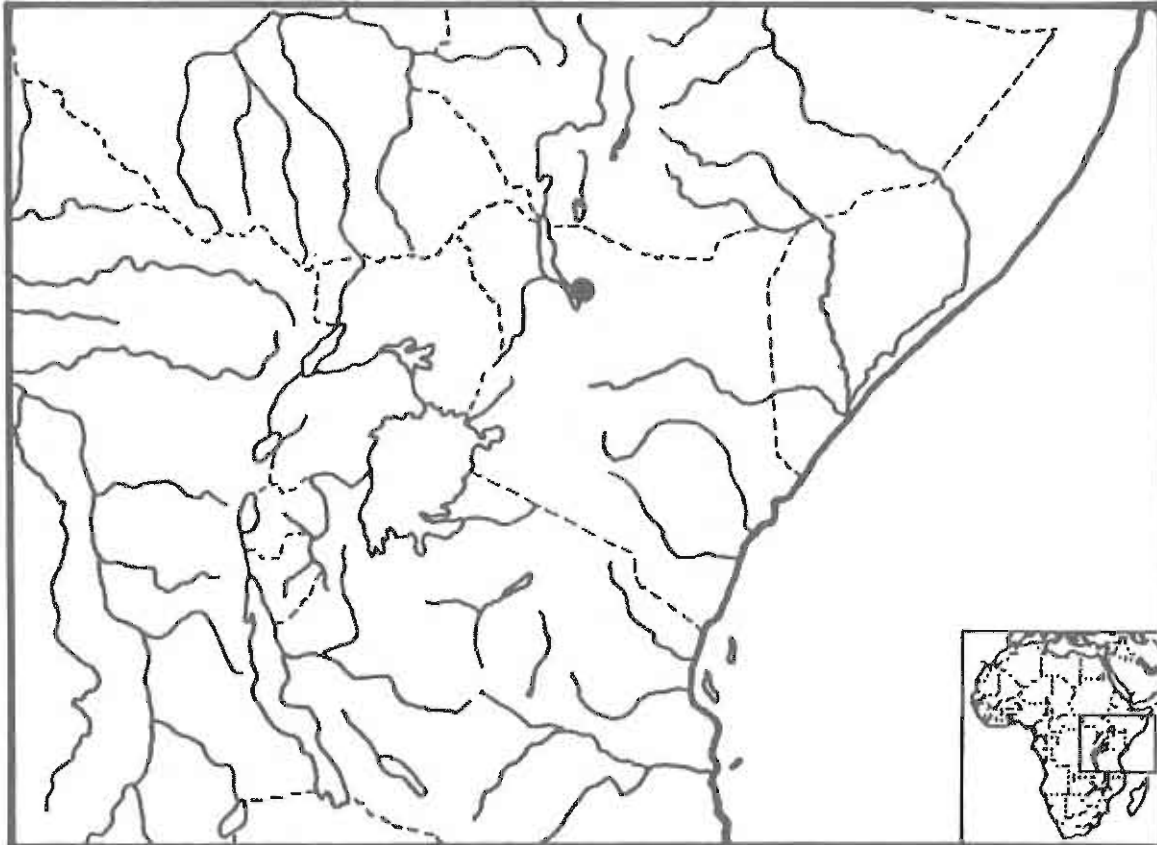
**Holotype:** CAS 123062

**Type locality:** "Loiengalani [= Loyengalani] (2° 43'N, 36° 43'E), Marsabit, Kenya"

**Distribution:** Lake Turkana [= Lake Rudolf], Kenya

**Subspecies:** None

**Comment:** Originally noted as distinct from *Pelusios adansonii* by Wood (1984).



## PELOMEDUSIDAE

*Pelusios carinatus* Laurent, 1956:39  
African Keeled Mud Turtle

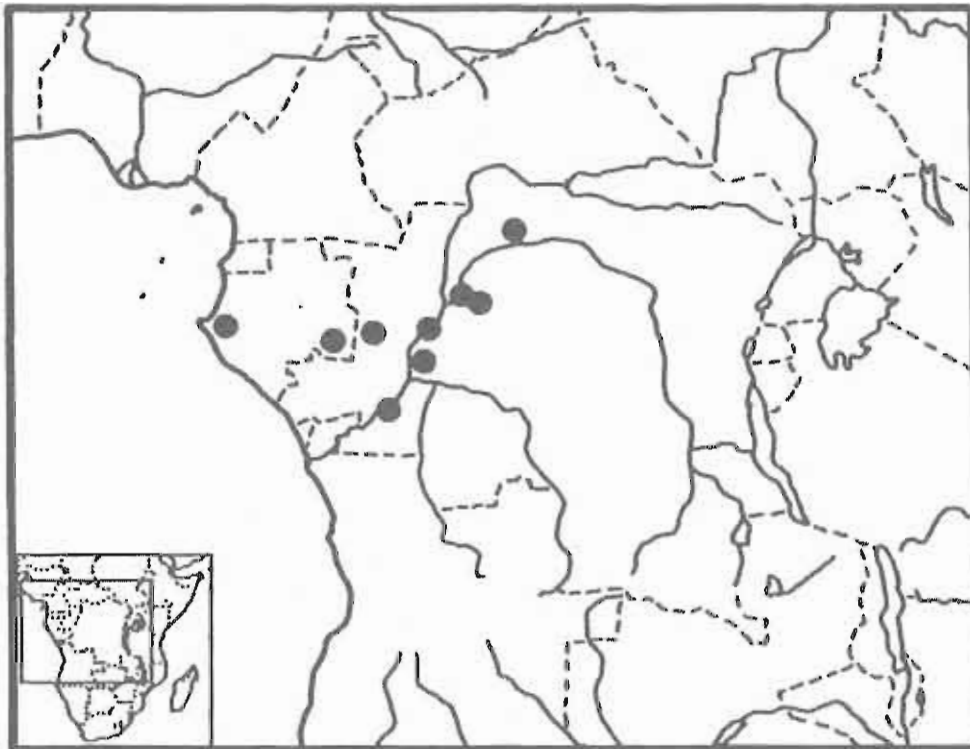
**Holotype:** MRAC 2821

**Type locality:** "Eala, Equateur" [= Eala, Equator Province, Belgian Congo (= Zaire)]

**Distribution:** Gabon, Rep. Congo and Zaire

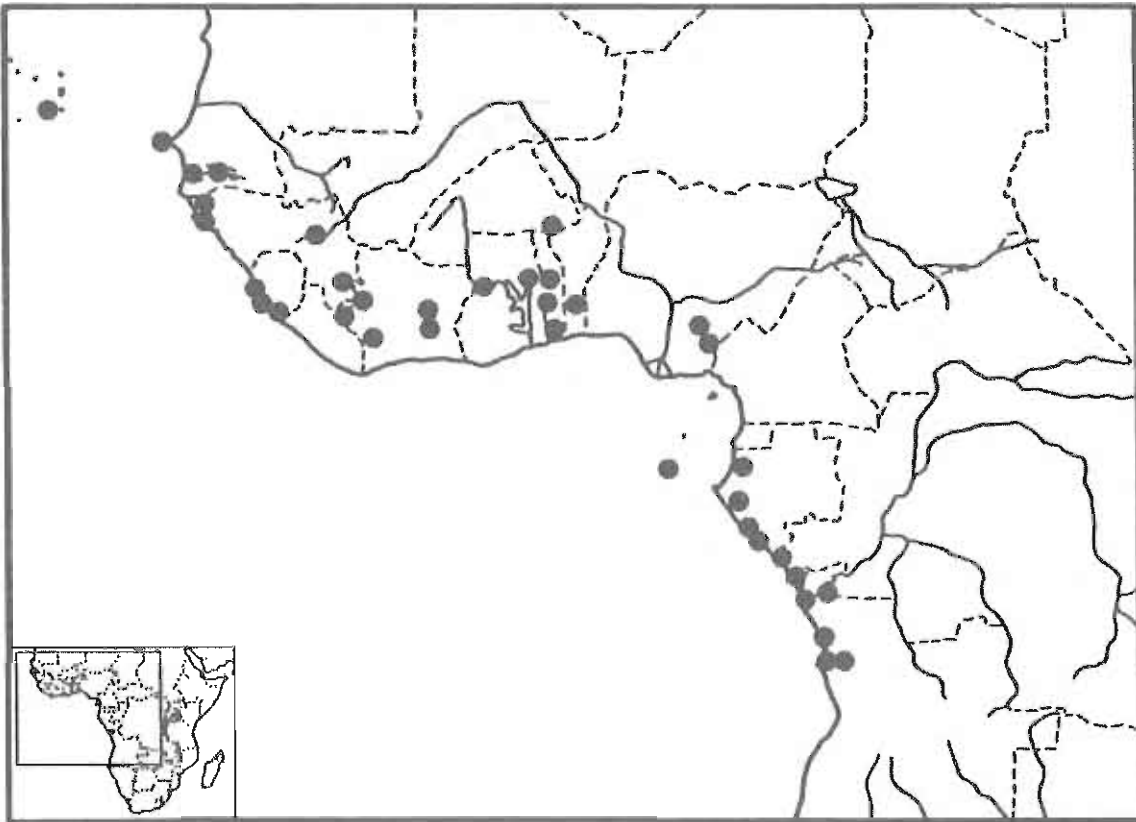
**Subspecies:** None

**Comment:** Reviewed by Bour (1983).

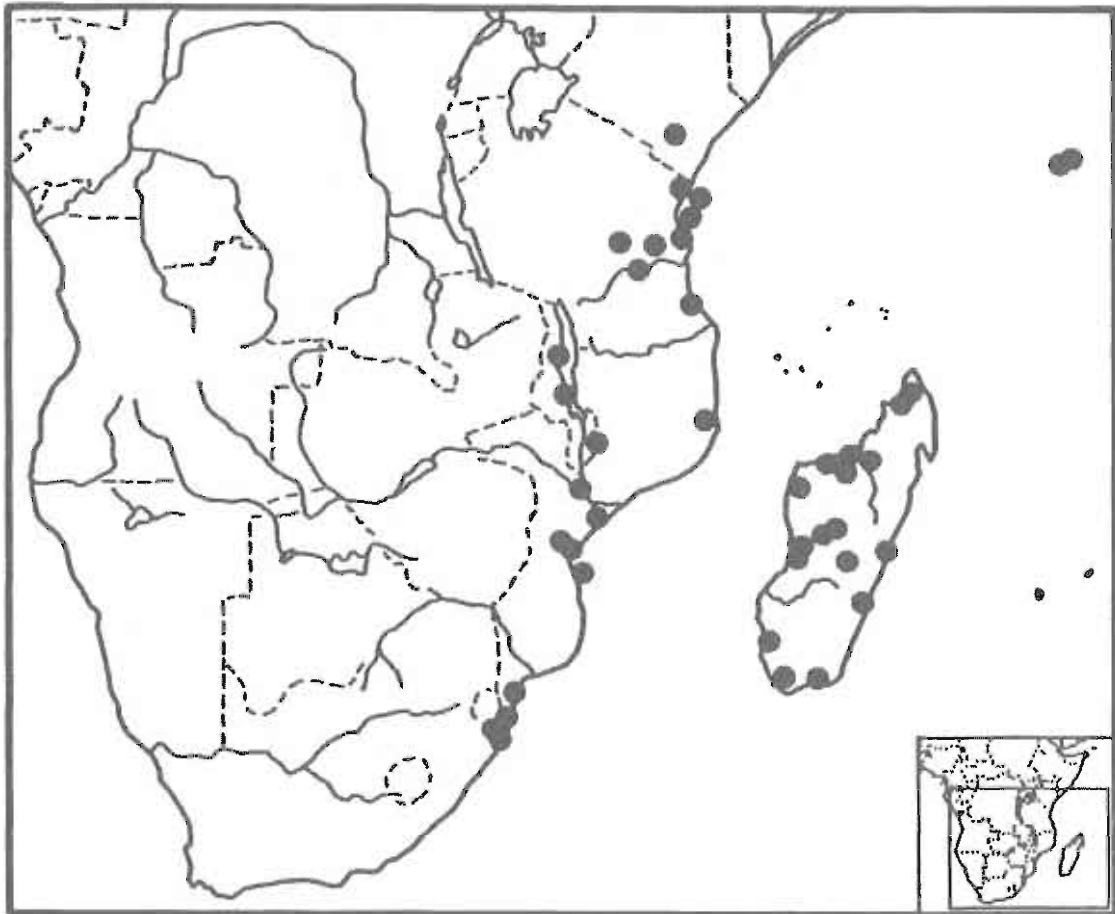




## PELOMEDUSIDAE

*Pelusios castaneus* (Schweigger, 1812:314)  
West African Mud Turtle**Original name:** *Emys castanea***Holotype:** Not designated**Type locality:** "Patria ignota" [= locality unknown]; restricted to "Afrique occidentale" by Bour (1978:148).**Distribution:** Senegal to northwestern Angola; Cape Verde Islands and Sao Tome Islands; introduced to Guadalupe, Lesser Antilles (Schwartz and Thomas, 1975, as *Pelusios subniger*).**Subspecies:** None**Comment:** See Comments under *Pelusios castanoides* and *P. chapini*. Includes *Sternotherus derbianus* Gray (1844) according to Laurent (1965), Bour (1978, 1983). See also reviews by Broadley (1981b) and Bour (1983).

## PELOMEDUSIDAE

*Pelusios castanoides* Hewitt, 1931:463  
Yellow-bellied Mud Turtle**Original name:** *Pelusios nigricans castanoides***Holotype:** TMP 13433**Type locality:** "Richards Bay, Zululand" [Republic of South Africa]; restricted to "Lake St. Lucia estuary, KwaZulu" [Republic of South Africa] by Broadley (1981b:673)**Distribution:** Madagascar, Seychelles Islands, and Africa from Kenya to northeastern Republic South Africa**Subspecies:** Two are recognized:*P. c. castanoides* Hewitt (1931:463) East African yellow-bellied mud turtle [Holotype: see above; type locality: see above; range: southeastern Africa and Madagascar]*P. c. intergularis* Bour (1983:355) Seychelles yellow-bellied mud turtle [Holotype: BMNH 74.8.7.1; type locality: "La Digue Island, Seychelles"; range: Seychelles Islands]**Comment:** Broadley (1981b) considered *Pelusios castanoides* a subspecies of *Pelusios castaneus*, although Bour (1983) argued that they are distinct species. Includes *P. castaneus kapika* Bour (1978), according to Bour (1983). Reviewed by Boycott and Bourquin (1988).

## PELOMEDUSIDAE

*Pelusios chapini* Laurent, 1965:21  
Central African Mud Turtle

**Original name:** *Pelusios castaneus chapini*

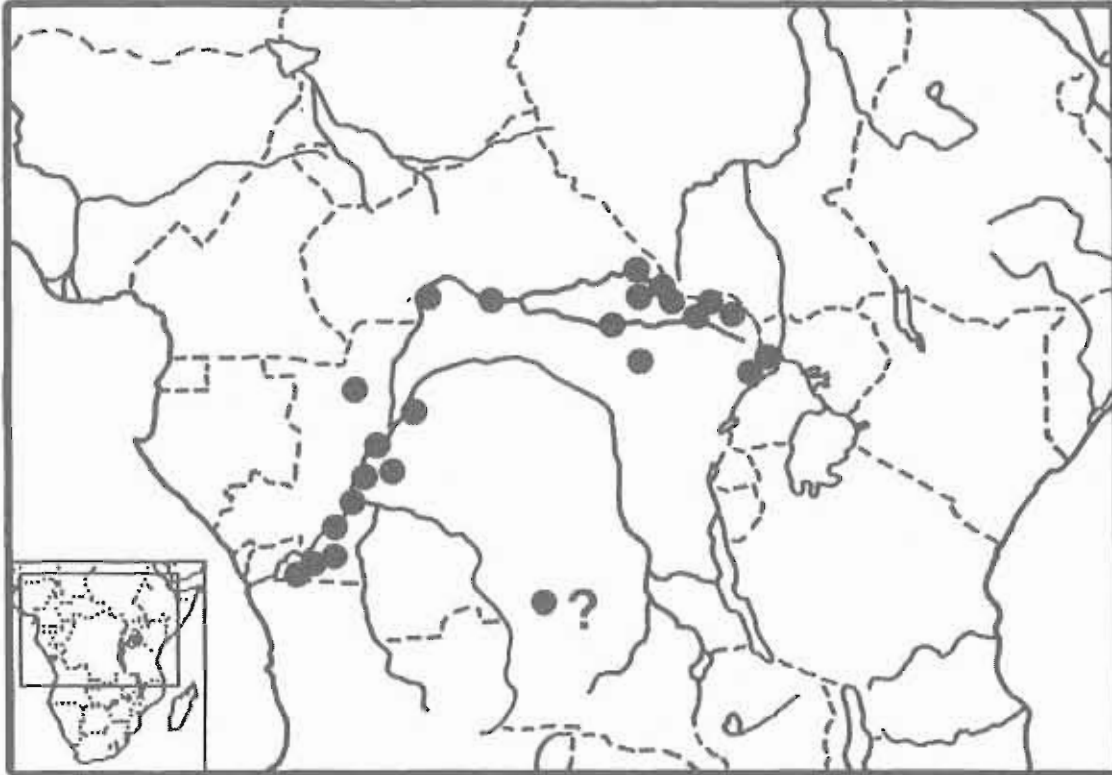
**Holotype:** MRAC 20937

**Type locality:** "Kasenyi, Lake Albert, Bunia Terr., Ituri, Congo" [= Zaire]

**Distribution:** Uganda, Zaire and Rep. Congo

**Subspecies:** None

**Comment:** Considered a synonym of *Pelusios castaneus* by Wermuth and Mertens (1977:117).  
Reviewed by Bour (1983).



## PELOMEDUSIDAE

*Pelusios gabonensis* (Duméril, 1856:373)  
African Forest Turtle

**Original name:** *Pentonyx gabonensis*

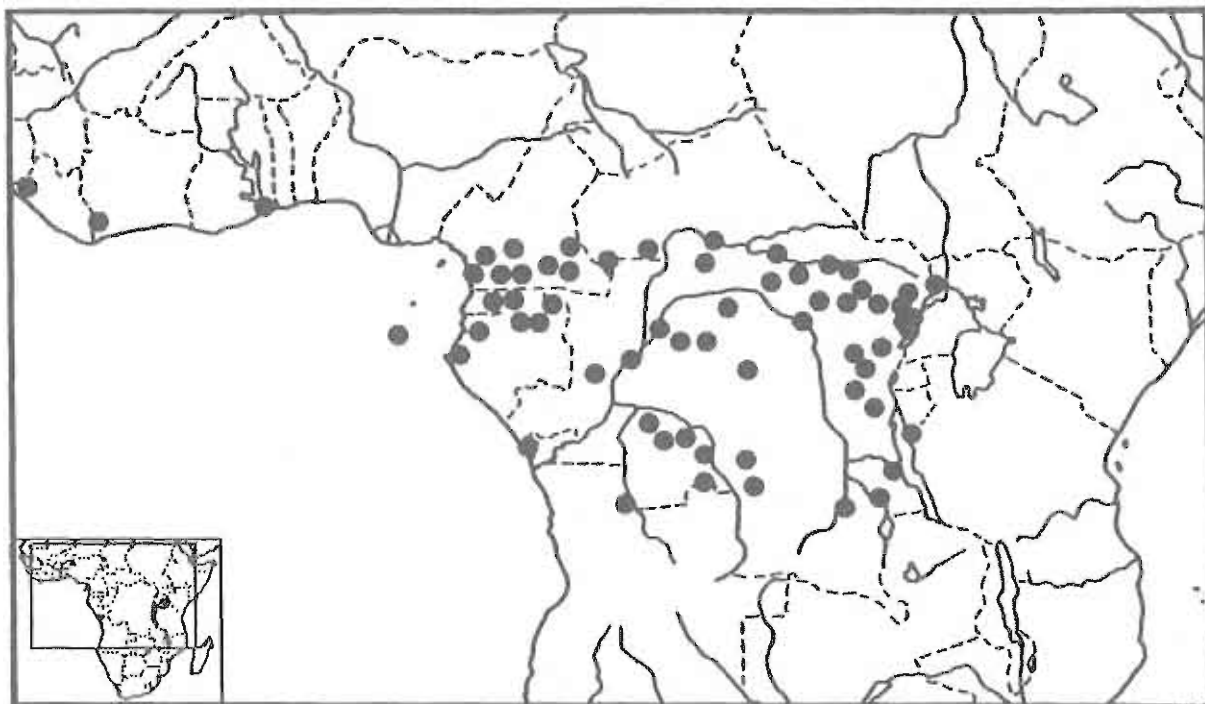
**Holotype:** MNHN 4137

**Type locality:** "Gabon"

**Distribution:** Liberia to Zaire and Uganda to western Tanzania

**Subspecies:** None

**Comment:** Reviewed by Bour (1983).



## PELOMEDUSIDAE

*Pelusios nanus* Laurent, 1956:31  
African Dwarf Mud Turtle

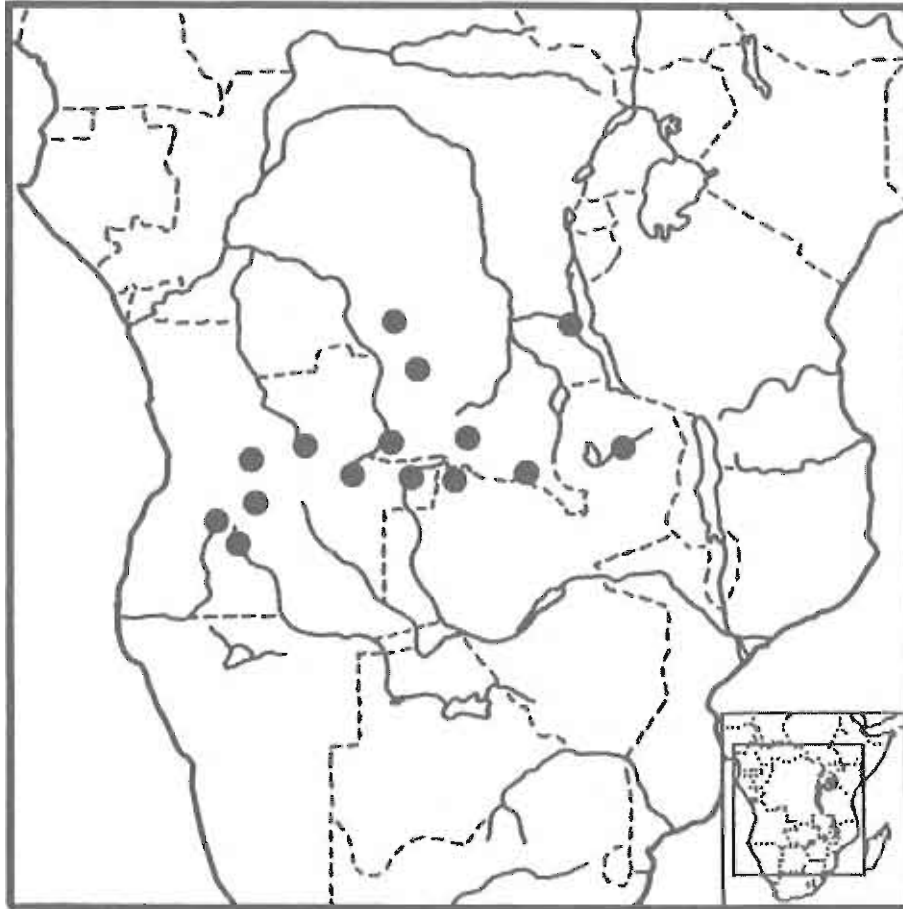
**Holotype:** MRAC 7833

**Type locality:** "Dilolo, Haut Lualaba" [= Shaba Province, Belgian Congo (= Zaire)]

**Distribution:** Angola, Zaire, and Zambia

**Subspecies:** None

**Comment:** Considered synonymous with *P. adansonii* by Wermuth and Miertens (1961:287, and 1977:166). Reviewed by Bour (1983).



## PELOMEDUSIDAE

*Pelusios niger* (Duméril and Bibron, 1835:397)  
West African Black Turtle

**Original name:** *Sternotherus niger*

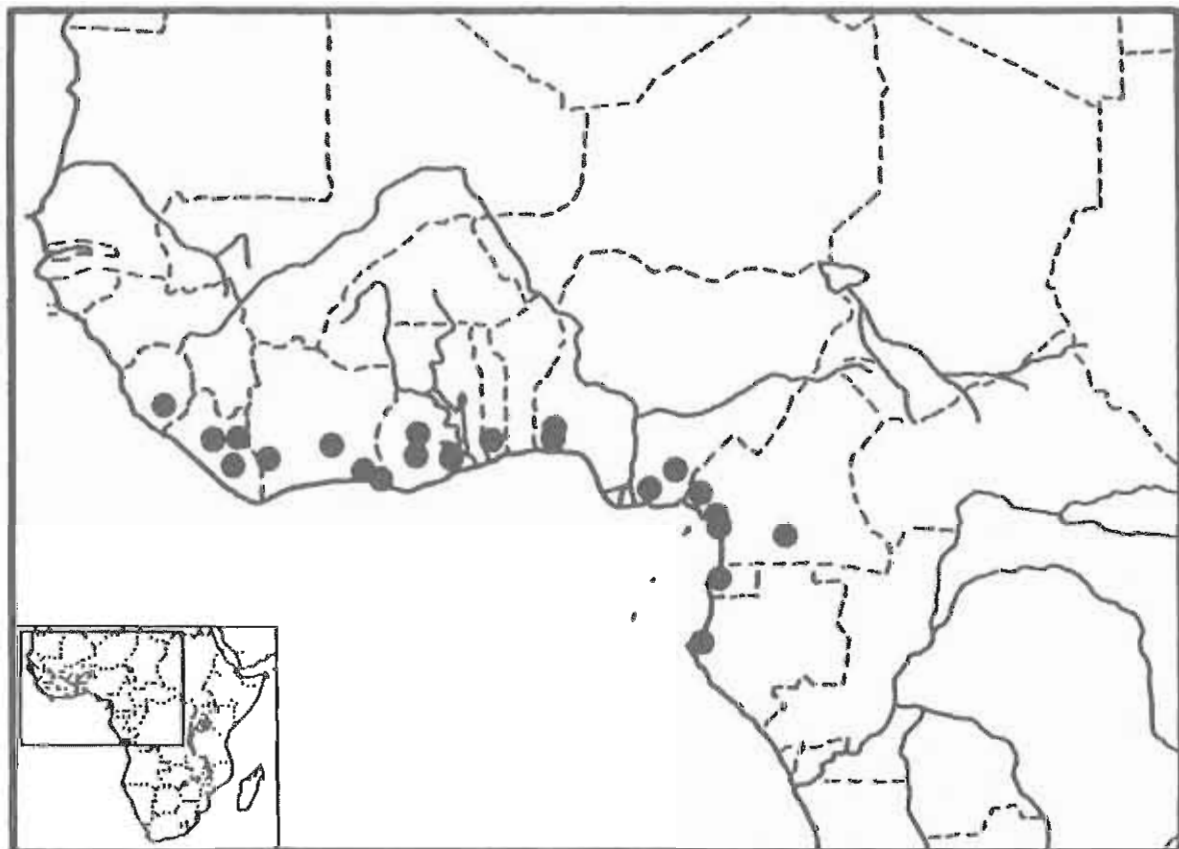
**Holotype:** MNHN 8954

**Type locality:** "Madagascar" (in error)

**Distribution:** Sierra Leone and Liberia to Gabon

**Subspecies:** None

**Comment:** Reviewed by Bour (1983).



## PELOMEDUSIDAE

*Pelusios rhodesianus* Hewitt, 1927:375  
Variable Mud Turtle

**Original name:** *Pelusios nigricans rhodesianus*

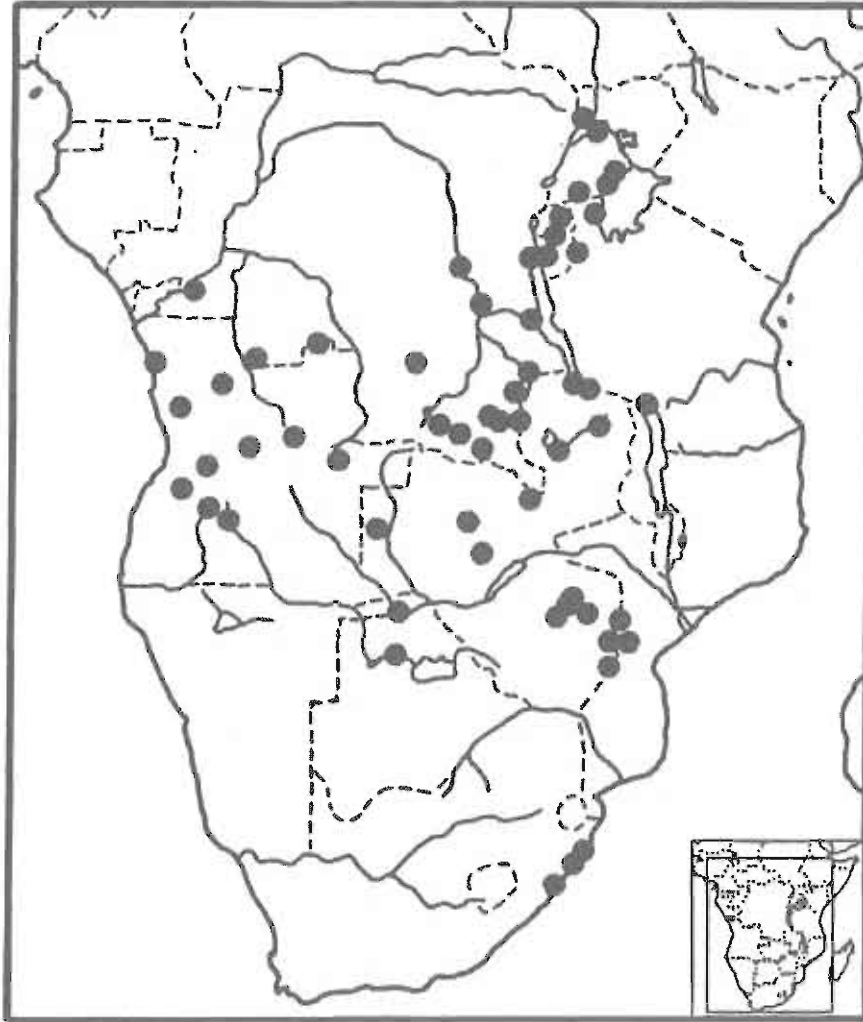
**Holotype:** AMG 5432

**Type locality:** "Mpika district", northeastern Rhodesia [= Zambia]

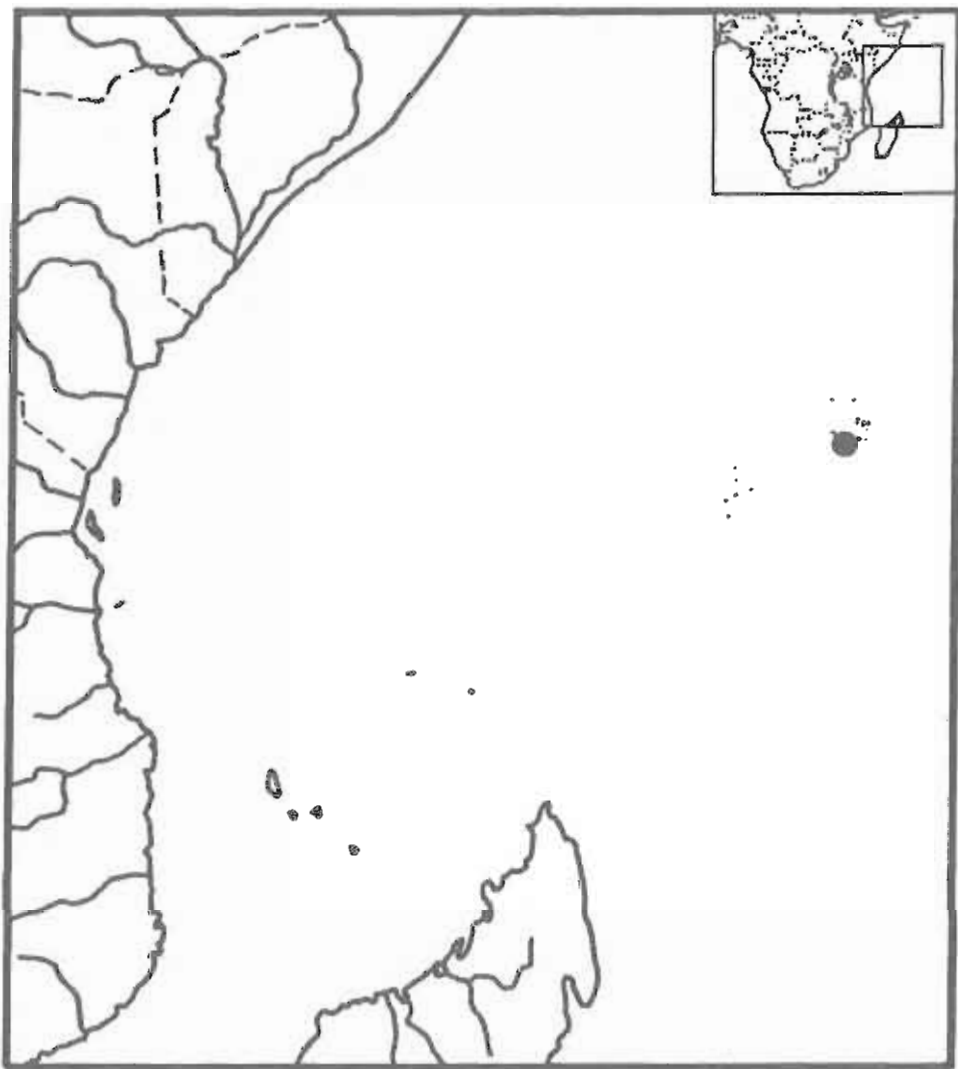
**Distribution:** Uganda to eastern Zaire, Angola and northeastern Natal, Republic of South Africa

**Subspecies:** None

**Comment:** Considered a subspecies of *P. castaneus* by Wermuth and Mertens (1977:116); elevated to species status by Raw (1978) and Broadley (1981b). Reviewed by Bour (1983) and Boycott and Bourquin (1988).



## PELOMEDUSIDAE

*Pelusios seychellensis* Siebenrock, 1906a:38  
Seychelles Mud Turtle**Original name:** *Sternothaerus nigricans seychellensis***Syntypes:** (3 specimens) ZMH R00982-83 and NMW 13247; NMW 13247 listed as type by Broadley (1981b:655) and as lectotype by Bour (1983:353).**Type locality:** "Seychelles"; restricted to "Seychelles: Mahé" by Siebenrock (1909b:362); erroneously listed as "Gloriosa Island, Seychelles" by Loveridge (1941:493), Laurent (1965:29), and Iverson (1986b:248), as "Gloriosa Island, Seychellen" by Wermuth and Mertens (1961:291) and as "Insel Gloriosa, Seychelles" by Wermuth and Mertens (1977:117).**Distribution:** Seychelles Islands; known only from the syntypes**Subspecies:** None**Comment:** Reviewed by Bour (1983). Considered synonymous with *P. castaneus* by Wermuth and Mertens (1977:117).



## PELOMEDUSIDAE

*Pelusios sinuatus* (Smith, 1838:Plate 1)  
East African Serrated Mud Turtle

**Original name:** *Sternothaerus sinuatus*

**Holotype:** RSM 1859.13.1684

**Type locality:** "rivers to the north of 25° south latitude" [South Africa]; restricted by Broadley (1981b:675) to "the Crocodile/Marico confluence, N. Transvaal" [Republic of South Africa]

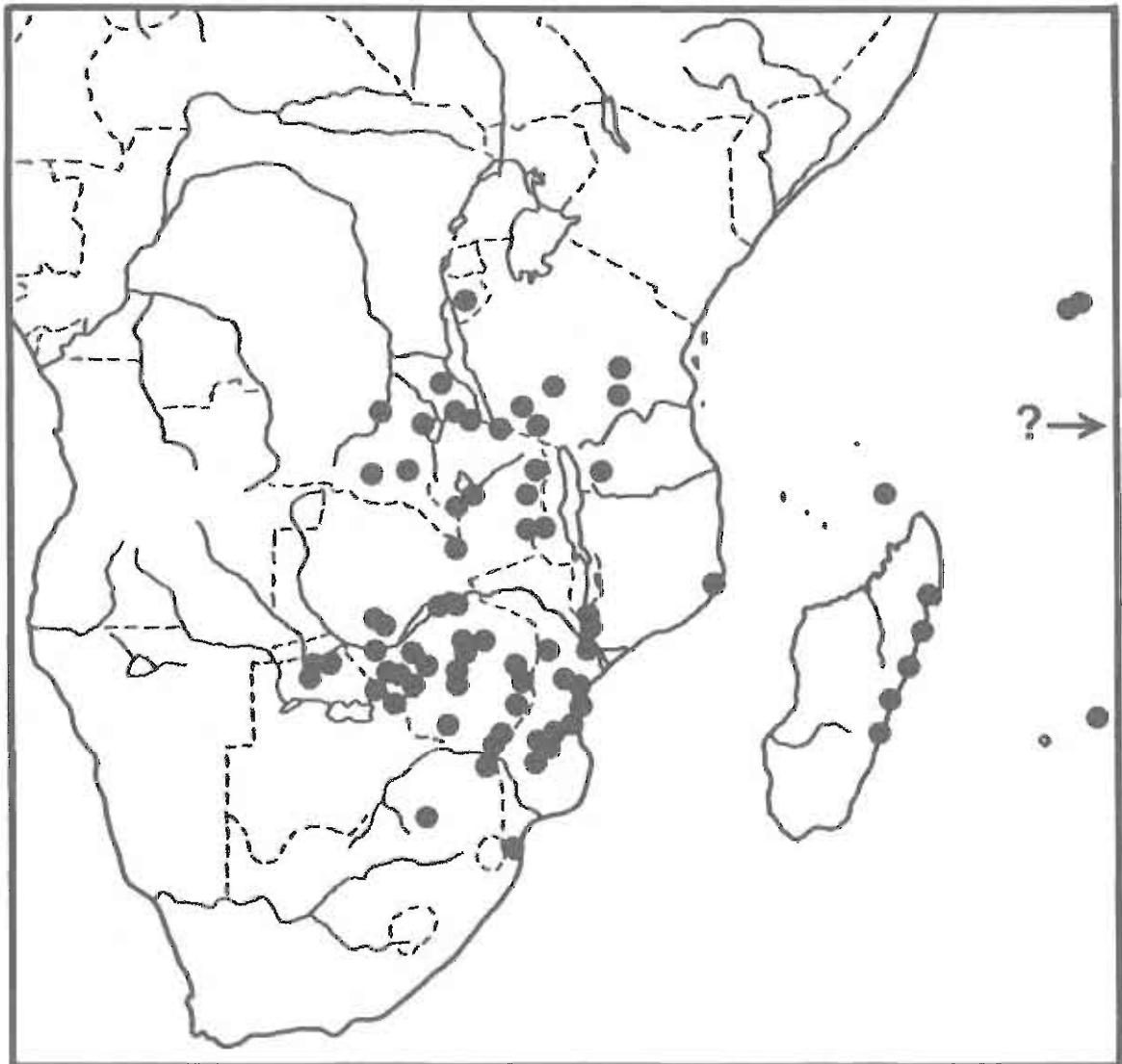
**Distribution:** eastern and southeastern Africa from southern Somalia, southern Ethiopia, and Kenya to Botswana and northeastern Rep. South Africa

**Subspecies:** None

**Comment:** Reviewed by Broadley (1981b), Bour (1983), and Boycott and Bourquin (1988).



## PELOMEDUSIDAE

*Pelusios subniger* (Bonnaterre, 1789:30)  
East African Black Mud Turtle**Original name:** *Testudo Subnigra***Holotype:** MNHN 8366**Type locality:** Not stated; designated as "Tamatave [= Toamasina], est de Madagascar" by Bour (1978:14) and confirmed by Bour (1982b:535)**Distribution:** eastern and southeastern Africa, Madagascar, and the Seychelles Islands; introduced to Gloriosa Island, Mauritius Island (possibly now extirpated), and Diego Garcia, Chagos Archipelago (Bour, 1984d)**Subspecies:** Two are recognized:*P. s. subniger* (Bonnaterre, 1789:30) East African black mud turtle [Holotype: see above; type locality: see above; range: eastern and southeastern Africa]*P. s. parietalis* Bour (1983:359) Seychelles black mud turtle [Holotype: USNM 19802; type locality: "La Digue Island, Seychelles"; range: Seychelles Islands and other islands in the Indian Ocean]**Comment:** Originally described by Lacepède (1788:15), but that work was made unavailable by ICZN Opinion 1463 (1987). Reviewed by Broadley (1981b), Bour (1983), and Boycott and Bourquin (1988).

## PELOMEDUSIDAE

*Pelusios upembae* Broadley, 1981b:667  
Upemba Mud Turtle

**Original name:** *Pelusios bechuanicus upembae*

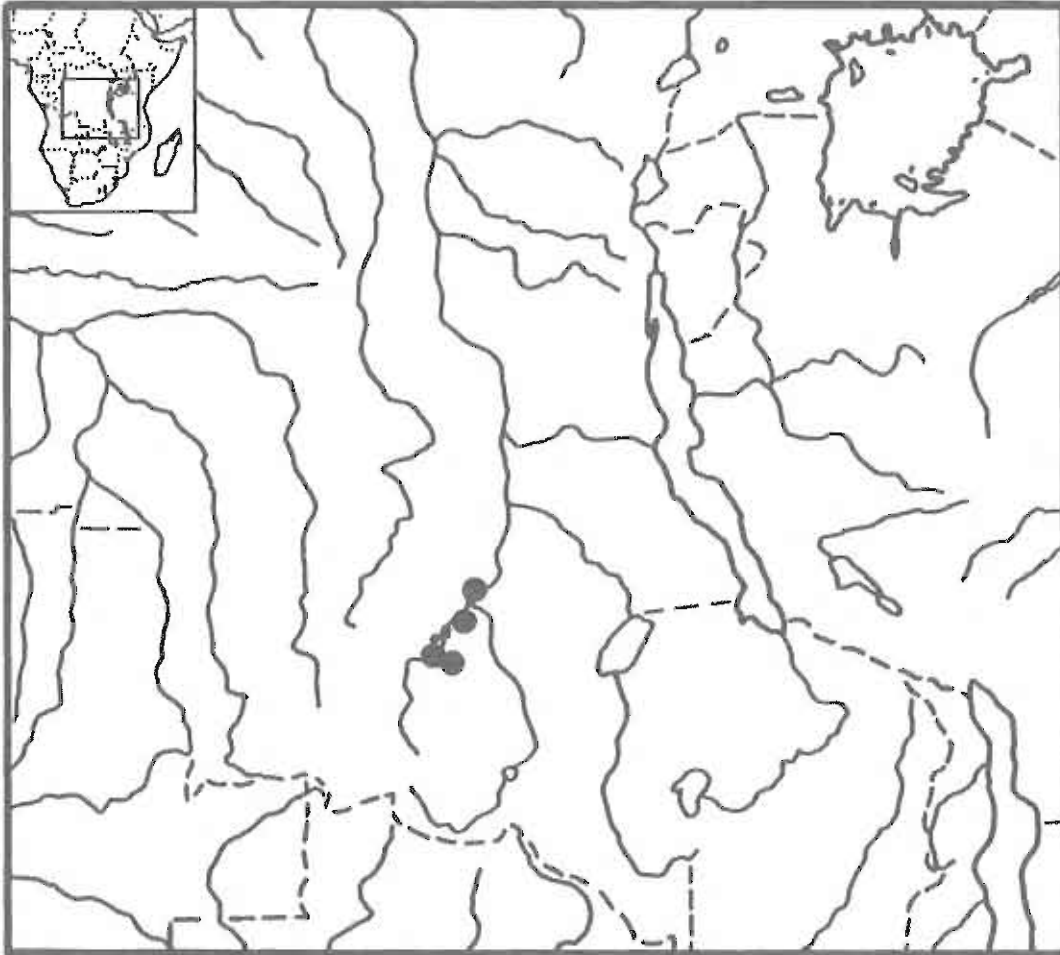
**Holotype:** TMP 38178

**Type locality:** "Kanonga River, tributary of the right bank of the Fungwe River (695 m), Upemba National Park, Shaba Province, Zaire"

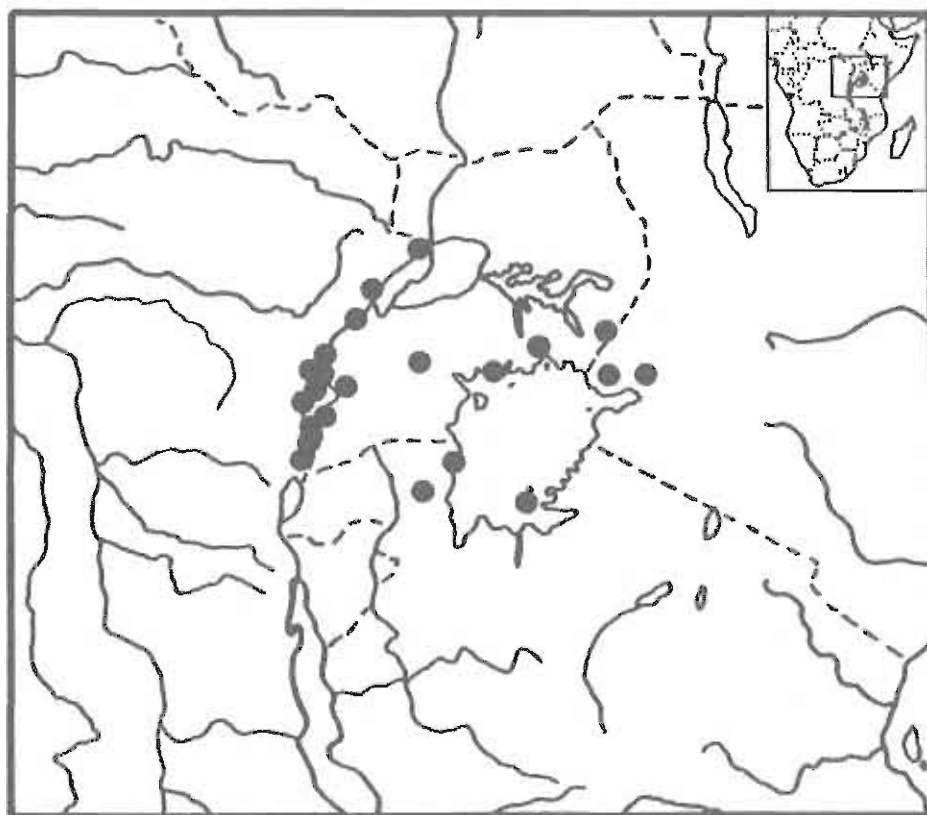
**Distribution:** Region of the type locality in Zaire

**Subspecies:** None

**Comment:** Elevated to species status by Bour (1983).



## PELOMEDUSIDAE

*Pelusios williamsi* Laurent, 1965:12  
Williams' Mud Turtle**Holotype:** MCZ 40021**Type locality:** "Kakamega, Kaimosi, Kenya"**Distribution:** East Africa: regions of Lakes Victoria, Edward, and Albert in eastern Zaire, Uganda, western Kenya, and northern Tanzania**Subspecies:** Three are recognized:*P. w. williamsi* Laurent (1965:12) Lake Victoria mud turtle [Holotype: see above; type locality: see above; range: region of Lake Victoria in Uganda, Kenya, and Tanzania]*P. w. laurenti* Bour (1983:29) Ukerewe Island mud turtle [Holotype: MCZ 30016; type locality: "Ukerewe Island (Lake Victoria), Tanzania, altitude 1150 m"; range: Ukerewe Island in Lake Victoria, Tanzania]*P. w. lutescens* Laurent (1965:16) Albert Nile mud turtle [Holotype: IRSNB 6822; type locality: "Semliki River, 1 km below [south of] the Lake Edward"; range: region of Lake Edward and Lake Albert in Zaire and Uganda]**Comment:** Reviewed by Bour (1983 and 1984a) and Lenglet and Depiereux (1986).

## PELOMEDUSIDAE

*Podocnemis* Wagler, 1830:135  
South American Side-necked River Turtles

**Type species:** *Emys expansa* Schweigger (1812), by subsequent designation of Fitzinger (1843:29)

**Distribution:** northern South America

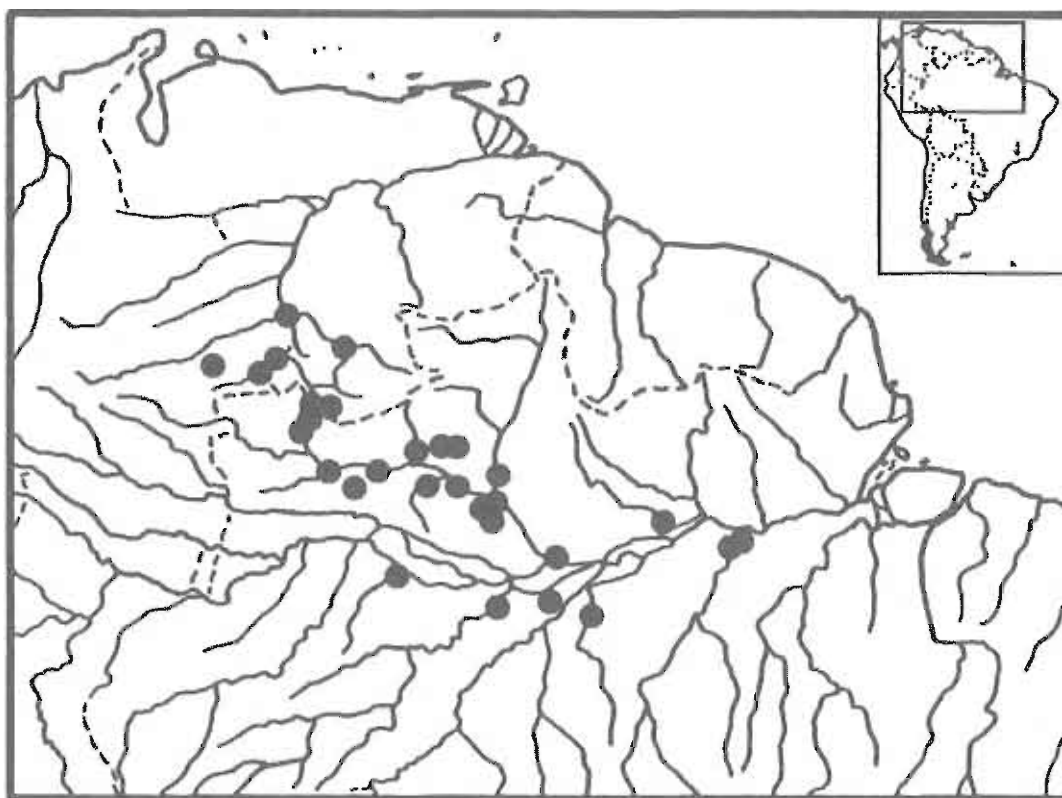
**Comment:** Reviewed by Williams (1954a) and Pritchard and Trebbau (1984).

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Carapace flattened, usually without a medial keel.....2
- 1b. Carapace not flattened, but somewhat domed, with a weak medial keel.....4
- 2a. Upper jaw notched medially; subocular scales large; interfemoral seam longer than interpectoral seam.....*P. vogli* (p. 78)
- 2b. Upper jaw unnotched medially; subocular scales, if present, not enlarged; interpectoral seam longer than interfemoral seam.....3
- 3a. Second vertebral scute longer than broad; upper jaw squared; interparietal scale elongate; subocular scales absent.....*P. expansa* (p. 74)
- 3b. Second vertebral scute broader than long; upper jaw rounded; interparietal scale short and heart shaped; subocular scales present.....*P. lewyana* (p. 75)
- 4a. Interparietal scale completely separates parietal scales; no red or yellow spots on head; a raised tubercle on each pectoral scute.....*P. sextuberculata* (p. 76)
- 4b. Interparietal scale not completely separating parietal scales; red or yellow spots on head (at least in males); no raised tubercles on the pectoral scutes.....5
- 5a. Carapace broadest at center; head spots yellow; usually only one chin barbel present.....*P. unifilis* (p. 77)
- 5b. Carapace broadest behind the center; head spots, if present, red to reddish-orange; two chin barbels present.....*P. erythrocephala* (p. 73)

**Phylogenetic hypothesis:** None has been published.

## PELOMEDUSIDAE

*Podocnemis erythrocephala* (Spix, 1824:9)  
Red-headed River Turtle**Original name:** *Emys erythrocephala***Holotype:** ZSM 2517/0**Type locality:** "Rio Solimoens" [= Rfo Solimoes, South America]; however, Vanzolini (1981:xxvi) believes the species does not occur in the Rio Solimoens**Distribution:** upper Orinoco to Amazon river basins in Southern Venezuela, eastern Colombia, and northern Brazil**Subspecies:** None**Comment:** Referred to as *Podocnemis cayennensis* (Schweigger, 1812) by most authors prior to 1974. Reviewed by Mittermeier and Wilson (1974), Groombridge (1982) and Pritchard and Trebbau (1984).

## PELOMEDUSIDAE

*Podocnemis expansa* (Schweigger, 1812:299)  
South American River Turtle

**Original name:** *Emys expansa*

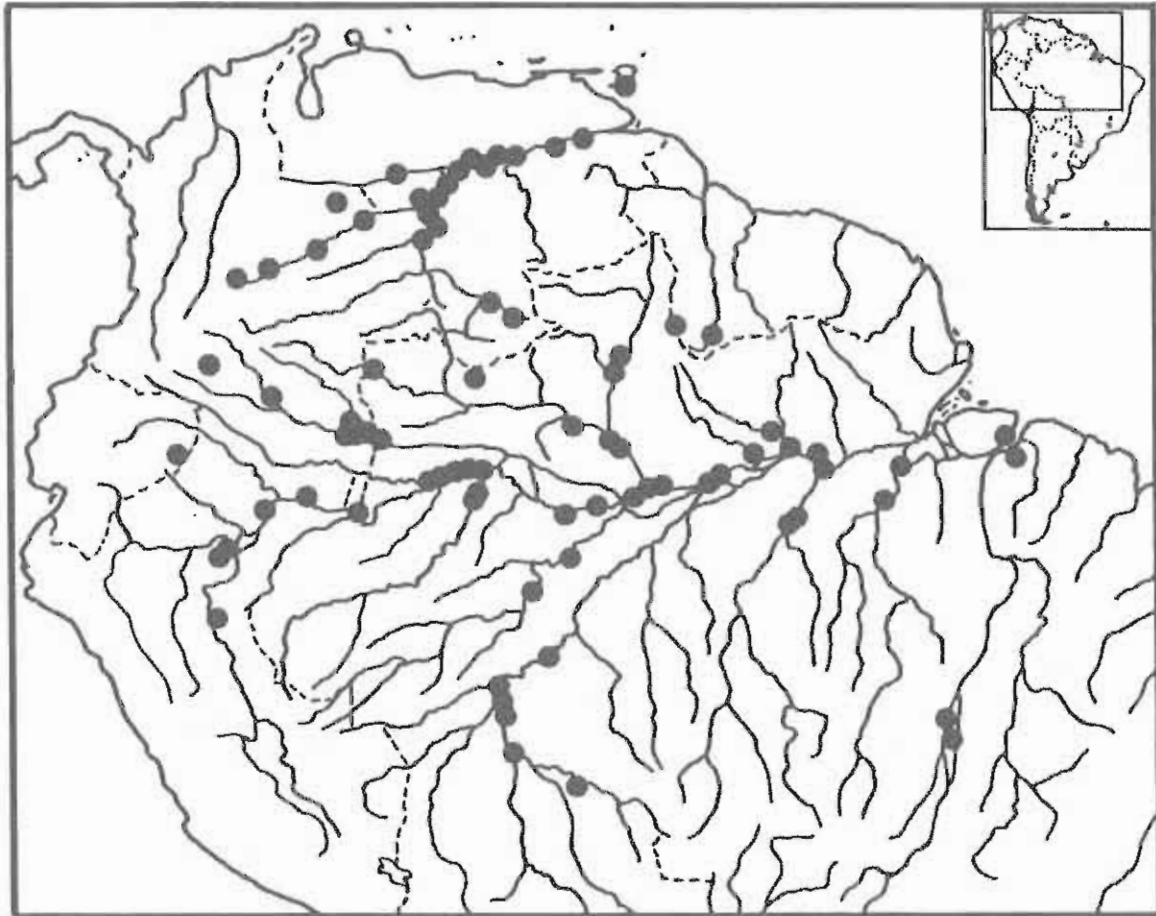
**Syntypes:** (3 specimens according to the original description) MNHN 7997 is probably one of the types (R. Bour, pers. comm.)

**Type locality:** "America meridionali" [= South America]

**Distribution:** Orinoco and Essequibo to Amazon River drainages of Colombia, Venezuela, Guyana, eastern Ecuador, northeastern Peru, northern Brazil, and northern Bolivia

**Subspecies:** None

**Comment:** Reviewed by Groombridge (1982) and Pritchard and Trebbau (1984). See Comment under *Podocnemis unifilis*.



## PELOMEDUSIDAE

*Podocnemis lewyana* Duméril, 1852:242  
Magdalena River Turtle

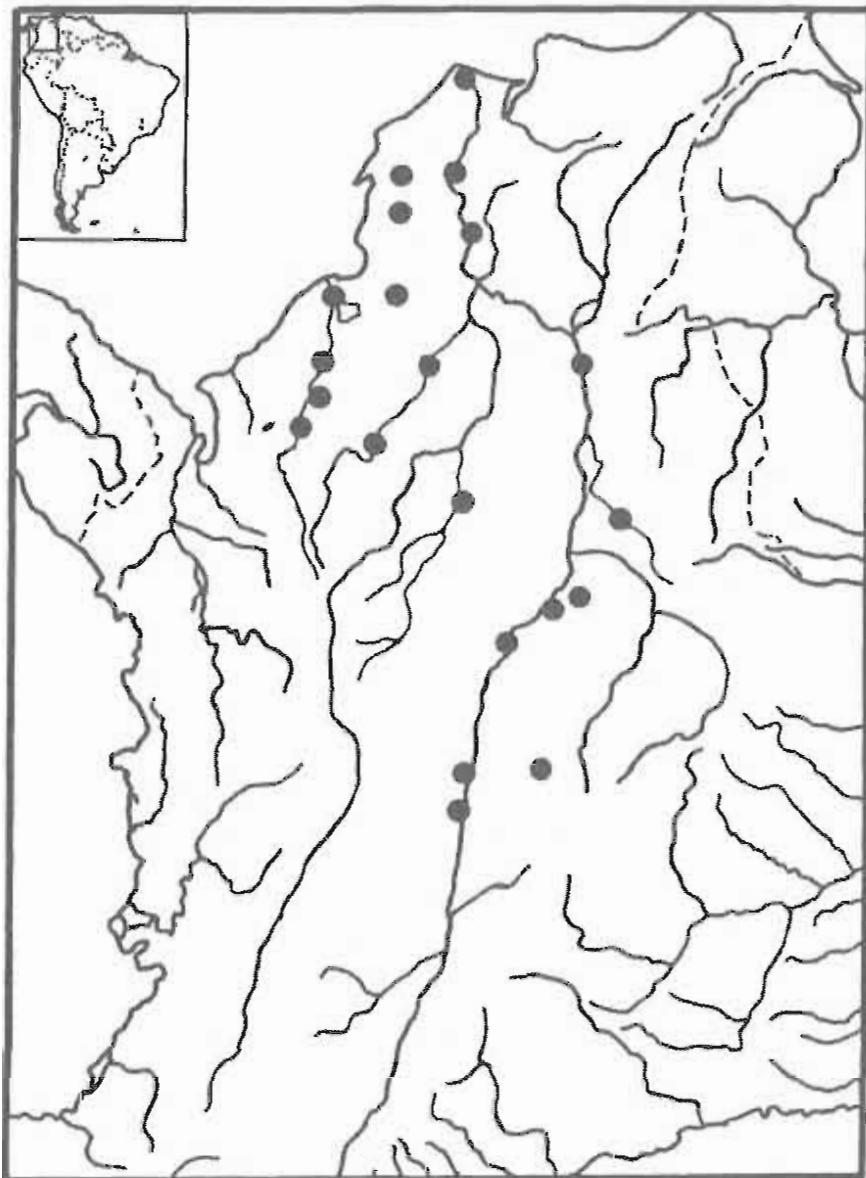
**Syntypes:** (2 specimens) MNHN 8905 and 8360; MNHN 8905 designated lectotype by Williams (1954a:281), who identified MNHN 8360 as *P. vogli*

**Type locality:** "Santa Fé de Bogotá [Colombia], . . . de la République de Venezuela" [latter in error]

**Distribution:** Río Magdalena basin of Colombia

**Subspecies:** None

**Comment:** Reviewed by Groombridge (1982).





## PELOMEDUSIDAE

*Podocnemis sextuberculata* Comalia, 1849:13  
Six-tubercled River Turtle

**Original name:** *Podocnemis expansa sextuberculata*

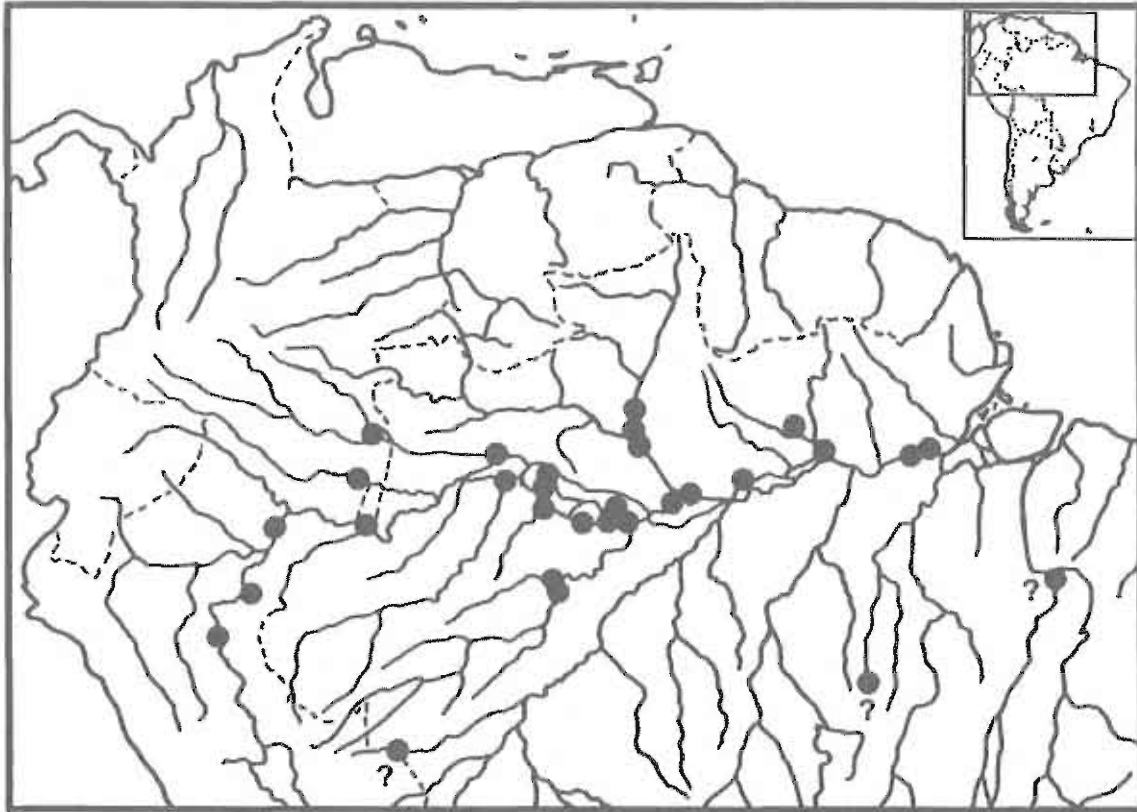
**Holotype:** Not found, although illustrated in the original description. Originally in the Milano Museum (MSNM) according to R. Bour (pers. comm.)

**Type locality:** "Fl. Amazonum" [= Amazon River, South America]

**Distribution:** Amazon river drainage of northern Brazil, southeastern Colombia, and northeastern Peru

**Subspecies:** None

**Comment:** Reviewed by Groombridge (1982).



## PELOMEDUSIDAE

*Podocnemis unifilis* Troschel, 1848:647  
Yellow-spotted River Turtle

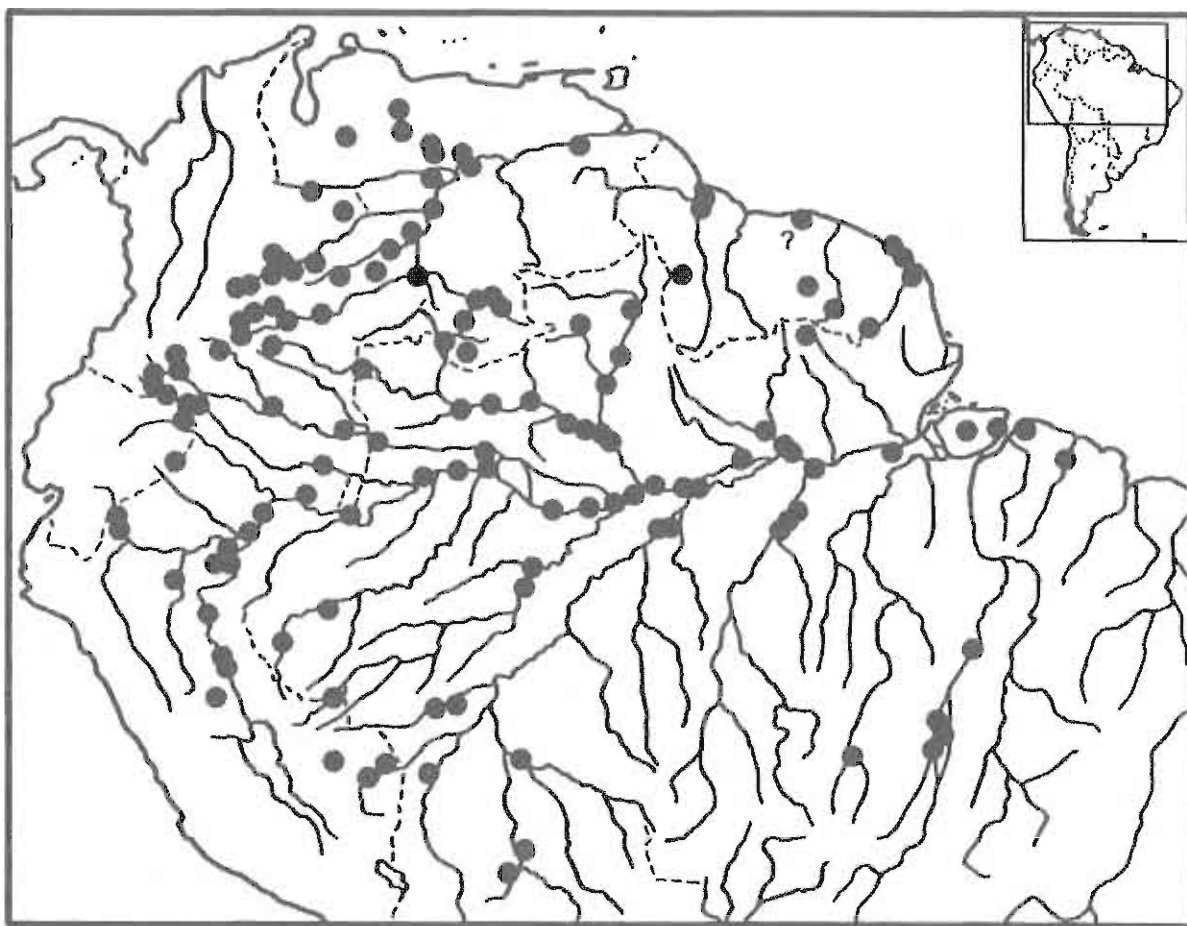
**Holotype:** ZMB 142; now lost

**Type locality:** "im Rupununi und Takutu " [= rivers in Guyana (formerly British Guiana)]

**Distribution:** Orinoco to Amazon River drainages of Venezuela, eastern Colombia, eastern Ecuador, northeastern Peru, the Guianas, Brazil, and northern Bolivia

**Subspecies:** None

**Comment:** Reviewed by Groombridge (1982) and Pritchard and Trebbau (1984). Mittermeier and Wilson (1974) and Wermuth and Mertens (1977) suggested that *Emys cayennensis* Schweigger (1812:298) may be an older available name for this species. Based on Fretey's (1977:111) information about the type species of *Emys cayennensis* Schweigger and *Emys dumeriliana* Schweigger, Hoogmoed and Gruber (1983:346) concluded that *E. cayennensis* was a junior synonym of *P. expansa* and that *E. dumeriliana* was an older available name for *P. unifilis*. However, following Roger Bour's suggestion, Pritchard and Trebbau (1984:72) showed that the holotype of *E. cayennensis* (MNHN 8359) is a *P. unifilis*. The proper name for this species may thus be *P. cayennensis*, although the more stable name *P. unifilis* is retained here until the ICZN can act on the problem.



## PELOMEDUSIDAE

*Podocnemis vogli* Müller, 1935:104  
Savanna Side-necked Turtle

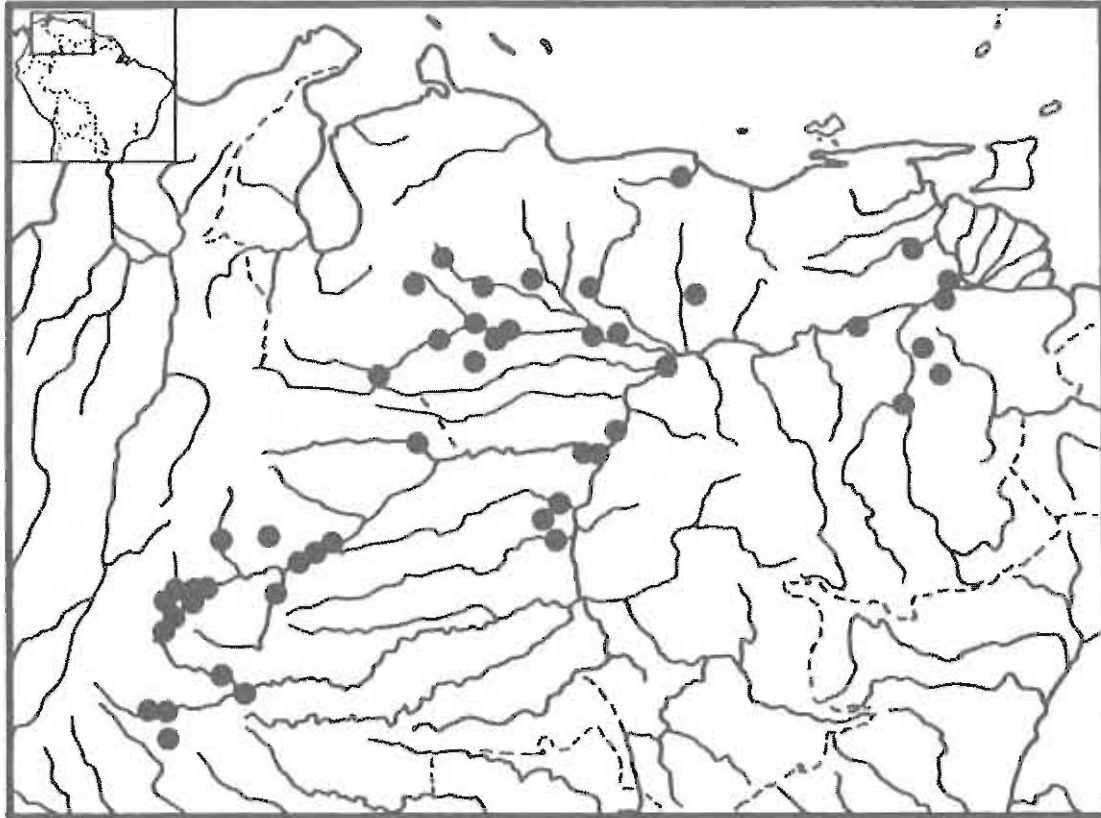
**Holotype:** ZSM 128/28

**Type locality:** "Barinas (Staat Zamora [= Estado Barinas]), Venezuela"

**Distribution:** Colombia and Venezuela

**Subspecies:** None

**Comment:** Reviewed by Alarcon Pardo (1969), Groombridge (1982), Ramo (1982), and Pritchard and Trebbau (1984).



## CARETTOCHELYIDAE

Family *Carettochelyidae* Boulenger, 1887:171  
Pig-nose Turtles

**Original name:** *Carettochelyidae*

**Distribution:** As for the single species

**Comment:** Most closely related to the Trionychidae according to Gaffney (1975b), Frair (1985), and Meylan (1987). Synonymy and literature review in Cogger et al. (1983).

*Carettochelys* Ramsay, 1886:158  
Pig-nose Turtles

**Type species:** *Carettochelys insculpta* Ramsay (1886) by monotypy

**Distribution:** As for the single species

**Comment:** None

*Carettochelys insculpta* Ramsay, 1886:158  
Pig-nose Turtle

**Original name:** *Carettochelys insculptus* (typographic error in genus name)

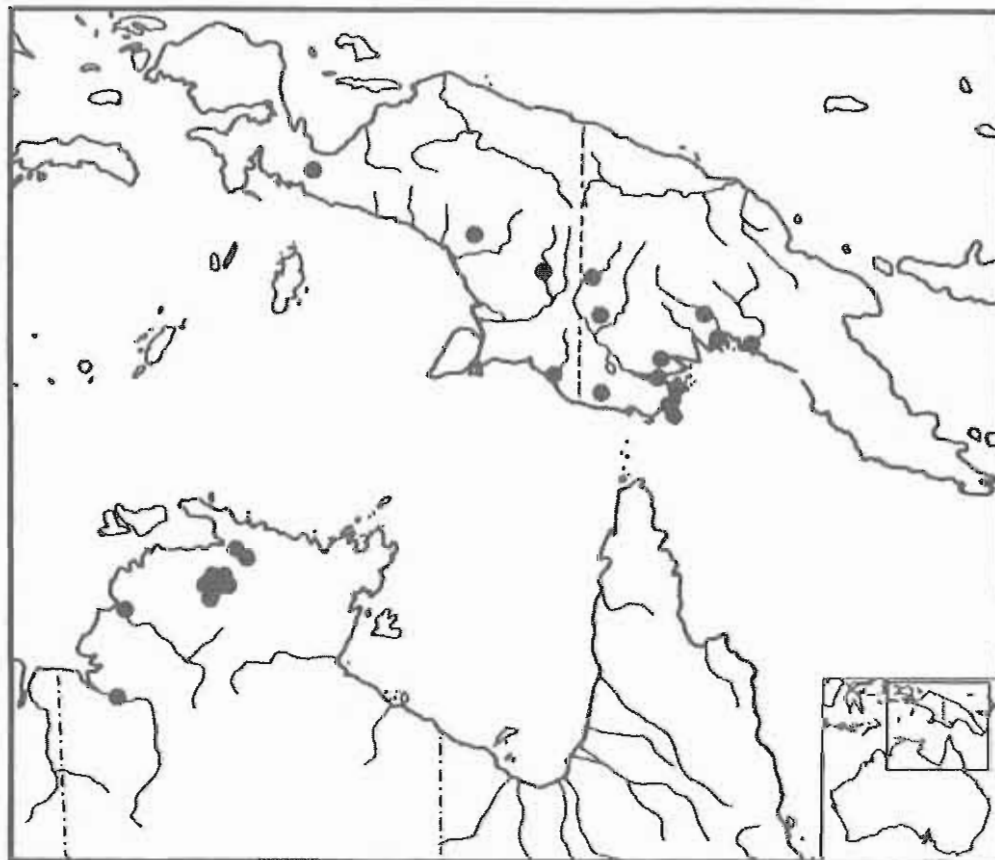
**Holotype:** AMS R3677

**Type locality:** "Fly River, [Papua] New Guinea"

**Distribution:** southern versant of New Guinea (Irian Jaya, Indonesia and Papua) and northern portion of Northern Territory, Australia

**Subspecies:** None

**Comment:** Reviewed by Groombridge (1982), Cogger et al. (1983), and Georges (1988). The karyotype and its similarity to that of trionychid turtles are described by Bickham et al. (1983).



## CHELONIIDAE

Family *Cheloniidae* Opper, 1811:4  
Marine Turtles

**Original name:** Chelonii

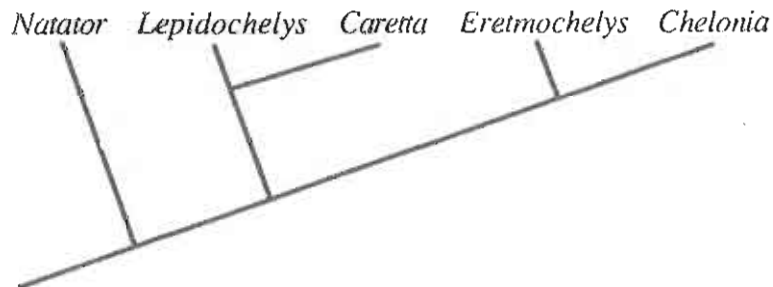
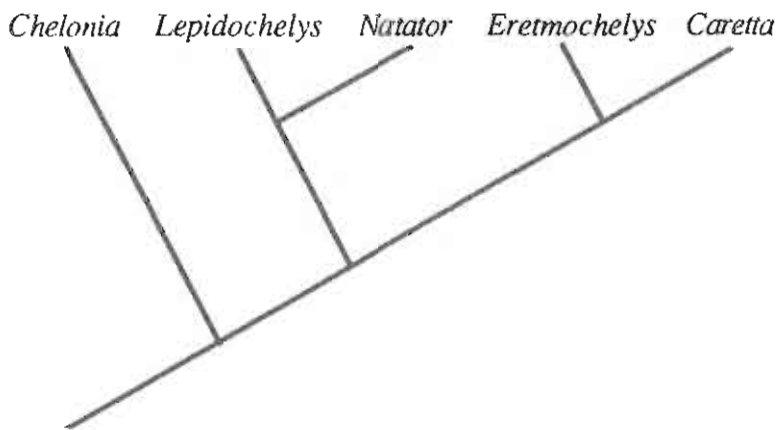
**Distribution:** Worldwide in temperate and tropical oceans

**Comment:** Taxonomic and literature reviews appear in Smith and Smith (1979; Mexican taxa), Cogger et al. (1983; Australian taxa), Pritchard and Trebbau (1984; Venezuelan taxa), Zangerl et al. (1988), and Limpus et al. (1988). Frair (1979, 1982a) discussed phylogenetic relationships based on serology. Bour and Dubois (1984c:81) suggested that Opper (1811:4) first used the family name Cheloniidae.

**Key to the genera:**

- 1a. Four pleural (= costal) scutes; cervical (= nuchal) scute not in contact with first pleural scutes.....2
- 1b. Five or more pleural scutes present on each side of carapace; cervical scute touches the first pleural scutes.....3
- 2a. One pair of prefrontal scales on head; beak not hawk-like.....4
- 2b. Two pairs of prefrontal scales on head; beak hawk-like.....*Eretmochelys* (p. 86)
- 3a. Bridge usually with three inframarginal scutes, each without pores; three to seven inframandibular scales behind beak on each side of lower jaw .....*Caretta* (p. 81)
- 3b. Bridge usually with four inframarginal scutes, each with a pore at its hind border; single large inframandibular scale behind beak on each side of lower jaw.....*Lepidochelys* (p. 88)
- 4a. Carapace oval, and covered with normal non-waxy scutes; lower jaw serrated; four postorbital scales usually present.....*Chelonia* (p. 83)
- 4b. Carapace flattened and nearly round, and covered by thin waxy scutes; lower jaw not serrated; three postorbital scales usually present.....*Natator* (p. 91)

**Phylogenetic hypothesis:** (after Limpus et al., 1988 [top] and Zangerl et al., 1988 [bottom])



## CHELONIIDAE

*Caretta* Rafinesque, 1814:66  
Loggerhead Turtles

**Type species:** *Caretta nasuta* Rafinesque (1814) [= *Testudo Caretta* Linnacus (1758)], by monotypy

**Distribution:** As for the single species

**Comment:** Reviewed by Dodd (1990a).

*Caretta caretta* (Linnaeus, 1758:197)  
Loggerhead Turtle

**Original name:** *Testudo Caretta*

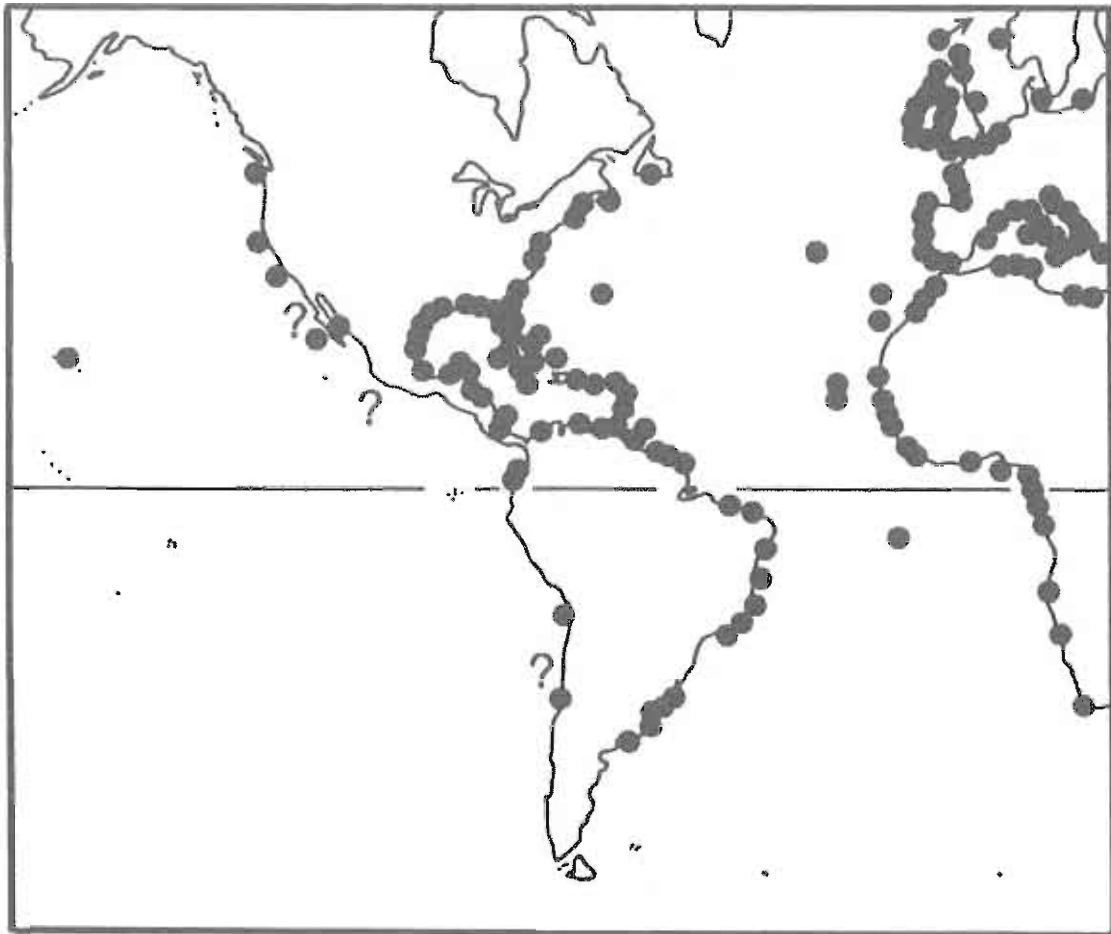
**Holotype:** None designated, and no original material remains (Wallin, 1985)

**Type locality:** "insulas Americanas" [= American Islands]; restricted to "the Bermuda Islands" by Smith and Taylor (1950b:16; see also 1950a:315); restricted to "Bimini, British Bahamas" by Schmidt (1953:107)

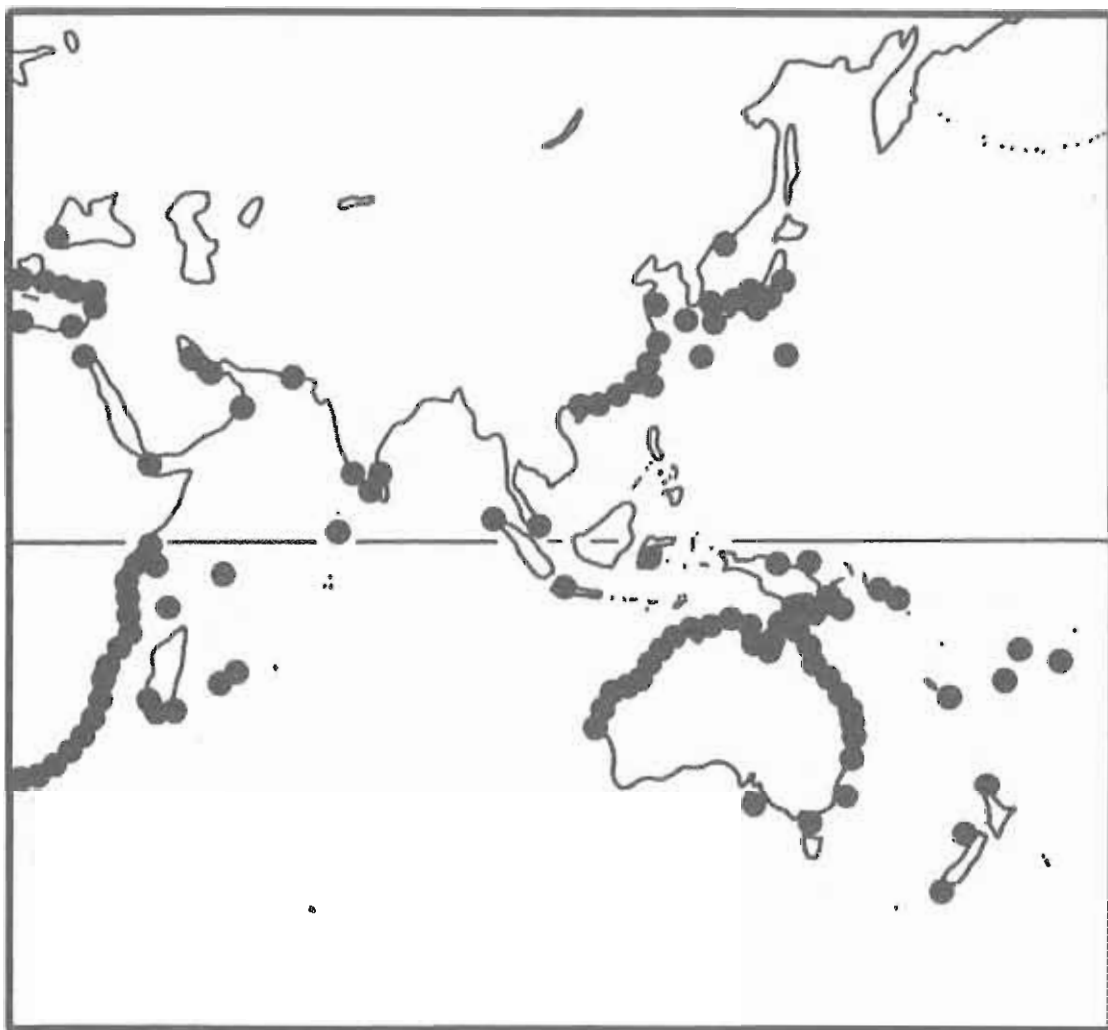
**Distribution:** (Two maps) Mainly in subtropical and tropical seas, rare in the eastern and central Pacific (see Frazier, 1985)

**Subspecies:** None (see Pritchard and Trebbau, 1984; and Dodd 1988, 1990b)

**Comment:** Linnacus' (1758:197) *Testudo Caretta* was apparently based solely on reports in the literature and was a composite of *Caretta caretta* and *Eretmochelys* (Wallin, 1985; see also Comment under *Chelonia mydas*; and Brongersma, 1961). Reviewed by Groombridge (1982), Cogger et al. (1983), Pritchard and Trebbau (1984), and Dodd (1988, 1990b). Frazier (1985) corrected East Pacific records resulting from confusion with *Lepidochelys olivacea*.



## CHELONIIDAE

*Caretta caretta* (continued)

## CHELONIIDAE

*Chelonia* Brongniart, 1800:89  
Green Turtles

**Type species:** *Testudo Mydas* Linnaeus (1758), by subsequent designation of Bell (1828b:516).

**Distribution:** All tropical and subtropical seas

**Comment:** Stejneger (1907:509) noted that *Chelonia* as originally published by Brongniart (1800:89) is a *nomen nudum*. Smith and Smith (1979:259-260) and Pritchard and Trebbau (1984:279) agreed, but suggested that Latreille (1801:22) used *Chelonia* as a family and not a genus name. Reviewed by Hirth (1980a), Cogger et al. (1983), and Pritchard and Trebbau (1984).

**Key to the species:**

- 1a. Carapace high and steep-sided, generally darkly pigmented; rim of carapace usually with distinct indentations above the hind limbs .....*C. agassizii* (p. 83)
- 1b. Carapace not high and steep-sided, and not darkly pigmented; rim of carapace usually lacking indentations, above the hindlimbs.....*C. mydas* (p. 84)

*Chelonia agassizii* Bocourt, 1868:122  
Pacific Green Turtle

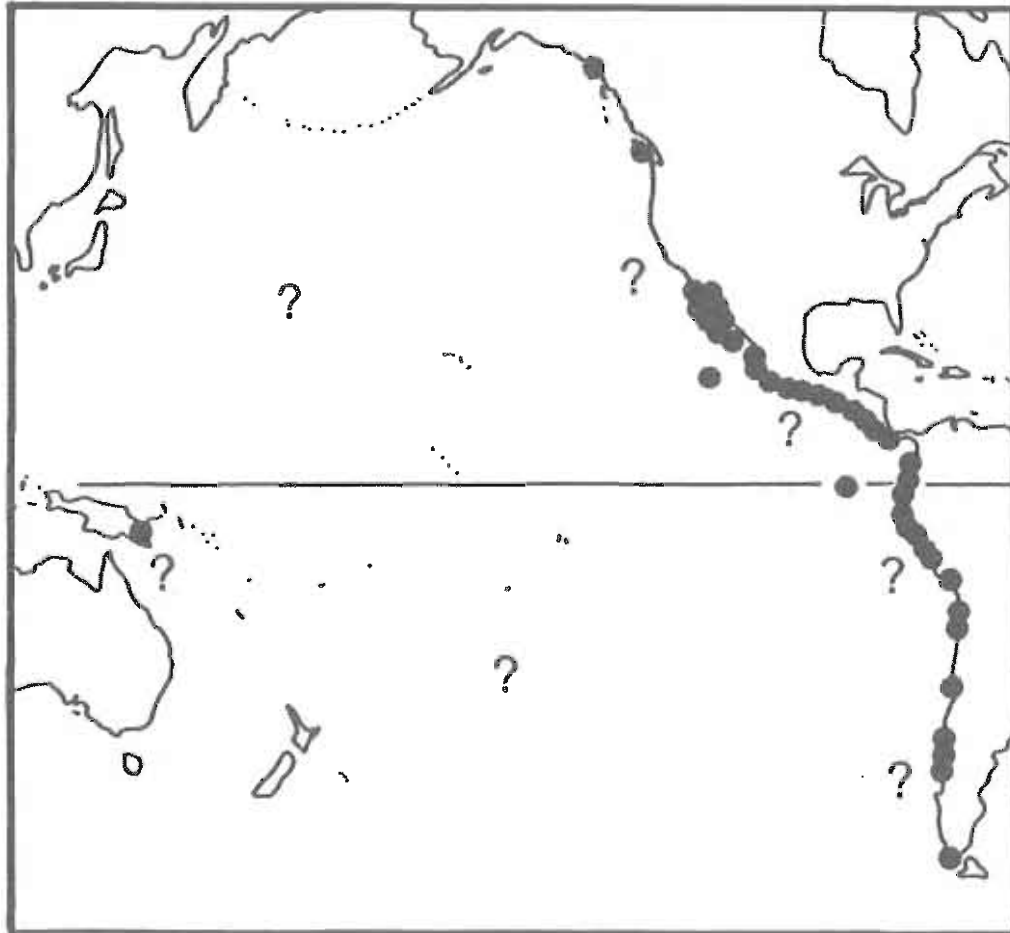
**Holotype:** MNHN 9537, illustrated in the original description

**Type locality:** "l'en bouchure [= embayment] du [Río] Nagualate, dans le Pacifique (Guatémala)"

**Distribution:** The eastern Pacific Ocean from southern California, USA to Chile, west to the Galapagos, Hawaii, and Papua New Guinea, although the species is often confused with *Chelonia mydas*

**Subspecies:** None

**Comment:** Pritchard (1983) and Pritchard and Trebbau (1984) discussed evidence for the species status of this form and noted that it is sympatric with *Chelonia mydas* off western Mexico, the Galapagos Islands and Papua New Guinea. Some authors (e.g., Cogger et al., 1983) believe it is synonymous with *C. mydas*.





## CHELONIIDAE

*Chelonia mydas* (Linnaeus, 1758:197)  
Common Green Turtle

**Original name:** *Testudo Mydas*

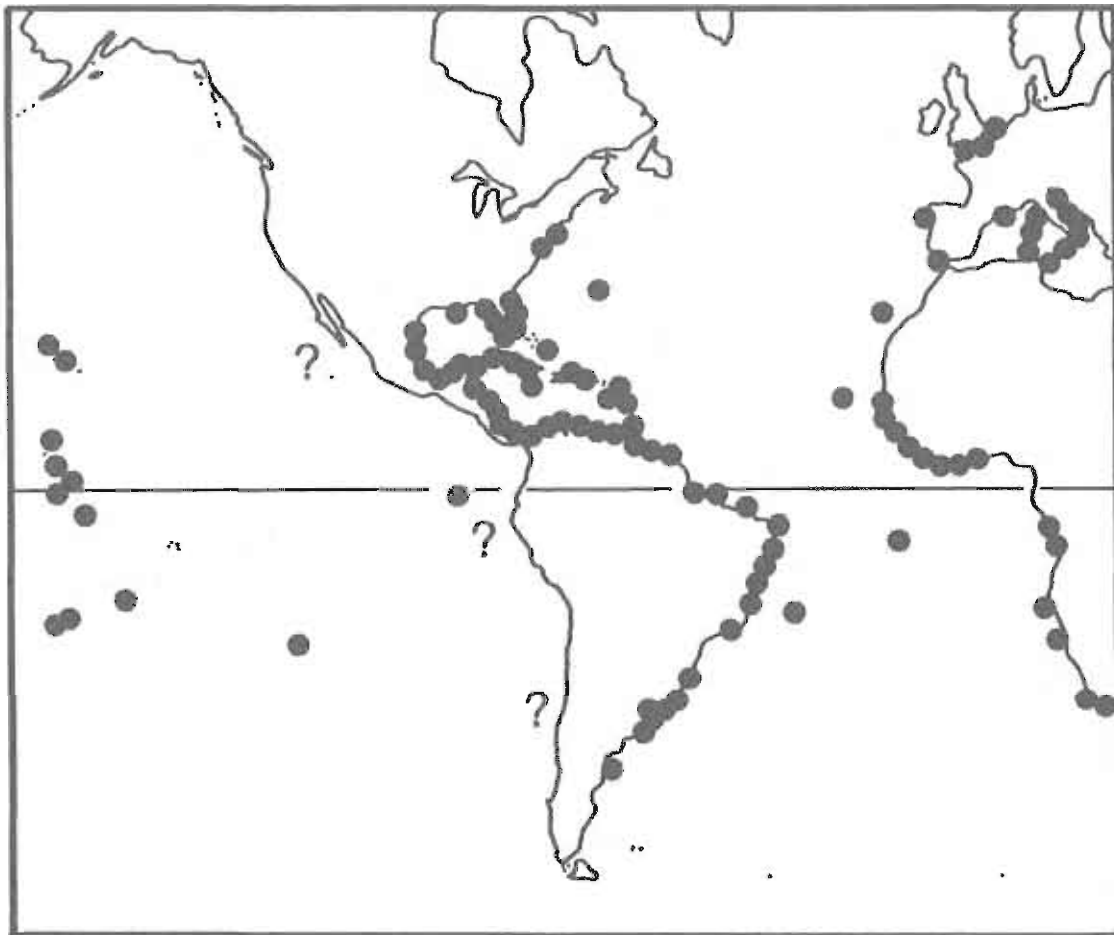
**Syntypes:** (at least 3 specimens) NRM 19, 26, and 231 (see Comment below); not ZMUU 20 as stated by Smith and Smith (1979:269) and Cogger et al. (1983:69); see Comment below and under *Psammobates geometricus*; NRM 231 pictured in Wallin (1985)

**Type locality:** "insulas Pelagi: insulam Adscensionis" [= Ascension Island]; restricted to "Insel Ascension" by Mertens and Müller (1928:23)

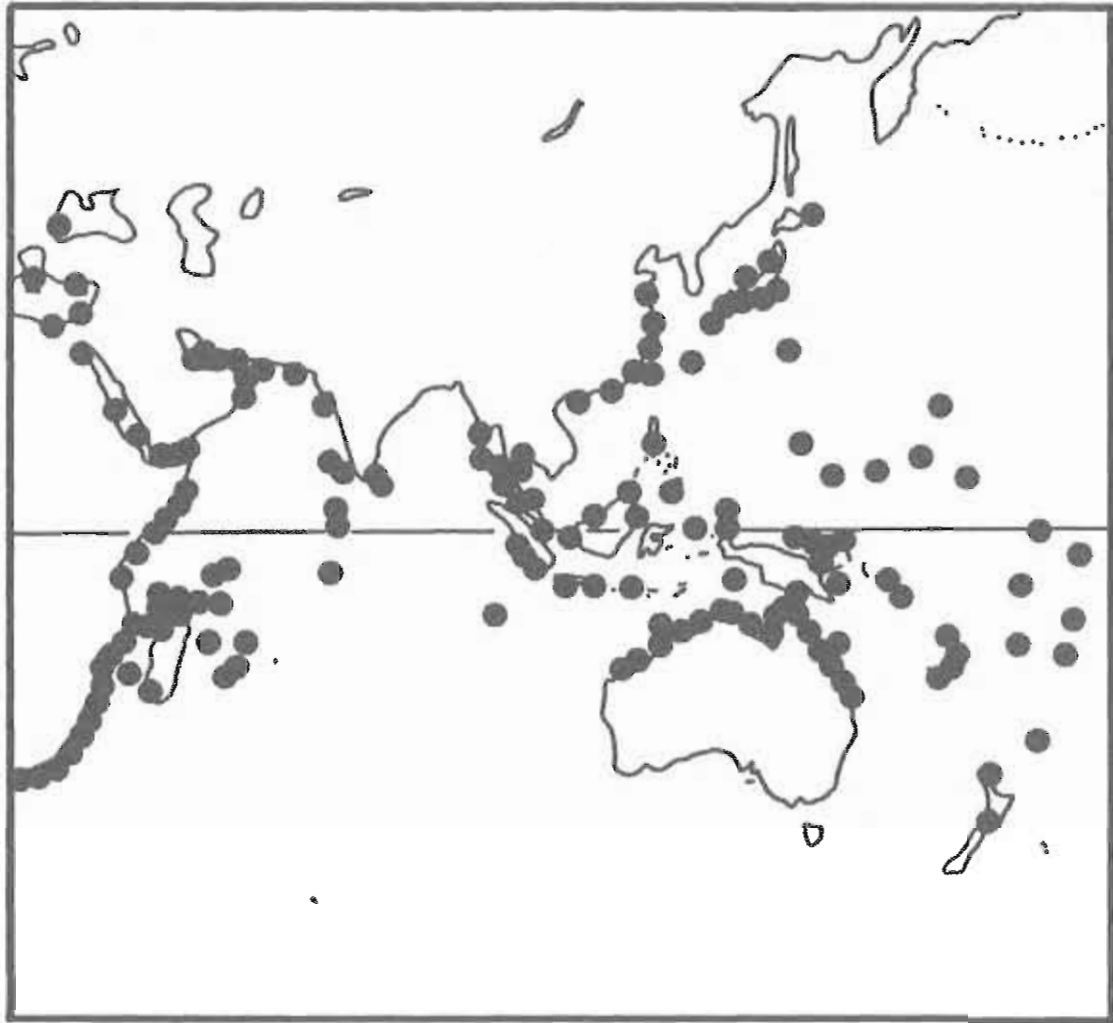
**Distribution:** (Two maps) All temperate and tropical seas

**Subspecies:** None

**Comment:** Each of the extant syntypes is identifiable as *Caretta caretta* sensu Boulenger (1889; Lars Wallin, 1985 and pers. comm.), creating a nomenclatural problem. However, Wallin (1985) believes that the concept of this species presented in Linnaeus (1754), with reference material in the Stockholm Museum of Natural History, is the correct one (i.e., that of Boulenger, 1889 and subsequent authors), and that this validates Linnaeus' formal description in 1758. The ICZN will have to settle this complex problem. See also Comment under *Caretta caretta*. Bonhomme et al. (1987) made electrophoretic comparisons of Atlantic, Indian, and Pacific ocean populations. Reviewed by Hirth (1971; 1980b; including *Chelonia agassizii*), Smith and Smith (1979), Groombridge (1982), and Pritchard and Trebbau (1984), and Groombridge and Luxmoore (1989). Includes *Testudo japonica* Thunberg (1787:178), according to Mertens and Wermuth (1955:384), among others (see discussion in Smith and Smith, 1979:262, 269-270).



## CHELONIIDAE

*Chelonia mydas* (continued)

## CHELONIIDAE

*Eretmochelys* Fitzinger, 1843:30  
Hawksbill Turtles

**Type species:** *Testudo imbricata* Linnaeus (1766), by original designation

**Distribution:** As for the single species.

**Comment:** Reviewed by Smith and Smith (1979). Brongersma (1972) discussed the confusion between this genus and *Caretta*.

*Eretmochelys imbricata* (Linnaeus, 1766:350)  
Hawksbill Turtle

**Original name:** *Testudo imbricata*

**Holotype:** ZMUJ 130, according to Smith and Smith (1979:280) with hesitancy, although Wallin (1985) indicates that no type material still exists.

**Type locality:** "Mari Americano, Asiatico" [= America and Asiatic seas]; restricted by Smith and Taylor (1950b:17; see also 1950a:315) to "the Bermuda Islands"; restricted by Schmidt (1953:106) to "Belize, British Honduras"

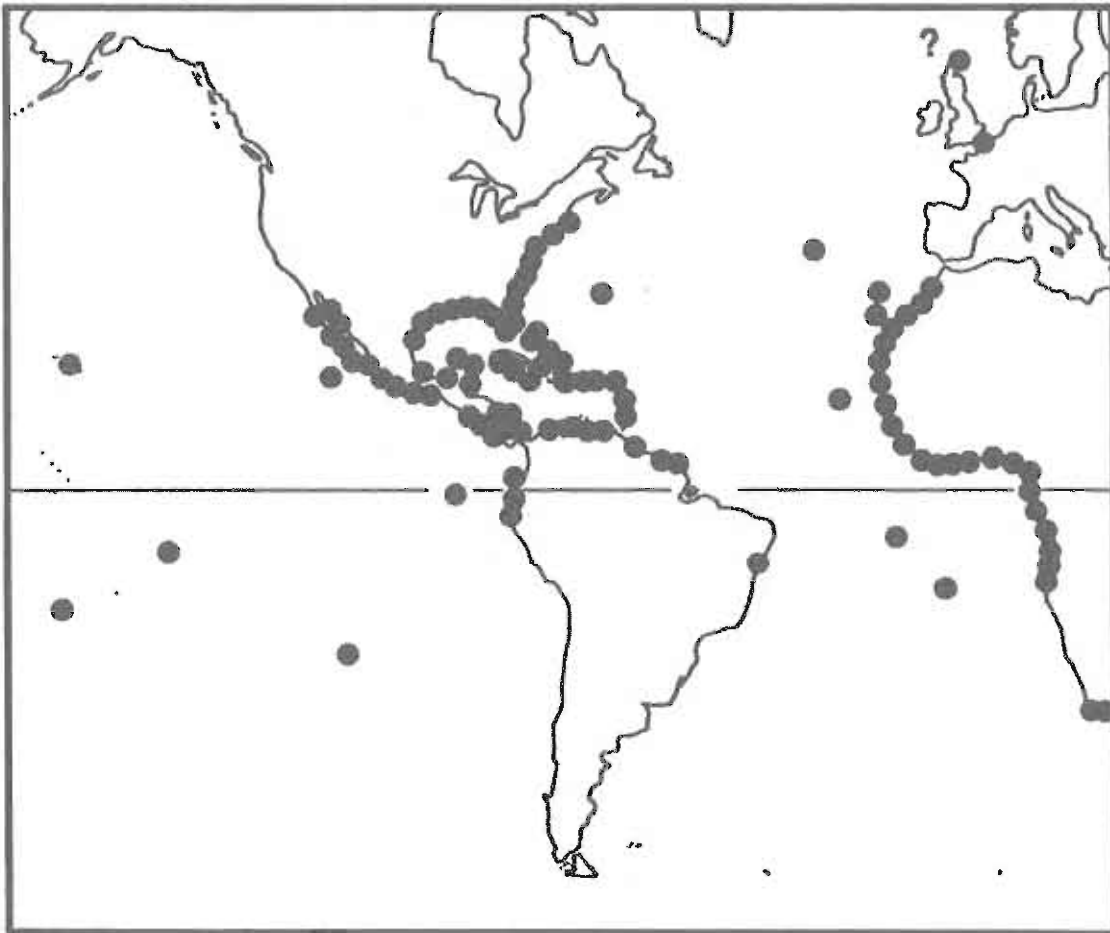
**Distribution:** (Two maps) Tropical and occasionally subtropical seas

**Subspecies:** Two are recognized:

*E. i. imbricata* (Linnaeus 1766:350) Atlantic hawksbill turtle [Holotype: see above; type locality: see above; range: Atlantic Ocean]

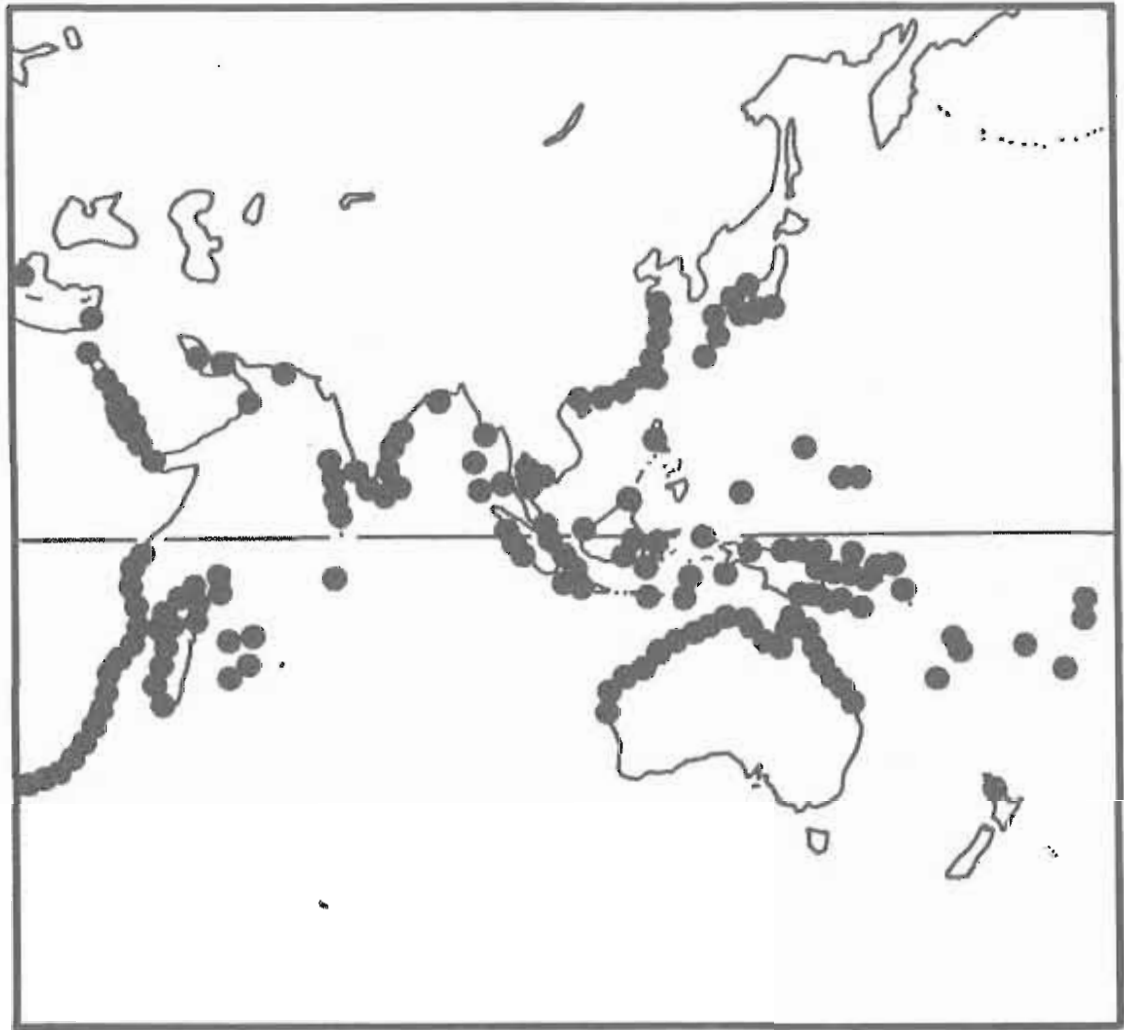
*E. i. bissa* (Ruppell 1835:4) Pacific hawksbill turtle [Holotype: SMF 7886 designated as lectotype by Mertens (1967b:52); type locality: "im rothen Meere [= Red Sea]"; range: Pacific and Indian Oceans]

**Comment:** Holotype not included on list of Uppsala Museum types provided by Lars Wallin (pers. comm.). Wallin (1985) demonstrated that Linnaeus' concept of *Testudo imbricata* was confused with *Testudo* (now *Caretta*) *caretta* and perhaps *Testudo* (now *Chelonia*) *mydas*. Reviewed by Smith and Smith (1979), Groombridge (1982), Witzell (1983), Pritchard and Trebbau (1984), and Groombridge and Luxmoore (1989).



CHELONIIDAE

*Eretmochelys imbricata* (continued)



## CHELONIIDAE

*Lepidochelys* Fitzinger, 1843:30  
Ridley Turtles

**Type species:** *Thalassochelys olivacea* Fitzinger (1843) [= *Chelonia olivacea* Eschscholtz (1829)], by original designation

**Distribution:** Tropical and subtropical seas; not in the Mediterranean

**Comment:** Reviewed by Smith and Smith (1979)

**Key to species:**

- 1a. Five costal (= pleural) scutes present; Atlantic Ocean only.....*L. kempii* (p. 88)  
1b. Six to eight costal scutes present; Pacific and Indian Oceans, as well as the southern Atlantic.....*L. olivacea* (p. 89)

*Lepidochelys kempii* (Garman, 1880:123)  
Kemp's Ridley Turtle

**Original name:** *Thalassochelys (Colpochelys) Kempii*

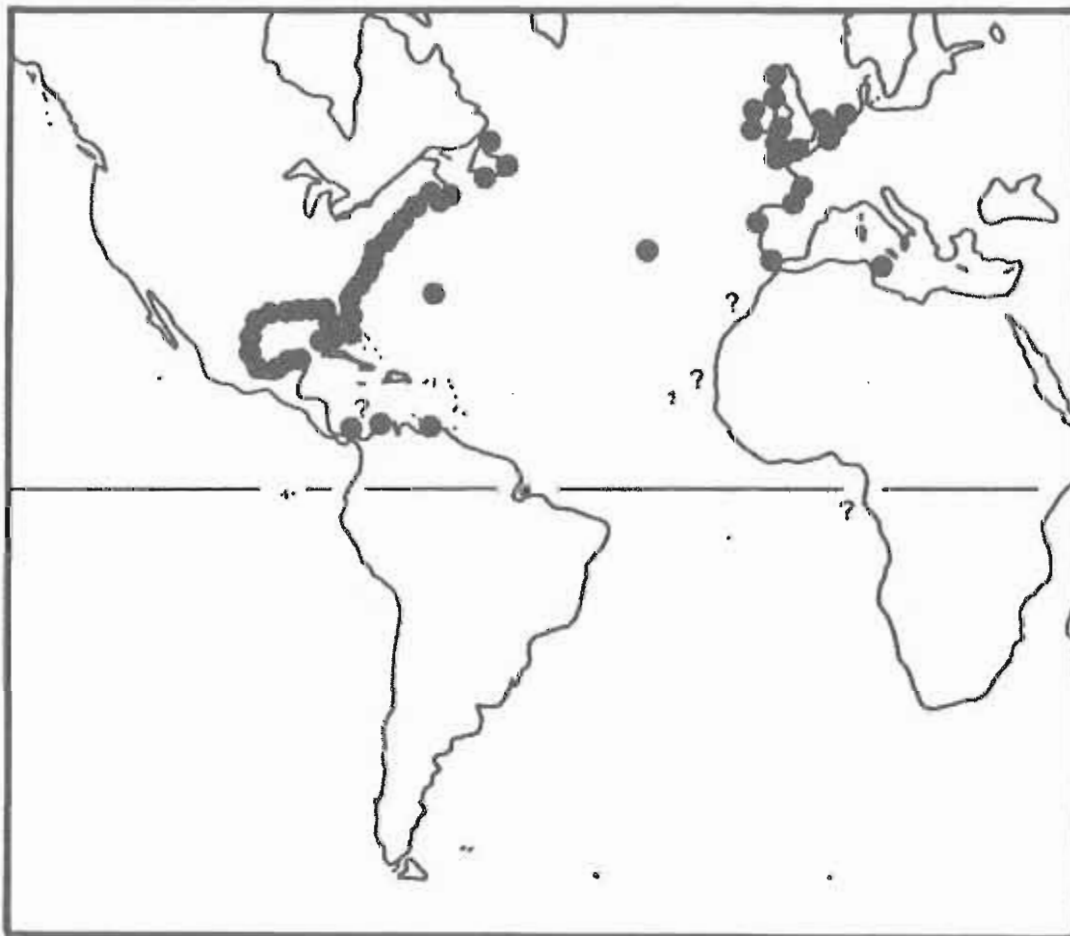
**Syntypes:** (2 specimens) MCZ 46538-39

**Type locality:** "Gulf of Mexico"; restricted to "Key West, Fla." [= Florida], USA by Smith and Taylor (1950b:15; see also 1950a:358)

**Distribution:** The Gulf of Mexico and the north Atlantic Ocean, and possibly the Caribbean Sea

**Subspecies:** None

**Comment:** Reviewed by Smith and Smith (1979), Groombridge (1982), and Wilson and Zug (1991).



## CHELONIIDAE

*Lepidochelys olivacea* (Eschscholtz, 1829:3)  
Olive Ridley Turtle

**Original name:** *Chelonia olivacea*

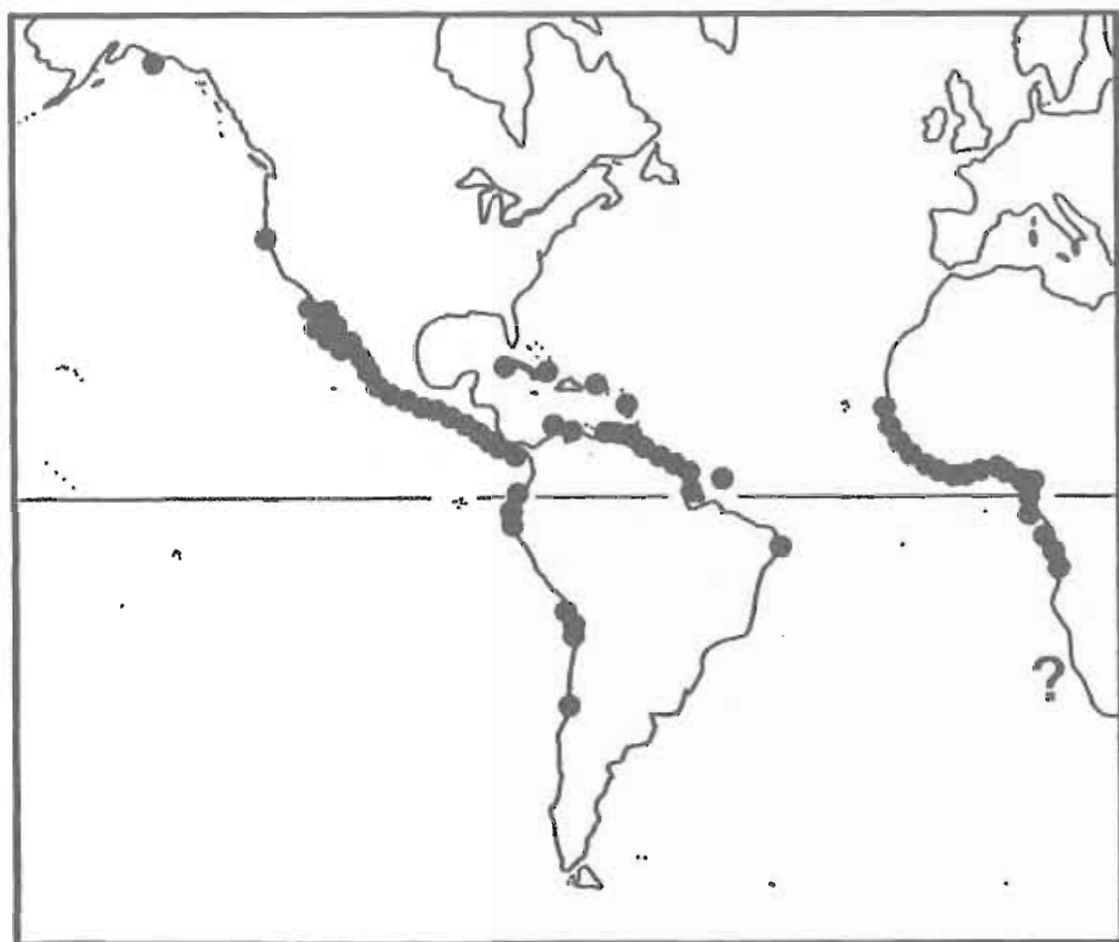
**Holotype:** Possibly in MZT according to Smith and Smith (1979:327)

**Type locality:** "Bai von Manilla" [= Manila Bay, Philippines]

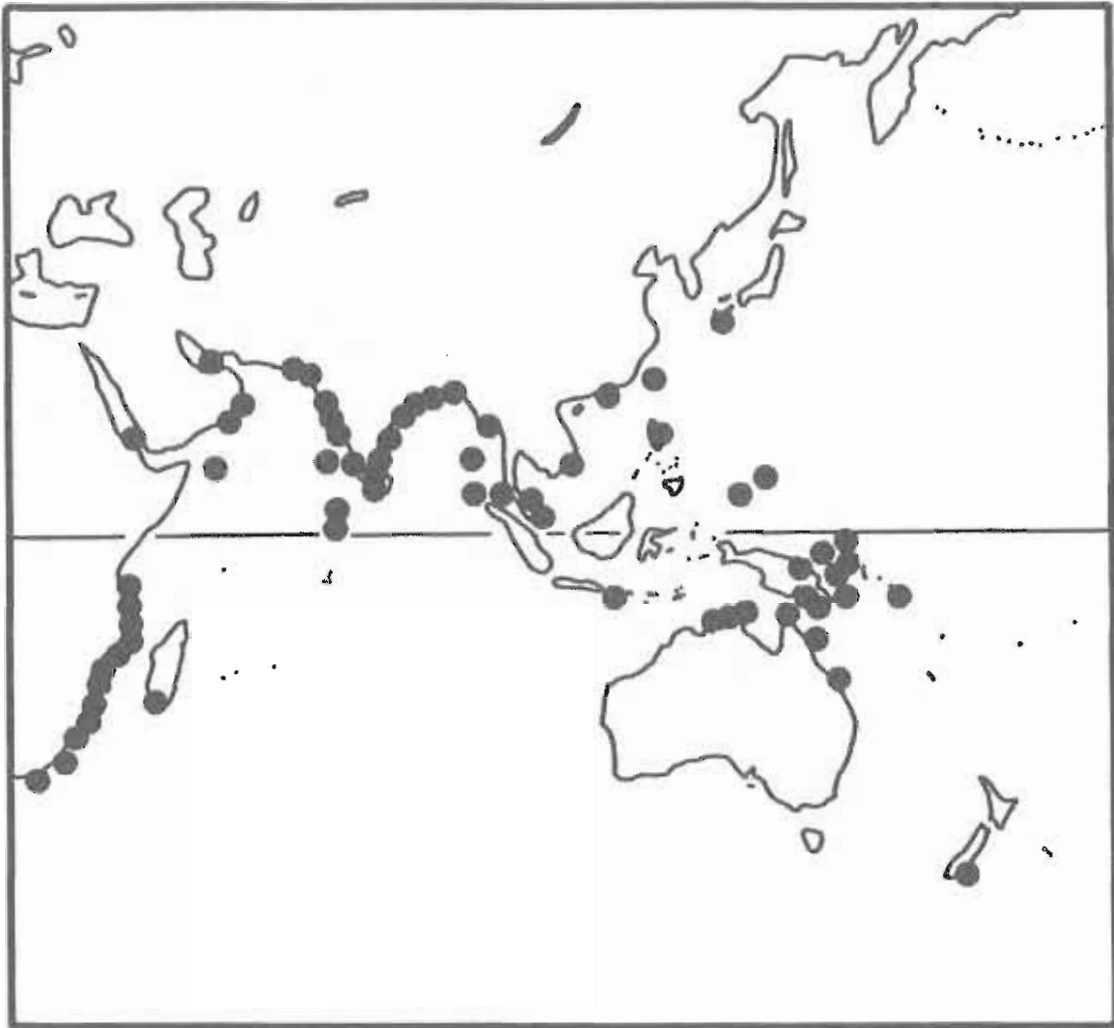
**Distribution:** (Two maps) Pacific and Indian Oceans; also Atlantic of West Africa and South America

**Subspecies:** None

**Comment:** Brongersma (1961:28-30) indicated that *Chelonia multiscutata* Kuhl (1820:78) is an earlier available name for this species, but argued against its use. Smith and Smith (1979:327) have formally appealed to the ICZN to suppress the older name. Reviewed by Marquez et al. (1976), Groombridge (1982), and Pritchard and Trebbau (1984). Frazier (1985) corrected East Pacific records resulting from confusion with *Caretta caretta*.



## CHELONIIDAE

*Lepidochelys olivacea* (continued)

## CHELONIIDAE

*Natator* McCulloch, 1908:126  
Flatback Turtles

**Type species:** *Natator tessellatus* McCulloch 1908 [= *Chelonia depressa* Garman], by original designation

**Distribution:** As for the single species

**Comment:** Removed from the synonymy of *Chelonia* by Zangerl et al. (1988) and Limpus et al. (1988).

*Natator depressa* (Garman, 1880:124)  
Flatback Turtle

**Original name:** *Chelonia depressa*

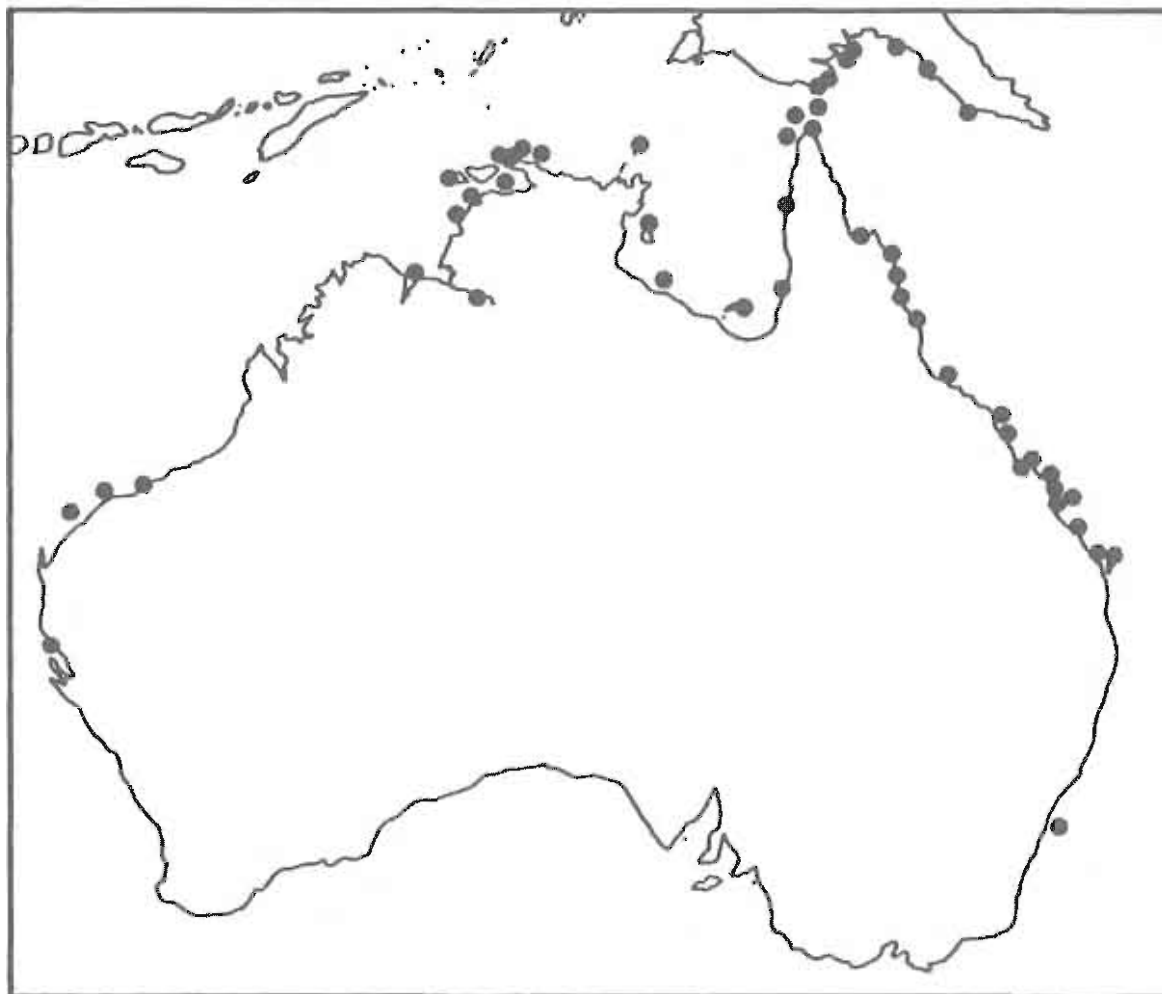
**Syntypes:** (2 specimens) MCZ 1413 ("Penang") and 4473 ("North Australia"); MCZ 1413 identified as *Chelonia mydas* by Barbour (1914a:205); MCZ 4473 designated lectotype by Loveridge (1934:261)

**Type locality:** "East Indies and North Australia;" restricted to "North Australia" by lectotype designation

**Distribution:** Primarily the northern coastal region of Australia and the Gulf of Papua

**Subspecies:** None

**Comment:** Reviewed by Williams, Grandison, and Carr (1967), Cogger et al. (1983), Zangerl et al. (1988), and Limpus et al. (1988).





## CHELYDRIDAE

Family **Chelydridae** Gray, 1831b:4  
Snapping Turtles

**Original name:** Chelydrae

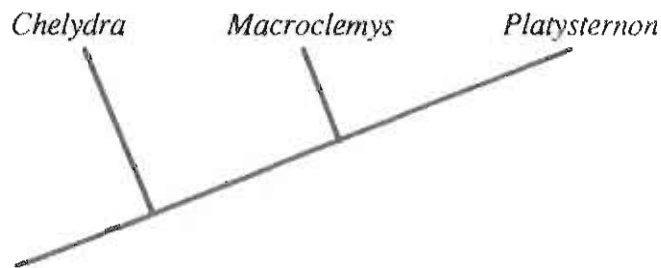
**Distribution:** Southern Canada to Ecuador

**Comment:** Gaffney (1975) and Gaffney and Meylan (1988) included the Platystemididae within the Chelydridae; however, Whetstone (1978) argued for their separation. Frair (1982c) reported a great difference between chelydrid and platystemid electrophoretic patterns.

**Key to the genera:**

- 1a. A single row of marginal scutes; tail with two rows of large scales ventrally and one row of tubercles dorsally.....*Chelydra* (p. 92)  
1b. Supramarginals present above marginals M5-M8; tail with many small scales ventrally and three rows of tubercles dorsally.....*Macrolemys* (p. 96)

**Phylogenetic hypothesis:** (after Gaffney and Meylan, 1988)



*Chelydra* Schweigger, 1812:292  
Common Snapping Turtles

**Type species:** *Testudo serpentina* Linnacus (1758), by subsequent designation of Fitzinger (1843:29)

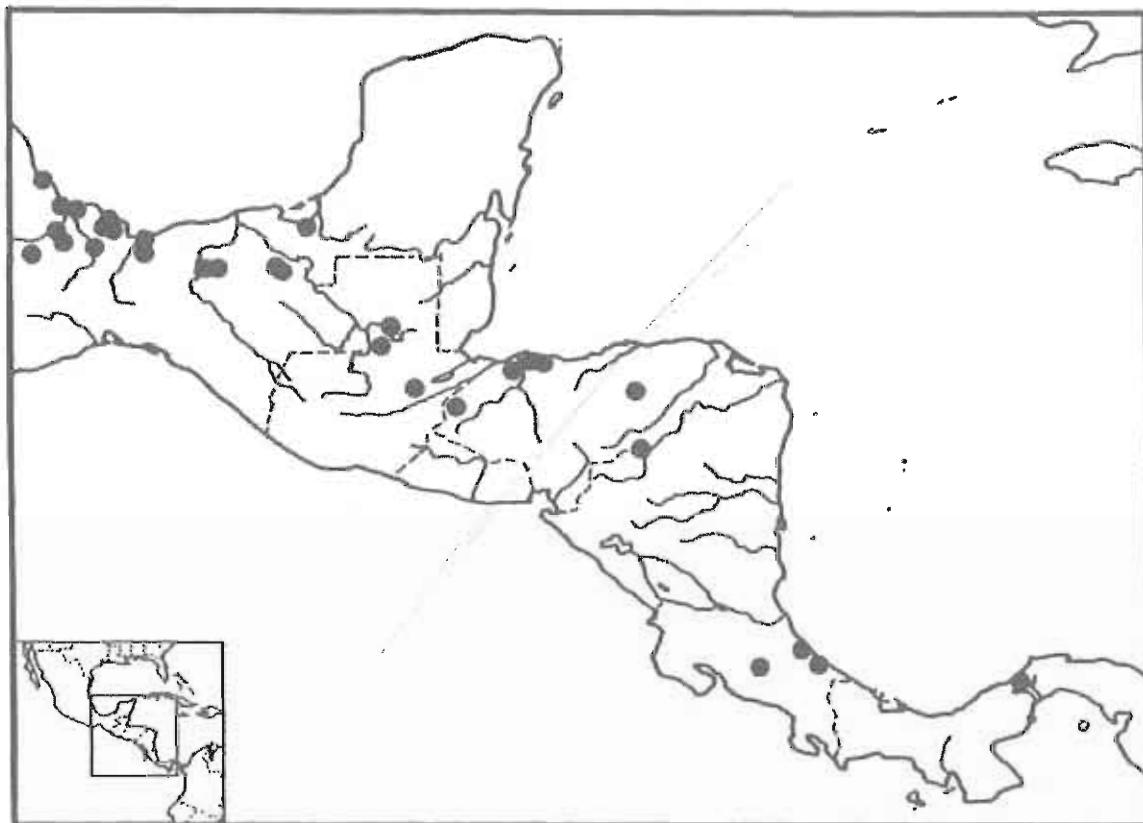
**Distribution:** southern Canada through the eastern USA, Mexico, and Central America to Ecuador

**Comment:** Reviewed by Medem (1977), Smith and Smith (1979), and Ernst et al. (1988).

## CHELYDRIDAE

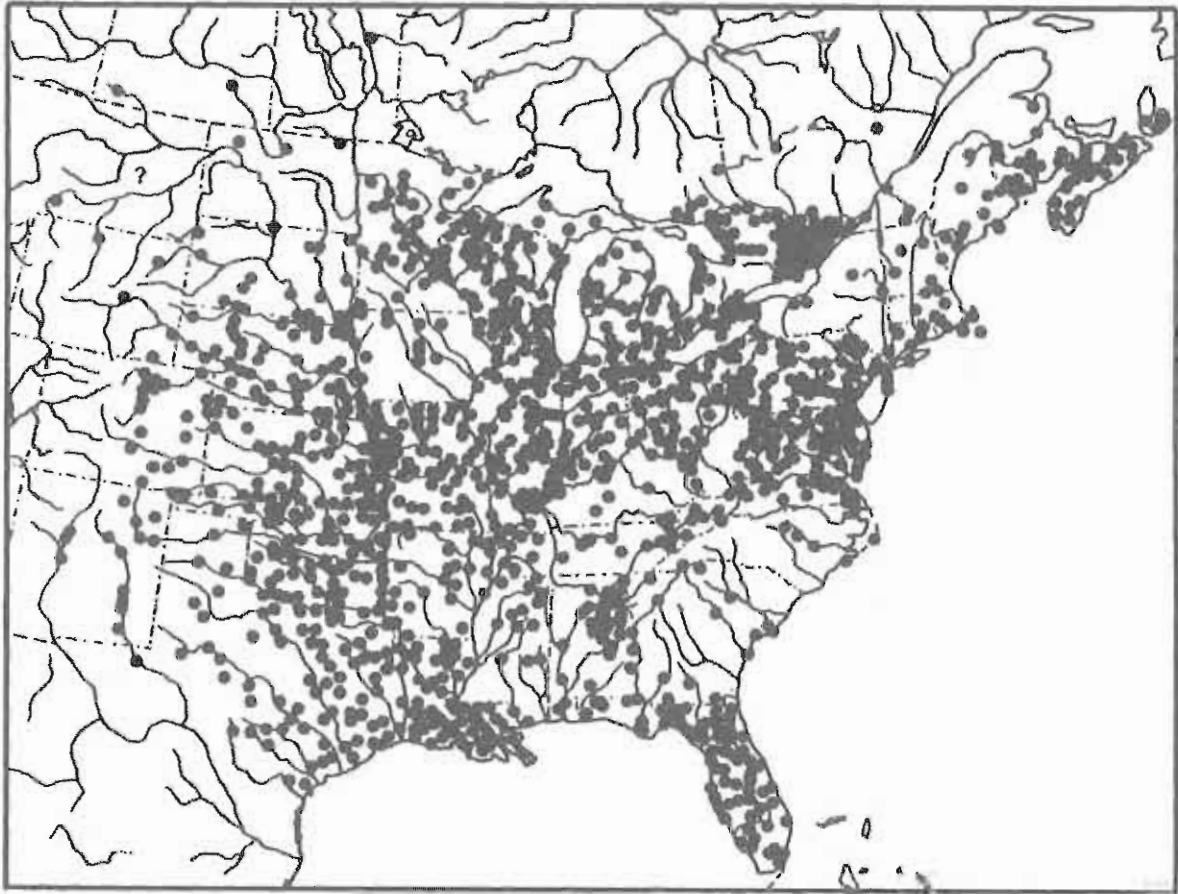
*Chelydra serpentina* (Linnaeus, 1758:199)  
Common Snapping Turtle**Original name:** *Testudo serpentina***Holotype:** Originally in NRM; lost according to Andersson (1900:4, 23); however, NRM GA 49 is apparently the holotype [Wallin, pers. comm.]**Type locality:** "Calidis regionibus;" restricted by Smith and Taylor (1950b:21; see also 1950a:358) to "New Orleans, La." [Orleans Parish, Louisiana, USA]; restricted by Schmidt (1953:86) to "vicinity of New York City" [New York, USA]**Distribution:** (Three maps) From southern Canada across the eastern USA, and southeastern Mexico to Colombia and Ecuador; introduced in Nevada, Utah, Arizona, and California, USA (Stebbins, 1985); only representative records are plotted for the southeastern, continuous portion of the range in the USA**Subspecies:** Four are recognized:

- C. s. serpentina* (Linnaeus 1758:199) Common snapping turtle [Holotype: see above; type locality: see above; range: Canada and the USA to the Mexican border, except for peninsular Florida USA]
- C. s. acutirostris* Peters (1862:627) South American snapping turtle [Holotype: ZMB 4500; type locality: "Guayaquil", Ecuador; range: Honduras to Ecuador]
- C. s. osceola* Stejneger (1918:89) Florida snapping turtle [Holotype: USNM 10369; type locality: "Clearwater, Pinellas County, Florida"; range: peninsular Florida, USA]
- C. s. rossignoni* (Bocourt, 1868:121) Central American snapping turtle [Syntypes: (2 specimens according to Bocourt, 1868:122, but 3 specimens according to Medem, 1977:46) MNHN 1501, 1501A, and 1230, but MNHN 2130 designated lectotype by Stuart (1963:47); type locality: "des marais [marshes] de Pansos, près le Rio Polochic (Guatemala)"; restricted to "Panzos, near the Rio Polochic, Guatemala" by Stuart 1963:47; range: Veracruz, Mexico to Honduras]

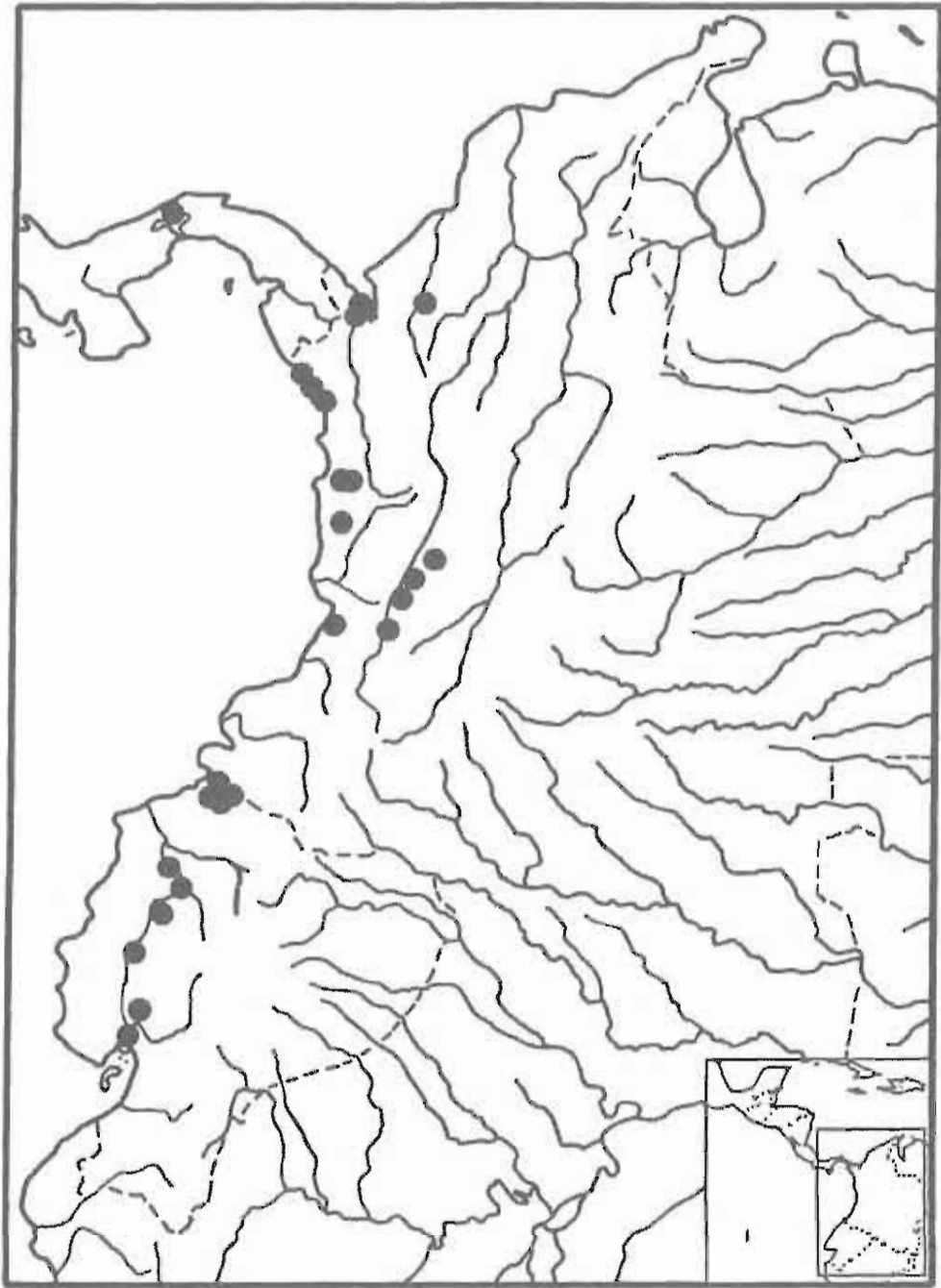
**Comment:** The subspecies are accorded species status by some; however, Feuer (1971) demonstrated intergradation between *Chelydra serpentina serpentina* and *Chelydra serpentina osceola*. Reviewed by Medem (1977), Smith and Smith (1979), and Gibbons et al. (1988).

CHELYDRIDAE

*Chelydra serpentina* (continued)



## CHELYDRIDAE

*Chelydra serpentina* (continued)

## CHELYDRIDAE

*Macrolemys* Gray, 1855:48  
Alligator Snapping Turtles

**Type species:** *Chelonura temminckii* Harlan (1835), by monotypy

**Distribution:** As for the single species.

**Comment:** Referred to as *Macrochelys* in some references; corrected by Smith (1955:16).

*Macrolemys temminckii* (Harlan, 1835:158)  
Alligator Snapping Turtle

**Original name:** *Chelonura temminckii*

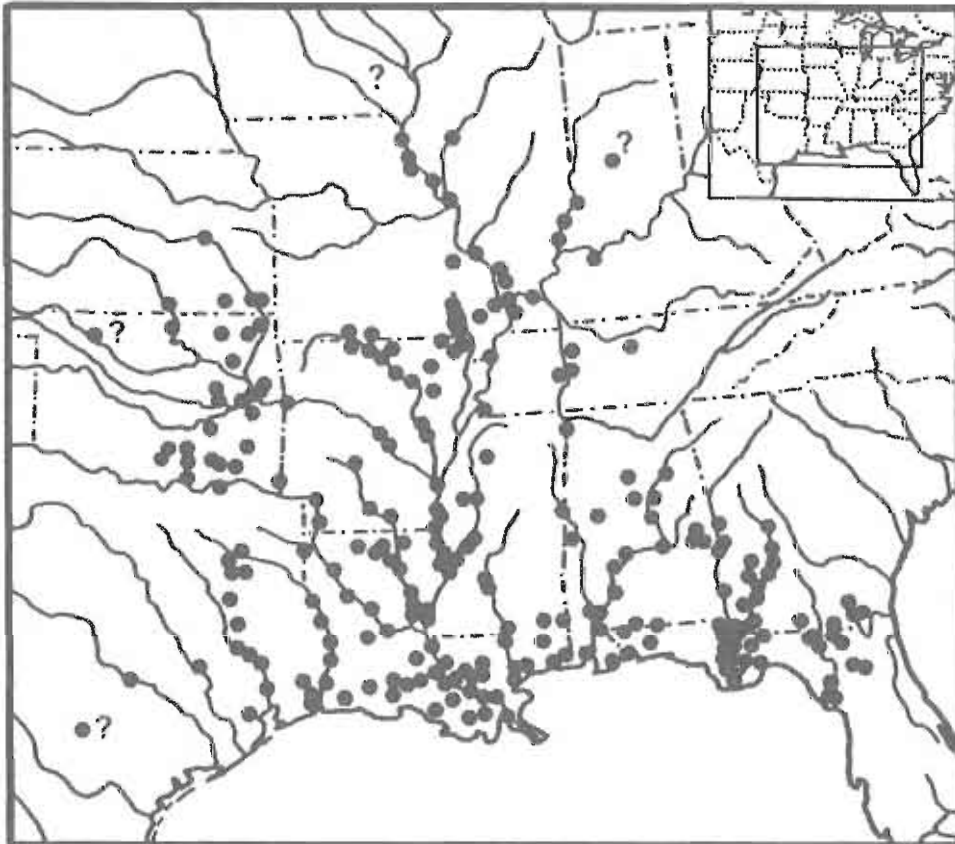
**Holotype:** MNHN Laboratory of Comparative Anatomy No. A. 4540 (see Bour 1987:340-43 and Pritchard 1989:11-12); however, RMNH 6166, a large stuffed specimen of *Macrolemys*, is labelled "type" in the catalog, and was apparently sent by Troost from "Tennessee" (Adler and Hoogmoed, pers. comm.)

**Type locality:** "tributary stream of the Mississippi, which enters the river above Memphis, in west Tennessee"[USA]; restricted to "the Wolf River, Shelby County, Tennessee, USA" by Bour (1987:343).

**Distribution:** Gulf of Mexico drainages from the Suwannee River in Florida to the San Antonio River in Texas and north to southern Illinois, USA

**Subspecies:** None

**Comment:** Reviewed by Pritchard (1989).



## DERMATEMYDIDAE

Family **Dermatemydidae** Gray, 1870c:49  
River Turtles

**Original name:** Dermatemydae

**Distribution:** As for the single species

**Comment:** The original spelling of the family name was Dermatemydae. Reviewed by Smith and Smith (1979) and Iverson and Mittermeier (1980). Closely related to the Carettochelyidae, Trionychidae, and Kinosternidae according to Meylan (1987) and Gaffney and Meylan (1988).

*Dermatemys* Gray, 1847:55  
Central American River Turtles

**Type species:** *Dermatemys mawii* Gray (1847), by monotypy

**Distribution:** As for the single species

**Comment:** Reviewed by Smith and Smith (1979) and Iverson and Mittermeier (1980).

*Dermatemys mawii* Gray, 1847:55  
Central American River Turtle

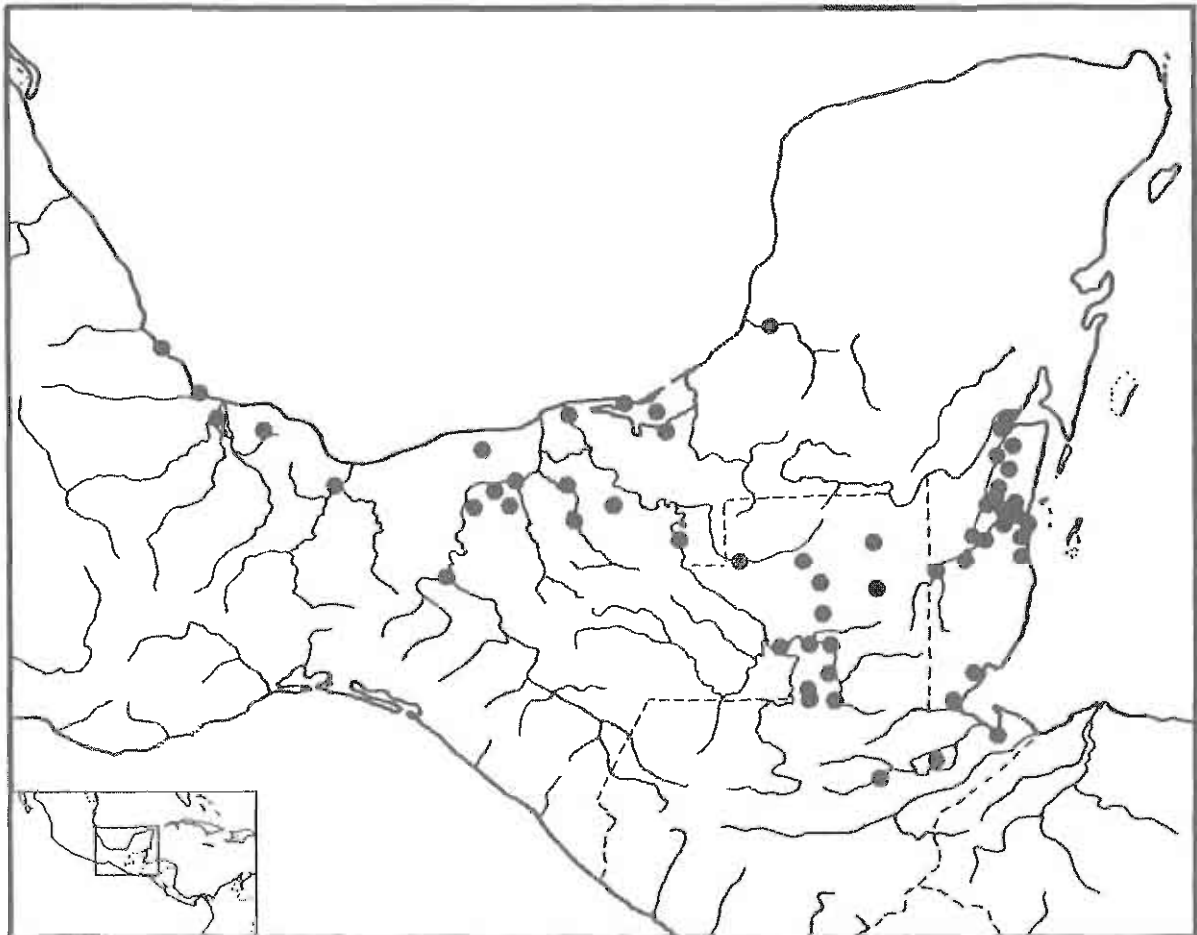
**Holotype:** BMNH 1947.3.4.12

**Type locality:** "South America" (in error); restricted to "Alvarado, Veracruz" [Mexico] by Smith and Taylor (1950a:346 and 1950b:19)

**Distribution:** Veracruz and northern Oaxaca, Mexico to the Yucatan Peninsula, Belize and Atlantic versant of Guatemala and adjacent Honduras

**Subspecies:** None

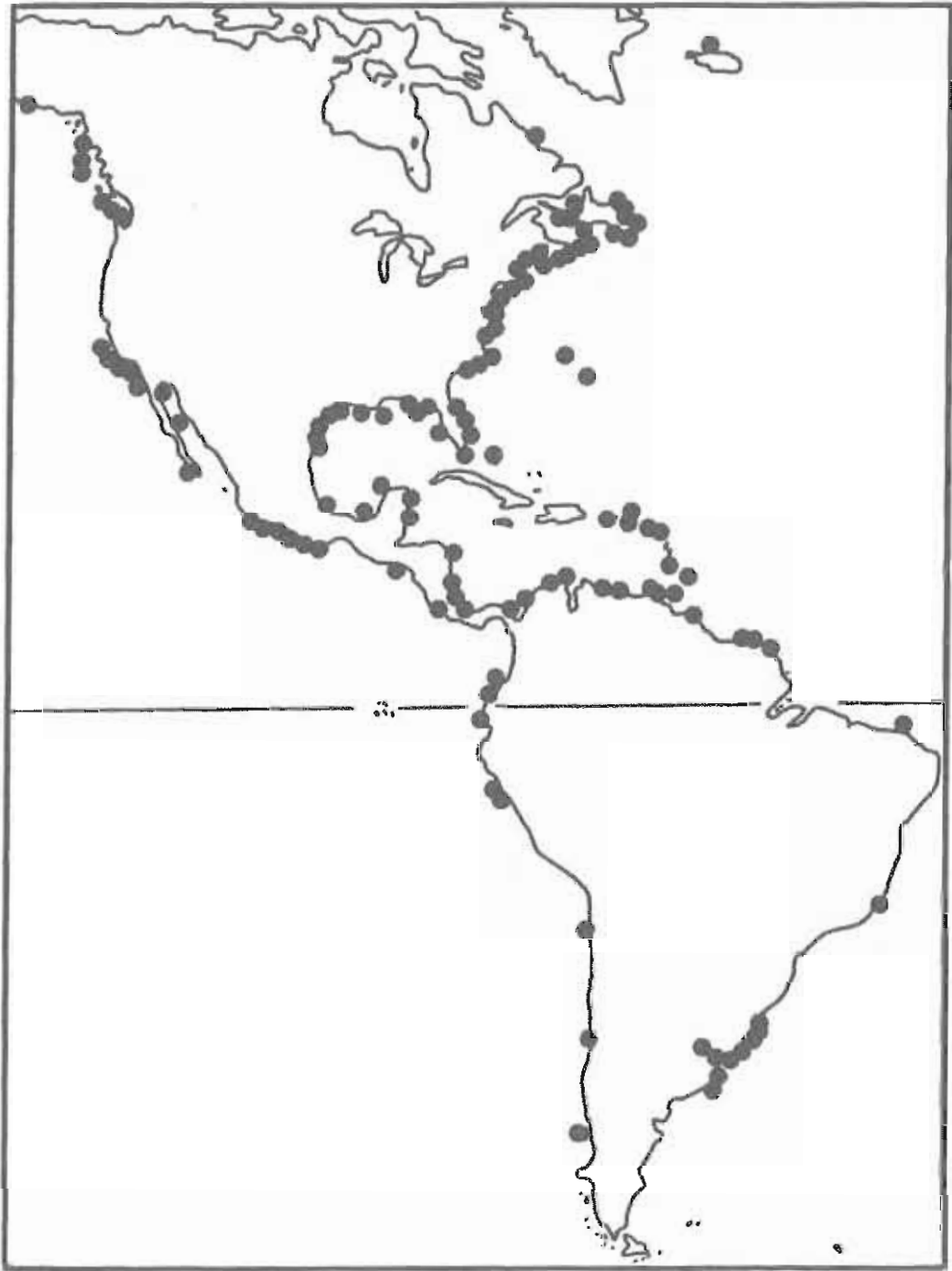
**Comment:** Reviewed by Smith and Smith (1979), Iverson and Mittermeier (1980), Groombridge (1982), and Moll (1986; Belize only). Because it was named for Lt. Mawe, some authors have listed it as *D. mawei*.



## DERMOCHELYIDAE

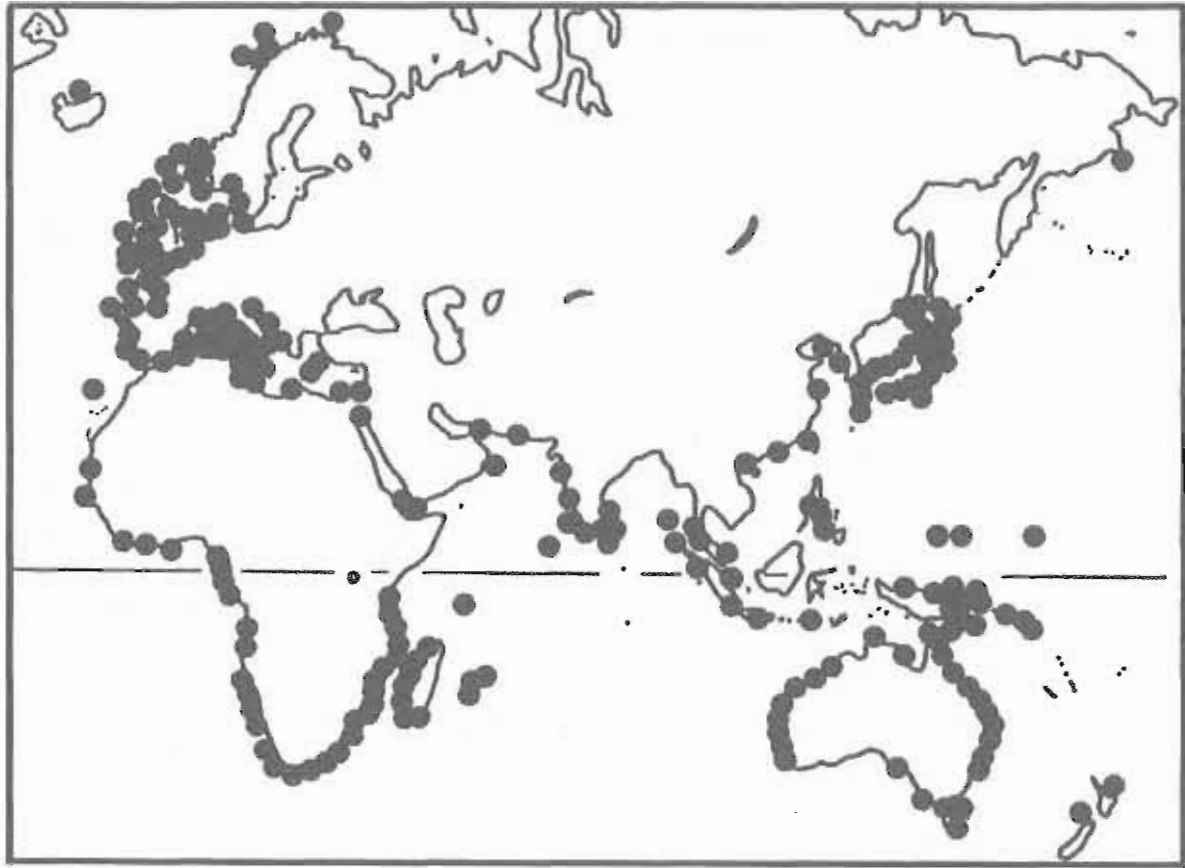
Family **Dermochelyidae** Fitzinger, 1843:30  
Leatherback Turtles**Original name:** Dermatochelyidae**Distribution:** All tropical and temperate oceans**Comment:** Smith and Smith (1979:231-233) and King and Burke (1989:27) explain the history of the family name. Reviewed by Smith and Smith (1979), Cogger et al. (1983), and Pritchard and Trebbau (1984). Frair (1979, 1982a) suggested that this family should be included as a subfamily in the Cheloniidae, but this has not been generally accepted (e.g., see Pritchard and Trebbau, 1984).*Dermochelys* Blainville, 1816:111  
Leatherback turtles**Type species:** *Testudo coriacea* Vandelli (1761), by monotypy**Distribution:** All tropical to temperate oceans**Comment:** Smith and Smith (1973:20) discussed pagination problems in Blainville (1816).*Dermochelys coriacea* (Vandelli, 1761:2)  
Leatherback Turtle**Original name:** *Testudo coriacea***Holotype:** ZMUP unnumbered, identified as holotype by Fretey and Bour (1980:198)**Type locality:** "maris Tyrrheni oram in agro Laurentiano" according to Vandelli (1761) in his letter to Linnaeus (see also Bour and Dubois, 1983b:358); but "Mari mediterraneo, Adriatico rarius" [= Mediterranean and Adriatic seas] according to Linnaeus (1766:350); restricted to "Palermo, Sicily" by Smith and Taylor (1950b:13); restricted to "la côte romaine (Italie), Mer Tyrrhénienne, Méditerranée occidentale" by Fretey and Bour (1980:198); restated as "Laurentum, between Lido di Ostia and Tor Paterno, shore of the Tyrrhenian Sea, Italy" by Bour and Dubois (1983b:359).**Distribution:** (Two maps) All tropical to temperate oceans**Subspecies:** None**Comment:** Reviewed by Pritchard (1980), Groombridge (1982), and Pritchard and Trebbau (1984). See Rhodin and Smith (1982), Bour and Dubois (1983b) and Smith and Rhodin (1986) for discussion of authorship and type.

## DERMOCHELYIDAE

*Dermochelys coriacea* (continued)



## DERMOCHELYIDAE

*Dermochelys coriacea* (continued)

## EMYDIDAE

Family **Emydidae** Rafinesque, 1815:75  
Pond Turtles

**Original name:** Emidania

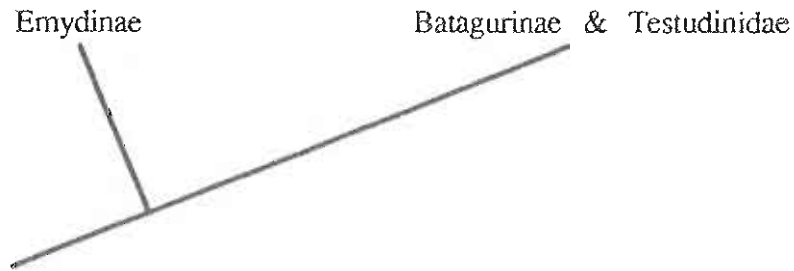
**Distribution:** The Americas, Eurasia, and North Africa

**Comment:** Taxonomic history discussed by Smith and Smith (1979) and Pritchard and Trebbau (1984). McDowell (1964) discussed relationships within the family. Whetstone (1978), Gaffney (1975a), and Gaffney and Meylan (1988) discussed phylogenetic relationships with other turtle families. Bramble (1974) discussed the evolution of plastral kinesis in the family. Bickham and Baker (1976a) and Carr and Bickham (1986) discussed karyotype evolution in this group.

**Key to the subfamilies:**

- 1a. Supracaudal scutes extend forward onto suprapygal; a single joint between the fifth and sixth cervical vertebrae; a strong lateral tuberosity on the basioccipital; angular bone excluded from contact with Meckel's cartilage by a longitudinal flange of the articular; Old World, except for *Rhinoclemmys*.....Batagurinae (p. 102)
- 1b. Supracaudal scutes do not reach to suture between pygal and suprapygal; a double joint between fifth and sixth cervical vertebrae; no strong lateral tuberosity on basioccipital; angular bone forms floor of canal for Meckel's cartilage; New World turtles, except for *Emys*.....Emydinae (p. 167)

**Phylogenetic hypothesis:** (after Hirayama, 1984, and Gaffney and Meylan, 1988)



## EMYDIDAE; BATAGURINAE

### Subfamily *Batagurinae* Gray 1869:185 Batagurine Turtles

**Original name:** *Batagurina*

**Distribution:** Europe and north Africa to southern China and the East Indies; the Americas from northern Mexico to Brazil and Ecuador

**Comment:** Taxonomic history is discussed by Smith and Smith (1979) and Pritchard and Trebbau (1984). Phylogenetic relationships are discussed by Bramble (1974), Whetstone (1978), Sites et al. (1984), Hirayama (1984), Carr and Bickham (1986), Gaffney and Meylan (1988), and Carr (1990). The close relationship between batagurine and testudinid turtles has been supported by morphological (Hirayama, 1984; Gaffney and Meylan, 1988; Carr, 1990), karyotypic (Bickham and Baker, 1976b), and biochemical studies (Mao et al., 1987; Yin et al., 1989). Gaffney (1984) and Gaffney and Meylan (1988) recommended elevation to full family status. Tribe membership noted in generic accounts follows Mlynarski (1976). The taxonomy of this group at the genus and species levels is still poorly defined.

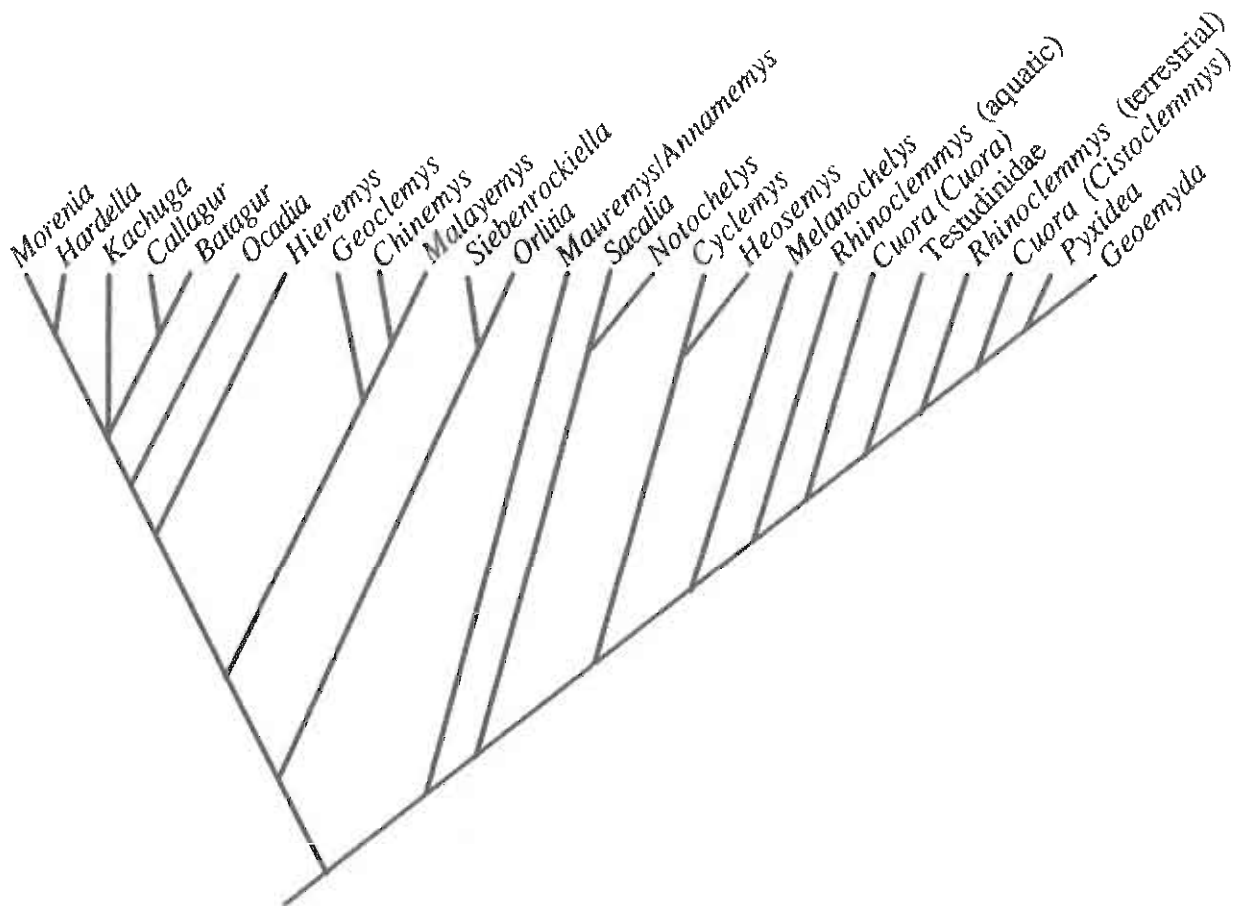
**Key to the genera:** (based on Ernst and Barbour, 1989 with modifications after Moll, pers. comm.)

- |  |                                 |
|--|---------------------------------|
| 1a. Connection of plastron to carapace entirely ligamentous.....   | 2                               |
| 1b. At least the anterior half of plastron attached to carapace by a bony suture.....  | 5                               |
| 2a. Five vertebral scutes normally present.....  | 3                               |
| 2b. Six or seven vertebral scutes present.....   | <i>Notochelys</i> (p. 149)      |
| 3a. Freely moveable hinge present between abdominal and pectoral scutes.....   | 4                               |
| 3b. No plastral hinge evident, or if present, lying under the abdominal scutes and allowing minimal kinesis.....   | <i>Cyclenmys</i> (p. 119)       |
| 4a. Posterior margin of carapace unserrated.....   | <i>Cuora</i> (p. 109)           |
| 4b. Posterior margin of carapace serrated.....   | <i>Pyxidea</i> (p. 153)         |
| 5a. Triturating surface of maxilla broad, at least posteriorly.....  | 6                               |
| 5b. Triturating surface of maxilla narrow.....   | 17                              |
| 6a. Triturating surface of maxilla very broad throughout its length; if present the medial ridge ends anteriorly as a cusp.....  | 7                               |
| 6b. Triturating surface of maxilla moderately to very broad, at least posteriorly, without an anterior cusp.....   | 9                               |
| 7a. Triturating surface of maxilla lacking a medial ridge; or if present, barely noticeable.....   | <i>Geoclemys</i> (p. 121)       |
| 7b. Trituration surface of maxilla with a distinct medial ridge.....   | 8                               |
| 8a. Plastron immaculate yellow; each pleural scute usually with a light-colored ocellus; choanae (internal nares) open at level of the posterior rim of the orbit..... | <i>Morenia</i> (p. 147)         |
| 8b. Plastron with a large dark blotch on each scute; pleural scutes without light-colored ocellus; choanae open behind the orbits.....                                 | <i>Hardella</i> (p. 124)        |
| 9a. Triturating surface of maxilla moderate to broad posteriorly, but narrowed in middle.....  | 10                              |
| 9b. Triturating surface of maxilla broad throughout its length.....  | 11                              |
| 10a. Triturating surface of maxilla with a medial ridge; fourth pleural scute small....  | <i>Orlitia</i> (p. 152)         |
| 10b. Triturating surface of maxilla without a medial ridge; fourth pleural scute not noticeably smaller than other pleurals.....                                       | <i>Siebenrockiella</i> (p. 166) |
| 11a. Triturating surface of maxilla with one (most species) or two medial ridges; five claws on the forefoot.....  | 12                              |
| 11b. Triturating surface of maxilla with two ridges; four claws on the forefoot.....   | <i>Batagur</i> (p. 105)         |
| 12a. Ridge on triturating surface of maxilla sharp and well defined.....   | 13                              |
| 12b. Ridge on triturating surface of maxilla reduced or indistinct.....  | 15                              |
| 13a. Fourth vertebral much longer than wide.....   | <i>Kachuga</i> (p. 130)         |
| 13b. Fourth vertebral wider than long.....   | 14                              |
| 14a. Neck with numerous dark-bordered yellow stripes.....  | <i>Ocadia</i> (p. 150)          |
| 14b. Neck without stripes.....   | <i>Callagur</i> (p. 106)        |
| 15a. Ridge on triturating surface of maxilla present, but reduced and indistinct.....  | 16                              |
| 15b. No ridge on triturating surface of maxilla.....   | <i>Chinemys</i> (p. 107)        |
| 16a. Carapace posteriorly serrated (though sometimes weakly); a single longitudinal keel present....   | <i>Iliremys</i> (p. 129)        |
| 16b. Carapace not posteriorly serrated (but with a single medial notch); three longitudinal keels present.....   | <i>Malayemys</i> (p. 138)       |
| 17a. Carapace with only a single longitudinal keel.....  | 18                              |

EMYDIDAE; BATAGURINAE

- 17b. Carapace with three longitudinal keels.....19
- 18a. One or two pairs of light-colored ocelli present on back of head.....*Sacalia* (p. 164)
- 18b. No light-colored ocelli present on back of head.....*Rhinoclemmys* (p. 154)
- 19a. Carapace unserrated, or only slightly serrated posteriorly.....20
- 19b. Carapace strongly serrated posteriorly.....22
- 20a. Dorsolateral carapacial keels low, but pronounced, in adults.....*Melanochelys* (p. 145)
- 20b. Dorsolateral carapacial keels barely noticeable in adults.....21
- 21a. Plastral buttresses very strongly developed.....*Annamemys* (p. 104)
- 21b. Plastral buttresses only moderately developed.....*Mauremys* (in part) (p. 139)
- 22a. Upper jaw medially hooked.....23
- 22b. Upper jaw not medially hooked.....24
- 23a. Intergular seam shortest of the medial seams separating the plastral scutes..*Geoemyda* (p. 122)
- 23b. Intergular seam not shortest of the medial seams separating the plastral scutes.....  
.....*Heosemys* (in part) (p. 125)
- 24a. Upper jaw medially notched.....*Heosemys* (in part) (p. 139)
- 24b. Upper jaw not medially notched.....*Mauremys* (in part)

Phylogenetic hypothesis: (after Hirayama, 1984, and Gaffney and Meylan, 1988)



## EMYDIDAE; BATAGURINAE

*Annamemys* Bourret, 1939:15  
Annam Leaf Turtles

**Type species:** *Annamemys merkleni* Bourret (1939) [= *Cyclemys annamensis* Siebenrock (1903a)], by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini. See Comment under *Annamemys annamensis*. This taxon should probably be synonymized with the genus *Mauremys* (Iverson, in prep.).

*Annamemys annamensis* (Siebenrock, 1903a:341)  
Annam Leaf Turtle

**Original name:** *Cyclemys annamensis*

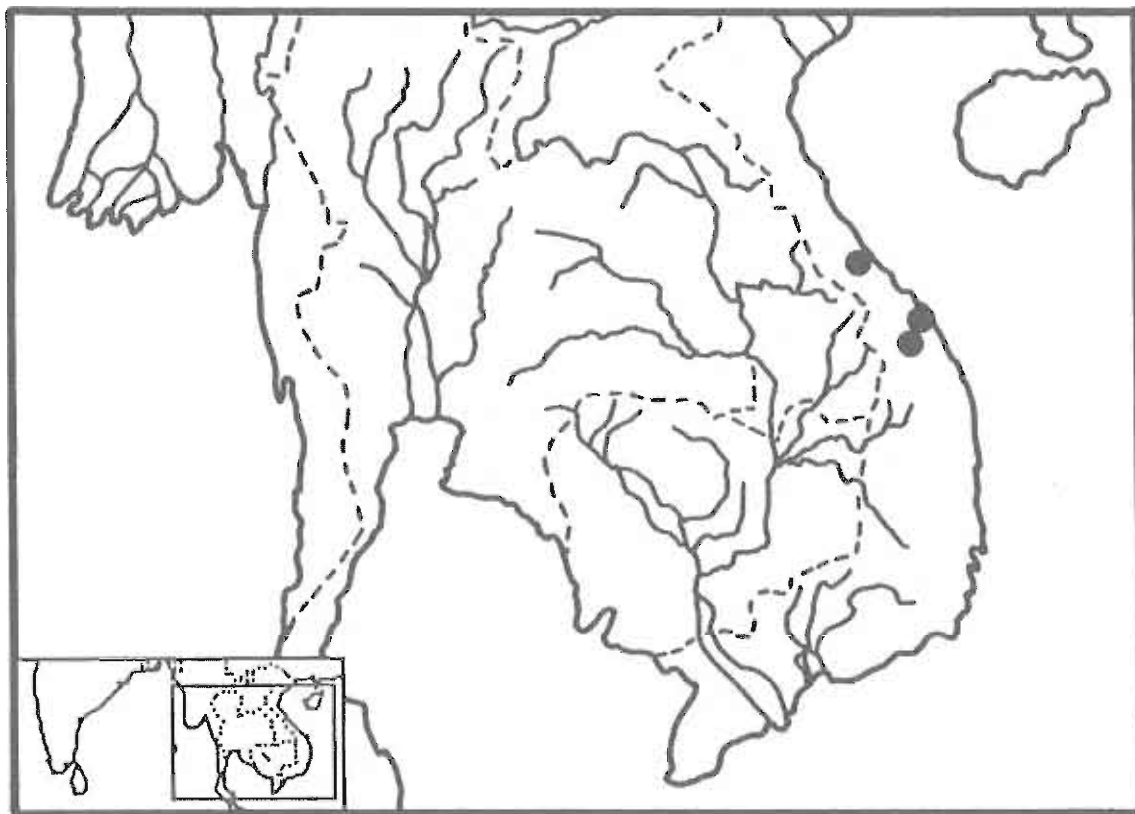
**Holotype:** NMW 23394

**Type locality:** "Annam (Phuc-Son)" [= southwest of Tourane (= Da Nang), central Annam, Vietnam]

**Distribution:** Known only from central Vietnam

**Subspecies:** None

**Comment:** The synonymy of this taxon with *Mauremys* (= *Chinemys*) *nigricans* (actually *Mauremys mutica*) by McDowell (1964) was incorrect according to Pritchard (1979) and Iverson and McCord (1989). McDowell apparently considered only juveniles; the adults of *M. mutica* and *A. annamensis* are distinctly different (Iverson, unpublished), although apparently closely related. Reviewed by Smith (1931; as *Cyclemys annamensis*), Bourret (1941; as *Cyclemys annamensis* and *Annamemys merkleni*) and Savage (1953).



## EMYDIDAE; BATAGURINAE

*Batagur* Gray, 1855:35  
River Terrapins

**Type species:** *Emys baska* Gray (1831 "1830-1835"), by subsequent designation by Smith (1931:134)

**Distribution:** As for the single species.

**Comment:** Tribe Batagurini.

*Batagur baska* (Gray, 1831 "1830-35":Plate 75)  
River Terrapin

**Original name:** *EMYS BASKA*

**Holotype:** Not located; specimen illustrated in Gray's original paper

**Type locality:** Not stated; "India" according to Gray (1831b:23)

**Distribution:** eastern India and Bangladesh through Burma, Thailand, Kampuchea (= Cambodia), and Malaya to Sumatra, Indonesia

**Subspecies:** Two poorly defined subspecies are recognized by some authors:

*B. b. baska* (Gray 1831 "1830-35":Fig. 75) Common river terrapin [Holotype: see above; type locality: see above; range: as for the species, except for coastal Ranong Province, Thailand]

*B. b. ranongensis* Wirot (1979:181) Ranong river terrapin [Holotype: notdesignated; type locality: "at the mouth of rivers in Ranong Province", Thailand; range: apparently known only from the type locality]

**Comment:** Reviewed by Smith (1931), Bourret (1941), Taylor (1970), Moll (1980), Groombridge (1982), Tikader and Sharma (1985), and Das (1991).



## EMYDIDAE; BATAGURINAE

*Callagur* Gray, 1870c:53  
Painted Terrapins

**Type species:** *Batagur picta* Gray (1862) [= *Emys borneoensis* Schlegel and Müller (1844)], by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini. Very closely related to *Kachuga* according to McDowell (1964) and Pritchard (1979).

*Callagur borneoensis* (Schlegel and Müller, 1844:30)  
Painted terrapin

**Original name:** *Emys borneoensis*

**Holotype:** RMNH 6210; see de Rooij (1915:291)

**Type locality:** "Borneo"

**Distribution:** Malaya and Sarawak (Borneo), Malaysia and Sumatra and Kalimantan (Borneo), Indonesia

**Subspecies:** None

**Comment:** Reviewed by Moll et al. (1981) and Groombridge (1982).



## EMYDIDAE; BATAGURINAE

*Chinemys* Smith, 1931:116  
Chinese Pond Turtles

**Type species:** *Emys Reevesii* Gray (1831b), by monotypy

**Distribution:** southeastern and eastern Asia

**Comment:** Tribe Batagurini. See Bour (1980a) for generic overview.

**Key to the species:**

- 1a. Carapace with only a single, pronounced medial keel .....*C. nigricans* (p. 107)  
1b. Carapace with three longitudinal keels .....*C. reevesii* (p. 108)

*Chinemys nigricans* (Gray, 1834a:53)  
Red-necked Pond Turtle

**Original name:** *Emys nigricans*

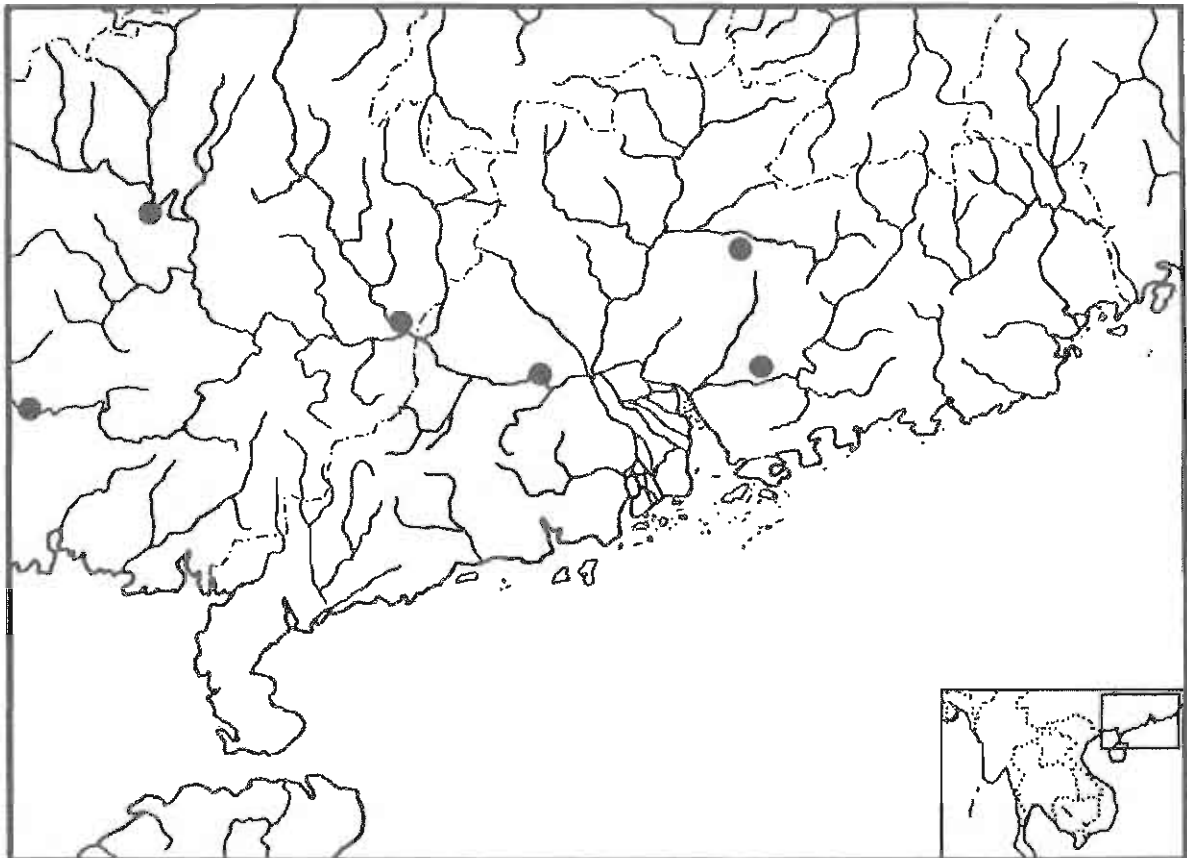
**Holotype:** BMNH 1947.3.5.35

**Type locality:** "in Chinā prope Canton"

**Distribution:** southeastern China, possibly restricted to the river basins draining into the bay near Canton (= Guangzhou), Guangdong and Guangxi provinces, China (PRC); however, it may also range into northern Vietnam (Felix, 1965) and on Hainan Island (McCord, pers. comm.).

**Subspecies:** None, although some geographic variation has been noted (Iverson and McCord, 1989).

**Comment:** Reviewed by Fang (1934), Pope (1935; as *Geoclemys kwangtungensis*), Bourret (1941; as *Chinemys kwangtungensis*), and Iverson and McCord (1989). Iverson and McCord (1989) showed that this taxon includes *Chinemys kwangtungensis* (Pope, 1934) as used by most recent authors (e.g., Pritchard, 1979; Ernst and Barbour, 1989).





## EMYDIDAE; BATAGURINAE

*Chinemys reevesii* (Gray, 1831b:73)  
Reeves' Turtle

**Original name:** *Emys Reevesii*

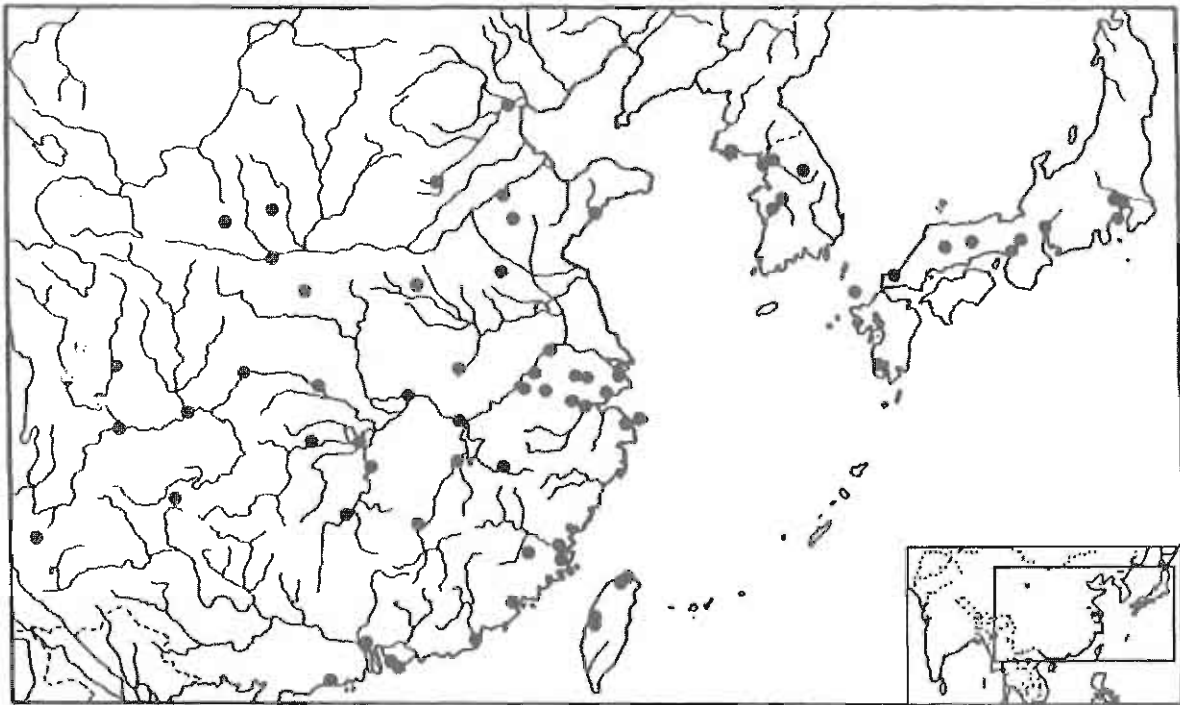
**Holotype:** Not located

**Type locality:** "China"

**Distribution:** China (PRC), Korea, Taiwan, and Japan; introduced in the USA and Canada

**Subspecies:** None, but see Comment

**Comment:** Reviewed by Stejneger (1907; as *Geoclemys reevesii*), Smith (1931; as *Chinemys reevesii*), and Pope (1935; as *Geoclemys reevesii*). Although the study by Lovich, Ernst, and Gotte (1985) showed little intraspecific geographic variation, that by Iverson, Ernst, Gotte, and Lovich (1989) suggested that significant subspecific variation exists. The latter authors synonymized *Chinemys megaloccephala* Fang (1934:158) with *Chinemys reevesii*.



## EMYDIDAE; BATAGURINAE

*Cuora* Gray, 1855:41  
Asian Box Turtles

**Type species:** *Testudo amboinensis* Daudin (1802), by subsequent designation of Stejneger (1907:503).

**Distribution:** southern Asia to Sulawesi and Philippines

**Comment:** Tribe Batagurini. Bour (1980a:158) and Hirayama (1984:147) removed the highly terrestrial species *flavomarginata* and *galbinifrons* from *Cuora* and placed them in the separate genus *Cistoclemmys* Gray (1963a:175); however, this arrangement has not been accepted by most subsequent authors (e.g., Lorenz, 1984; Ernst and Barbour, 1989; Ernst and Lovich, 1990; McCord and Iverson, 1991; Rummler and Fritz, 1991). Reviewed by McCord and Iverson (1991). A new species from northern Vietnam is being described by McCord and Iverson.

**Key to the species:** (after McCord and Iverson, 1991)

- 1a. Plastron without a posterior anal notch .....2
- 1b. Plastron with a distinct posterior anal notch .....4
- 2a. Carapace usually with lateral 70 to 80% of pleurals lightly colored (e.g., white, cream or yellow); if lower part of pleurals mostly dark, then light color organized into anterolaterally directed starburst on each scute.....*C. galbinifrons* (p. 113)
- 2b. Carapace with lower 70 to 80% of pleurals uniformly darkly colored (e.g., brown or black).....3
- 3a. A single thinly black-bordered lemon-yellow temporal stripe extending back from posterodorsal margin of each orbit; tympanum light brown to orange, but never yellow.....*C. flavomarginata* (p. 112)
- 3b. Three yellow stripes on each side of head, one from tip of snout to dorsal margin of tympanum to neck and two from nostrils through orbit to neck; tympanum yellow or cream .....*C. amboinensis* (p. 110)
- 4a. Carapace with three longitudinal black stripes; head with broad, black postorbital stripe enclosing an elongate brown or olive triangle behind the eye and a narrow brown or olive bar dorsal to, and extending posterior from, the tympanum .....*C. trifasciata* (p. 116)
- 4b. Carapace without three longitudinal black stripes; head with yellow, orange, or brown stripes on each side.....5
- 5a. Chin darkly mottled; head brown with two narrow light stripes extending posteriorly from orbit .....*C. yunnanensis* (p. 117)
- 5b. Chin without dark mottling; head yellow or olive.....6
- 6a. Plastron mostly black, but with large central, yellow blotch; interfemoral seam length more than 53% of interpectoral seam length.....*C. zhoui* (p. 118)
- 6b. Plastron partly to mostly black, with dark pigment generally associated with the scute seams; interfemoral seam length less than 53% of interpectoral seam length .....7
- 7a. Plastron mostly black, with dark pigment not associated only with seams; carapace domed; head with orange temporal stripe .....*C. mccordi* (p. 114)
- 7b. Plastron partly black, with dark pigment concentrated near seams; carapace not domed; head with yellow, brown or olive temporal stripe.....8
- 8a. Dark pigment on plastron arranged in rectangular bars associated with the seams; carapace olive-brown with lighter brown vertebrals; head olive with darker brown and/or black markings.....*C. pani* (p. 115)
- 8b. Dark pigment on plastron associated with seams, but usually streaked rather than rectangular; carapace brown with reddish vertebrals; head lemon yellow.....*C. aurocapitata* (p. 111)

**Phylogenetic hypothesis:** None has been published, although Hirayama (1984) argued that the genus is not monophyletic (see phylogeny for Batagurinae: p. 103)

## EMYDIDAE; BATAGURINAE

### *Cuora amboinensis* (Daudin, 1802:309) Southeast Asian Box Turtle

**Original name:** *Testudo amboinensis*

**Holotype:** MNHN, according to Bourret (1941:149); although Bour (in Rummeler and Fritz 1991:36) reported that the type was lost at sea before Daudin ever saw it.

**Type locality:** "Amboine" [= Amboina Island, Indonesia]

**Distribution:** eastern India and Bangladesh through Burma to Thailand and Vietnam to the Malay Peninsula and throughout the Malayan archipelago east to Timor, Sulawesi, Ceram, and Amboina (Indonesia) and the Philippines

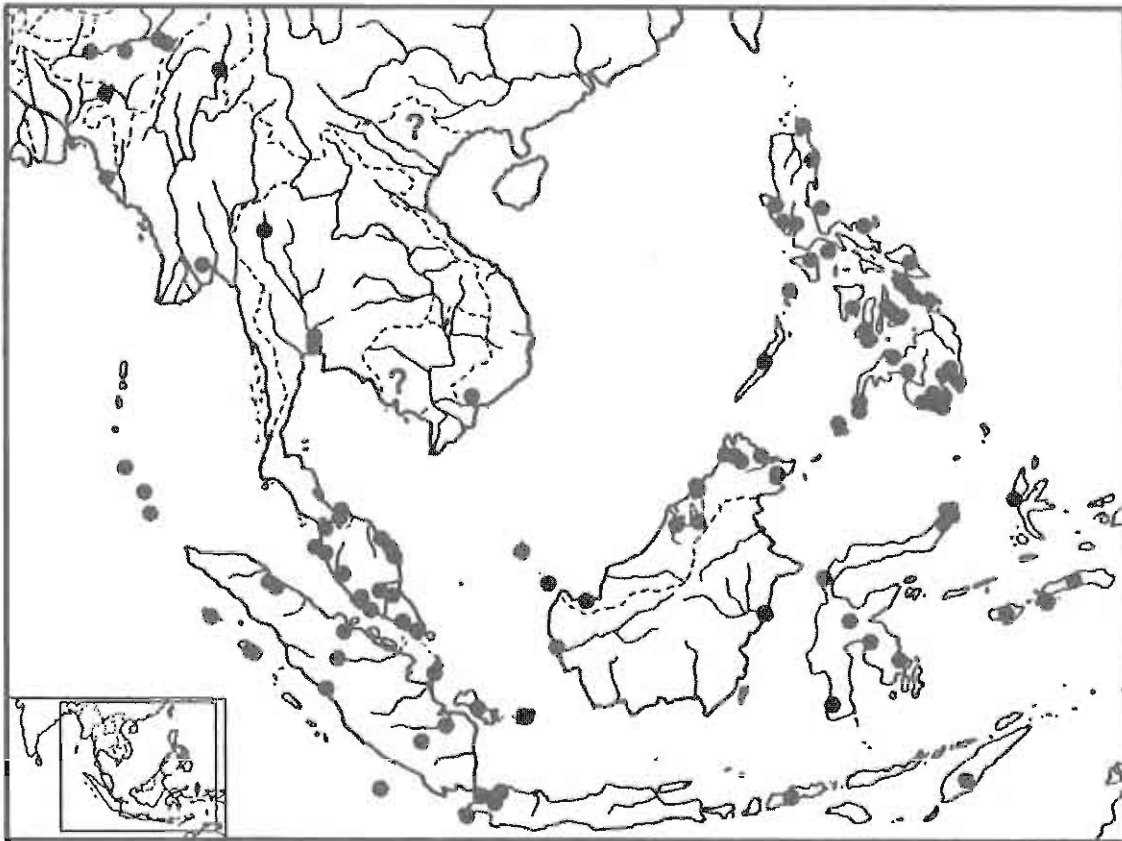
**Subspecies:** Three are recognized:

*C. a. amboinensis* (Daudin 1802:309) East Indian box turtle [Holotype: see above; type locality: see above; range: Philippine Islands to Sulawesi and the Moluccas in Indonesia]

*C. a. couro* (Schweigger 1812:315) West Indonesian box turtle [Holotype: MNHN 7931; type locality: "Java"; range: Sumatra and Java and nearby islands, Indonesia]

*C. a. kamaroma* Rummeler and Fritz (1991:39) Southeast Asian box turtle [Holotype: ZMH R-00277; type locality: "circa 50 km nördlich von Bangkok, Thailand"; range: India and Bangladesh through southeast Asia to Malaysia and Borneo]

**Comment:** Reviewed by Bourret (1941), Taylor (1970), Das (1991; in India), and Rummeler and Fritz (1991).



## EMYDIDAE; BATAGURINAE

*Cuora aurocapitata* Luo and Zong, 1988:13  
Yellow-headed Box Turtle

**Holotype:** Shanghai Museum of Natural History 86/012

**Type locality:** "Nanling County, Anhui" [Prov., China (PRC)]

**Distribution:** Known only from the type locality

**Subspecies:** None

**Comment:** Ernst (1988a) described his concept of *Cuora pani*, which actually represented *C. aurocapitata*.  
See McCord and Iverson (1991) for clarification.



## EMYDIDAE; BATAGURINAE

*Cuora flavomarginata* (Gray, 1863a:175)  
Yellow-margined Box Turtle**Original name:** *Cistoclemmys flavomarginata***Syntypes:** (2 specimens) BMNH 1947.3.5.50 and 1947.3.5.68**Type locality:** "China...; Formosa"; data with types are "Tamsuy, North West Formosa" [= Taiwan] and "China?", respectively, (see also Boulenger, 1889:135); listed as "Tamsui, Formosa" by Stejneger (1907:503) and Fang (1934:170), and formally restricted to "Tamsuy, NW-Formosa" by Mertens and Wermuth (1955:347).**Distribution:** southern China (PRC), Taiwan, and the Ryukyu Islands (Japan)**Subspecies:** Three are recognized:*C. f. flavomarginata* (Gray 1863a:175) Common yellow-margined box turtle [Syntypes: see above; type locality: see above; range: Taiwan]*C. f. evelynae* Ernst and Lovich (1990:31) Ryukyu yellow-margined box turtle [Holotype CAS 26113; type locality: "Ishigaki Shima, Ryukyu Island, Japan"; range: Ryukyu Islands, Japan]*C. f. sinensis* (Hsü 1930:1) Chinese yellow-margined box turtle [Syntypes: (2 specimens) Biological Lab. Sci. Soc. China (MBLSS) 1174-75; type locality: Kü-shan [= Chusan], Tungting Lake, Hunan, China; range: southern China]**Comment:** Reviewed by Stejneger (1907; as *Cyclenmys flavomarginata*), Smith (1931), Pope (1935; as *Cyclenmys flavomarginata*), and McCord and Iverson (1991). The latter authors showed that the elevation of the Ryukyu Islands populations to the full species *C. evelynae* by Ernst and Lovich (1990:31) was not warranted; it is a weakly defined subspecies at best.

## EMYDIDAE; BATAGURINAE

### *Cuora galbinifrons* Bourret, 1939:11 Indochinese Box Turtle

**Syntypes:** (4 specimens): Originally NUH T 54 (now MNHN 1948-36), 55, 59 (now in the MHNT), 60 (now MNHN 1948-37); T-54 and T-59 illustrated in the original description

**Type locality:** "Tam-Dao ...., Bach-Ma (Annam) ....., Linh-Cam (Ha-Tinh, Annam)", Vietnam

**Distribution:** From Tonkin and Annam in Vietnam to southern Guangxi Prov. and Hainan Island, China (PRC)

**Subspecies:** None, although *C. hainanensis* (Li, 1958:234) may be subspecifically distinct (Iverson and McCord, unpublished) and another subspecies is being described by Iverson and McCord (1992b).

**Comment:** Reviewed by Bourret (1941), Buskirk (1988), Weiss (1989), and McCord and Iverson (1991).



## EMYDIDAE; BATAGURINAE

*Cuora mccordi* Ernst, 1988b:446  
McCord's Box Turtle

**Holotype:** USNM 281850

**Type locality:** "highland near Paise, Guangxi Province, China (23° 54'N, 106° 37'E)" [PRC]; although apparently collected in nearby Yunnan Province according to McCord and Iverson (1991:412)

**Distribution:** Known only from the region of the type locality

**Subspecies:** None

**Comment:** Reviewed by McCord and Iverson (1991).



## EMYDIDAE; BATAGURINAE

*Cuora pani* Song, 1984:330  
Pan's Box Turtle

**Holotype:** SIZ 80170

**Type locality:** "Xujiaba (alt. 420 m) of Pingli county in Shaanxi Province." [China, PRC]

**Distribution:** Known only from the type locality and Ta Lau Shan in Yunnan Province, China (as *C. chriskarannarum*; see Comment)

**Subspecies:** None

**Comment:** Ernst (1988a) misunderstood the description of *C. pani*; his concept of this species was actually based on *C. aurocapitata*. *C. chriskarannarum* (Ernst and McCord, 1987:624) is apparently synonymous with this species (Philippen, in Stubbs, 1989; McCord and Iverson, 1991). Reviewed by McCord and Iverson (1991).





## EMYDIDAE; BATAGURINAE

*Cuora trifasciata* (Bell, 1825:305)  
Chinese Three-striped Box Turtle

**Original name:** *Sternothaerus trifasciatus*

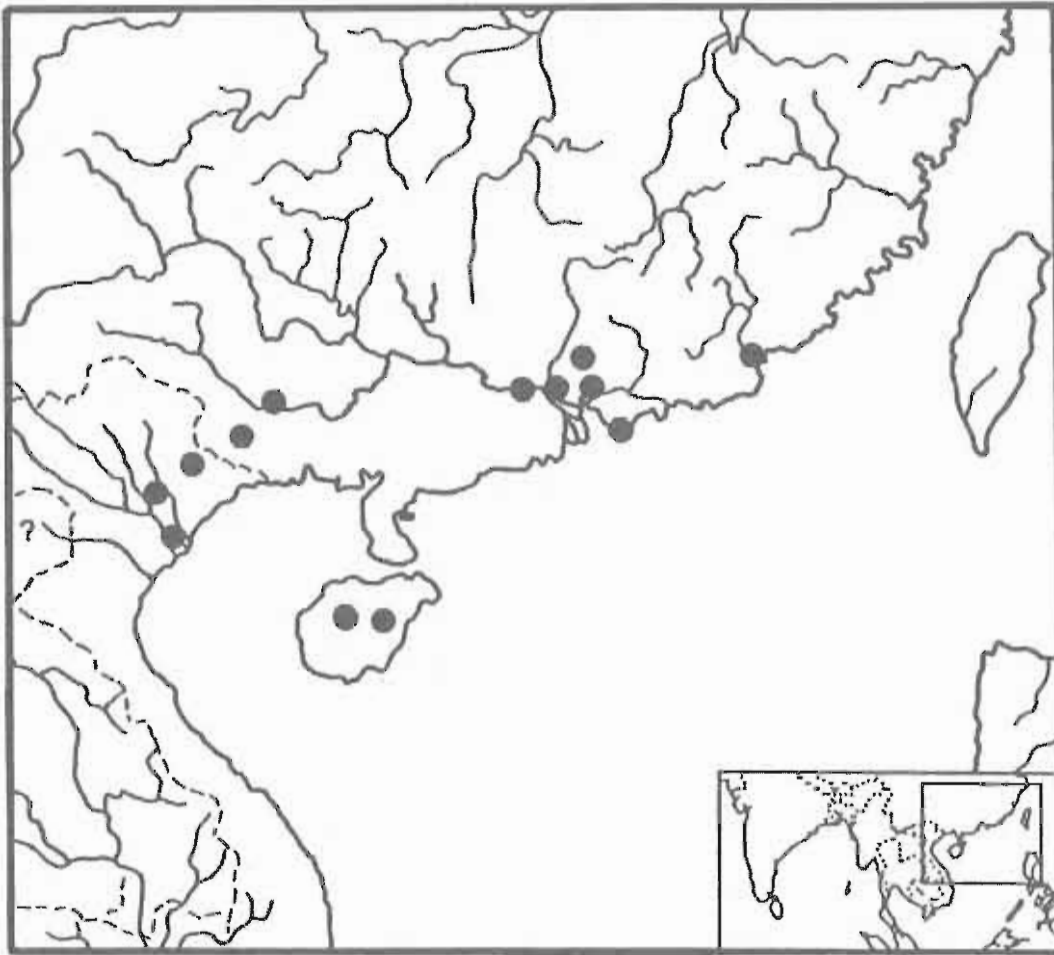
**Holotype:** Not located

**Type locality:** Not stated

**Distribution:** northern Vietnam to Guangxi, Guangdong, Fujian, and Hainan Dao provinces, China (PRC); possibly also in northern Burma (Myanmar)

**Subspecies:** None

**Comment:** Reviewed by Smith (1931), Pope (1935; as *Cyclemys trifasciata*), and Bourret (1941).



## EMYDIDAE; BATAGURINAE

*Cuora yunnanensis* (Boulenger, 1906:567)  
Yunnan Box Turtle

**Original name:** *Cyclenys yunnanensis*

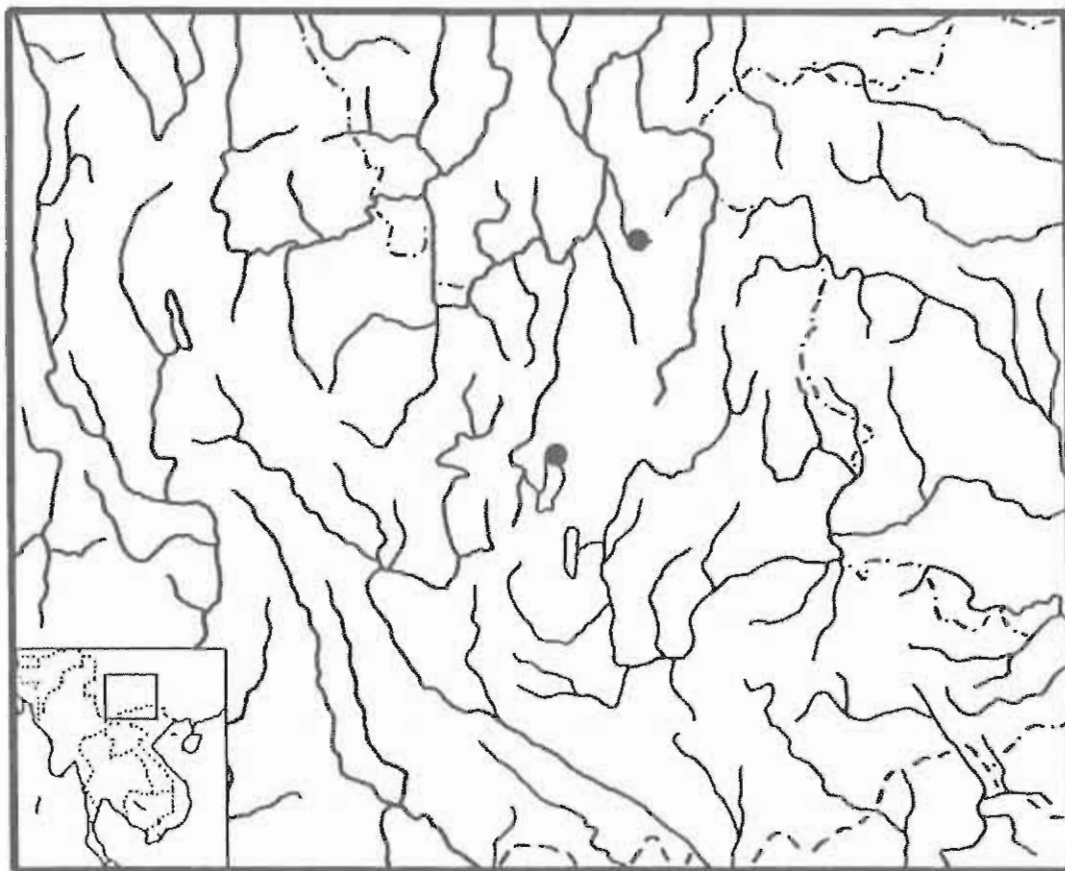
**Syntypes:** (6 specimens) BMNH 1946.1.22.97-99 and 1946.1.23.1-3

**Type locality:** "Yunnan fu" [= Kunming] and "Tongchuan fu [= Dongchuan]" [Yunnan, China (PRC)]

**Distribution:** Known only from the type locality

**Subspecies:** None

**Comment:** Reviewed by Smith (1931), Pope (1935; as *Cyclenys yunnanensis*), Ernst (1988a), and McCord and Iverson (1991).



## EMYDIDAE; BATAGURINAE

*Cuora zhoui* Zhao, 1990:213 in Zhao et al., 1990  
Zhou's Box turtle

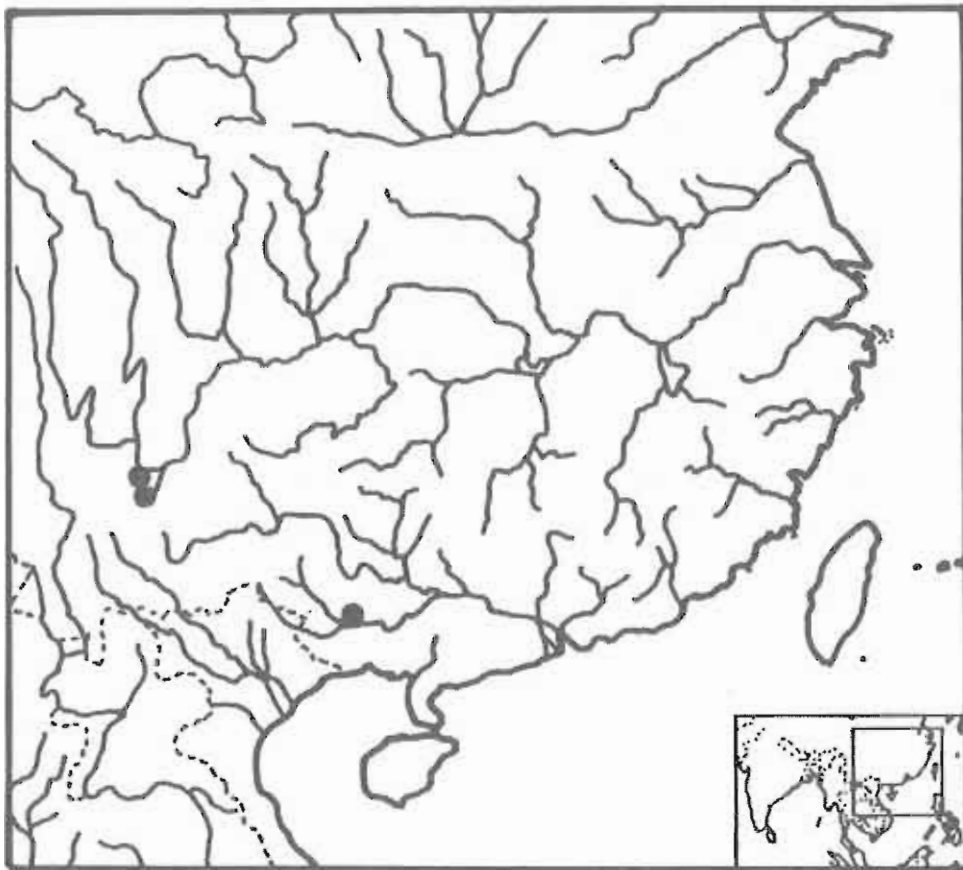
**Holotype:** NTM (Nanjing Turtle Museum) 9001

**Type locality:** "vicinity of Nanning, Guangxi Zhuang Autonomous Region, China" [PRC]

**Distribution:** Known only from Guangxi and Yunnan Provinces, China (PRC)

**Subspecies:** None

**Comment:** Includes *Cuora pallidicephala* McCord and Iverson, 1991 (whose manuscript was submitted more than a month before the types of *C. zhoui* were even purchased). Reviewed by McCord and Iverson (1991).



## EMYDIDAE; BATAGURINAE

### *Cyclemys* Bell, 1834:17 Asian Leaf Turtles

**Type species:** *Cyclemys orbiculata* Bell (1834) [= *Emys dentata* Gray (1831b)], by monotypy

**Distribution:** northeastern India to Vietnam and the Philippines and the western Indo-Australian Archipelago

**Comment:** Tribe Batagurini.

**Key to the species:**

- 1a. The stripes present on sides of neck only rarely reach the side of head near corner of mouth.....*C. dentata* (p. 119)
- 1b. Several stripes present on sides of neck extend to the orbit and occasionally continue to the snout.....*C. tcheponensis* (p. 120)

### *Cyclemys dentata* (Gray, 1831b:20, Errata) Asian Leaf Turtle

**Original name:** *Emys dentata*

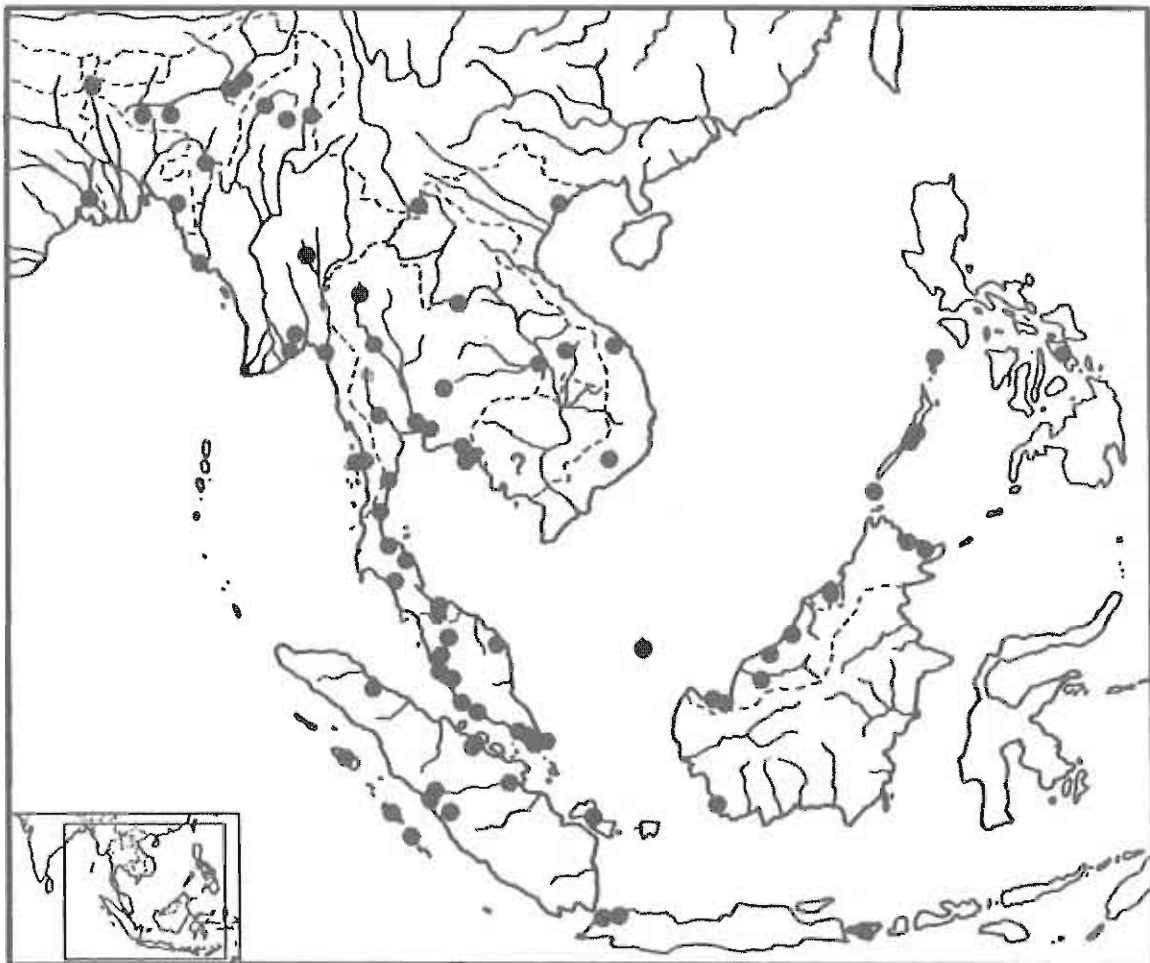
**Syntypes:** (2 specimens) BMNH 1946.1.22.62-63

**Type locality:** "Bengal [India] ... Java [Indonesia]"; restricted to "Java" by Smith (1931:80)

**Distribution:** eastern India (and possibly eastern Nepal) to Vietnam and southern China (PRC), the Malay Peninsula and Sumatra and Java, Indonesia and east to the Philippines

**Subspecies:** None

**Comment:** Reviewed by Smith (1931), Bourret (1941), Taylor (1970), Tikader and Sharma (1985; in India), and Das (1991; in India). Includes *Cyclemys tiannanensis* Kou (1989:193) according to Das (1991) and Iverson (unpublished).



## EMYDIDAE; BATAGURINAE

*Cyclemys tcheponensis* (Bourret, 1939:7)  
Stripe-necked Leaf Turtle

**Original name:** *Geoemyda tcheponensis*

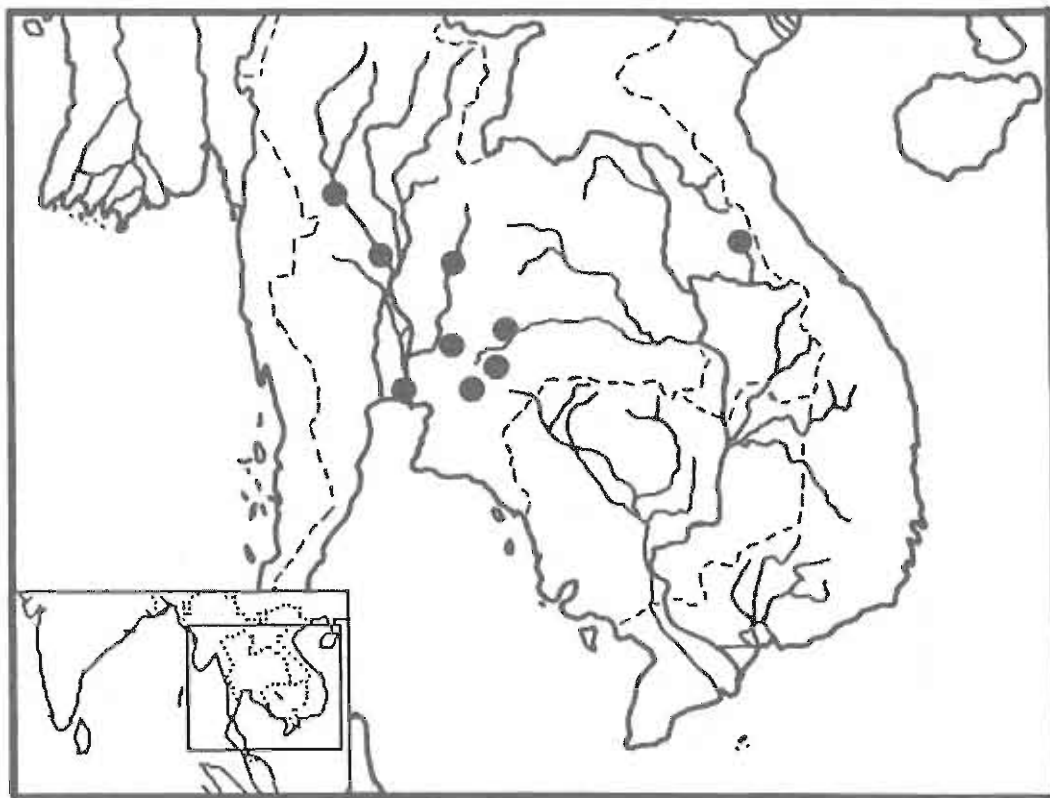
**Holotype:** NUH T.43; illustrated in the original description

**Type locality:** "Haute S -Bang-Hien, (centre de la Cha ne annamitique)" [Vietnam]

**Distribution:** Thailand to Vietnam

**Subspecies:** None

**Comment:** Synonymous with *Cyclemys dentata* according to McDowell (1964) and Das (1991), but removed from that synonymy by McMorris (1976). Reviewed by Bourret (1941; as *Geoemyda tcheponensis*).



## EMYDIDAE; BATAGURINAE

*Geoclemys* Gray, 1855:17  
Spotted Pond Turtles

**Type species:** *Emys Hamiltonii* Gray (1831b:21) by subsequent designation of Stejneger (1907:496).

**Distribution:** As for the only species

**Comment:** Tribe Batagurini.

*Geoclemys hamiltonii* (Gray, 1831b:21)  
Spotted Pond Turtle

**Original name:** *Emys Hamiltonii*

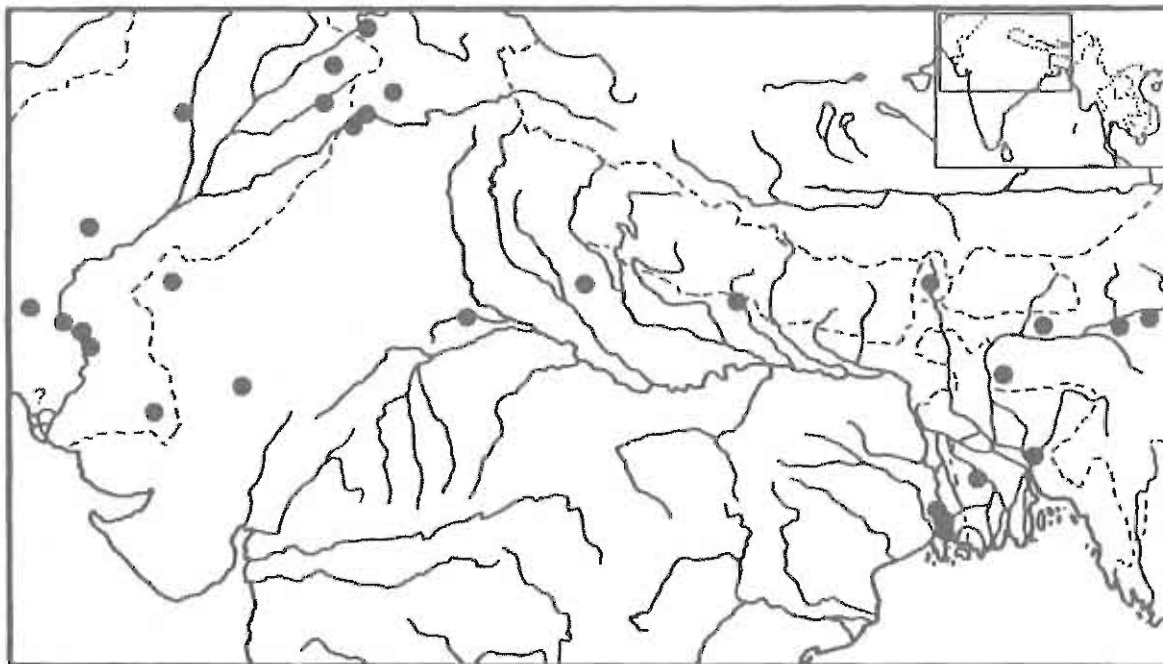
**Holotype:** BMNH 1947.3.4.41 (presumably the specimen illustrated by Gray, 1831 "1830-35": plate 76 [as *EMYS GUTTATA*], according to Smith, 1931:111); although OUM 8477 is apparently labelled as a syntype.

**Type locality:** "India"

**Distribution:** Indus and Ganges river basins of Pakistan, northern India, (probably) Nepal, and Bangladesh

**Subspecies:** None

**Comment:** Reviewed by Smith (1931), Tikader and Sharma (1985), and Das (1991).



## EMYDIDAE; BATAGURINAE

### *Geoemyda* Gray, 1834b:100 Leaf Turtles

**Type species:** *Testudo spengleri* Gmelin (1789), by subsequent designation of Lindholm (1929:282)

**Distribution:** southwestern India and Indochina to China and the Ryukyu Islands

**Comment:** Tribe Geomydini. Lorenz (1984) and Moll et al. (1987) discussed the composition of this genus and the genus *Heosemys*.

**Key to the species:**

- 1a. Posterior margin of carapace not strongly serrated.....*G. silvatica* (p. 122)  
1b. Posterior margin of carapace strongly serrated.....*G. spengleri* (p. 123)

### *Geoemyda silvatica* Henderson, 1912:217 Cochin Forest Cane Turtle

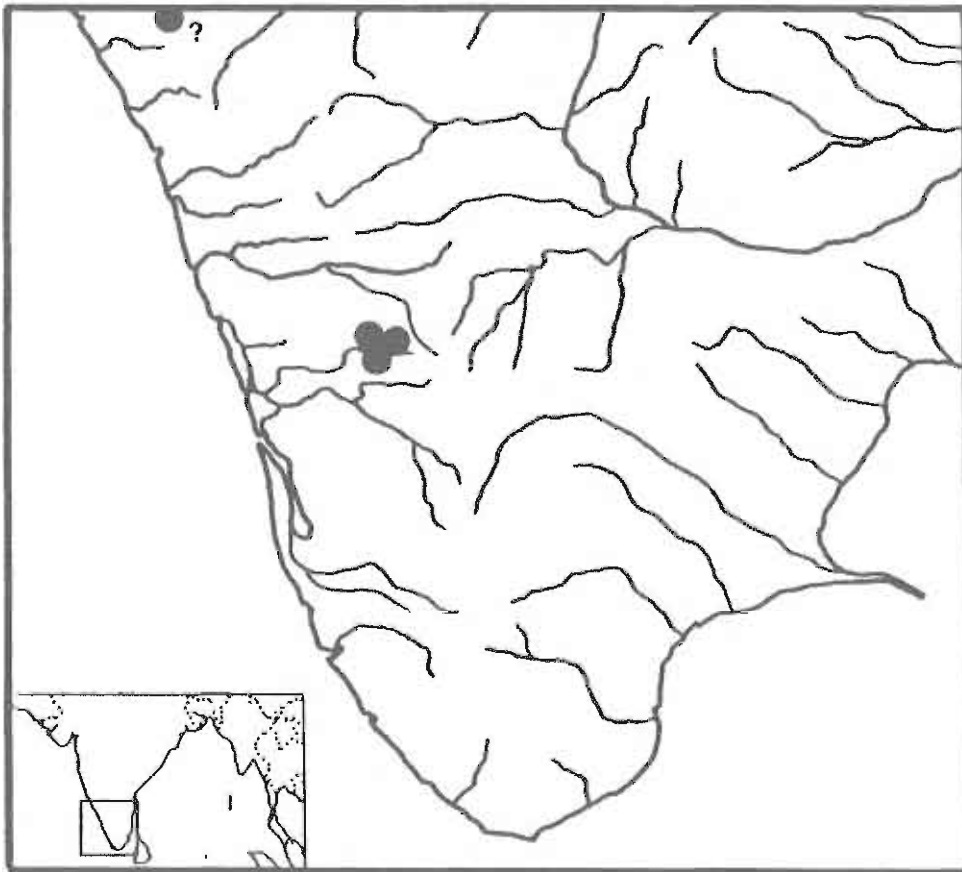
**Holotype:** Not stated; ZSI 17115 according to Das (pers. comm.)

**Type locality:** "Near Kavalai in the Cochin State Forests, inhabiting dense forest, at an elevation of about 1500 feet above sea level" [India]

**Distribution:** southwestern India near the type locality

**Subspecies:** None

**Comment:** Reviewed by Smith (1931), Groombridge (1982; as *Heosemys silvatica*), Vijaya (1982a; as *Heosemys silvatica*), Vijaya (1982b; as *Heosemys (Geoemyda) silvatica*), Vijaya (1982c; as *Heosemys [sic] silvatica*), Groombridge et al. (1983; as *Heosemys silvatica*), Tikader and Sharma (1985; as *Heosemys silvatica*), Moll et al. (1987), and Das (1991). Removed from the genus *Heosemys* by Lorenz (1984) and Moll et al. (1987).



## EMYDIDAE; BATAGURINAE

### *Geoemyda spengleri* (Gmelin, 1789:1043) Black-breasted Leaf Turtle

**Original name:** *Testudo Spengleri*

**Holotype:** Not located, although figured in the original description.

**Type locality:** Not given, but based on Walbaum's (1785:122-131) description of a turtle from "vermuthlich.....Ostindien".

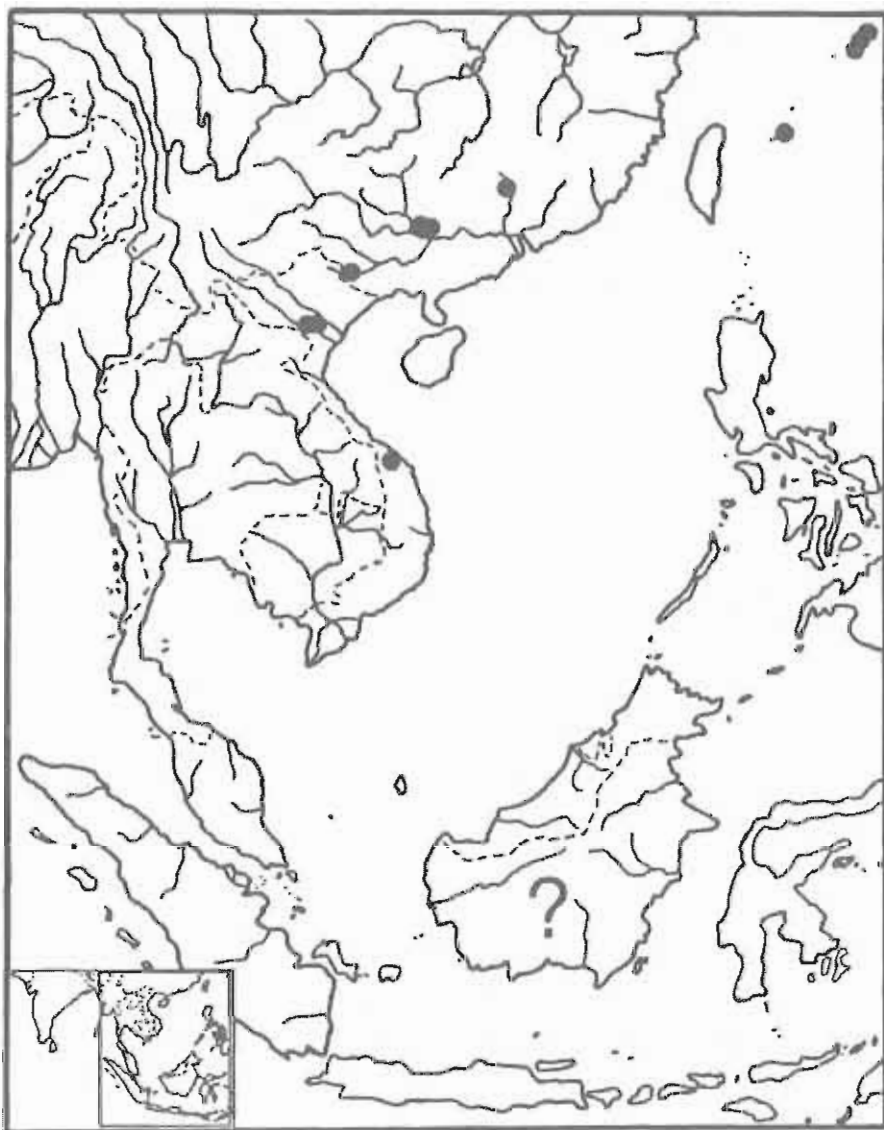
**Distribution:** Okinawa in the Ryukyu Islands and southern China (PRC) to Indochina; early records for "Borneo" (Boettger, 1893) and "Sumatra" (de Rooij, 1915) are in error

**Subspecies:** Two are recognized:

*G. s. spengleri* (Gmelin, 1789:1043) Common black-breasted leaf-turtle [Holotype: see above; type locality: see above; range: southern China (PRC) to Indochina]

*G. s. japonica* Fan (1931:148) Okinawa black-breasted leaf turtle [Holotype: not designated; type locality: "Japan and other Pacific Islands"; range: Japan]

**Comment:** Gmelin based his name on Walbaum's (1785) description, which lacked a Latin name (Pope, 1935; Zhao and Adler, 1992). Reviewed by Stejneger (1907), Smith (1931), Pope (1935), and Bourret (1941).





## EMYDIDAE; BATAGURINAE

*Hardella* Gray, 1870c:58  
Crowned River Turtles

**Type species:** *Emys thurjii* Gray (1831b), by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini.

*Hardella thurjii* (Gray, 1831b:22)  
Crowned River Turtle

**Original name:** *Emys thurjii*

**Holotype:** Assumed to be in the BMNH since it is illustrated in Gray, 1831 "1830-35": plate 73 as *EMYS THUJI*, although no specimen is listed in their catalog or in Boulenger (1889:66); however, OUM 8433-34 are listed in their catalogue as syntypes (Das, pers. comm.)

**Type locality:** "India"

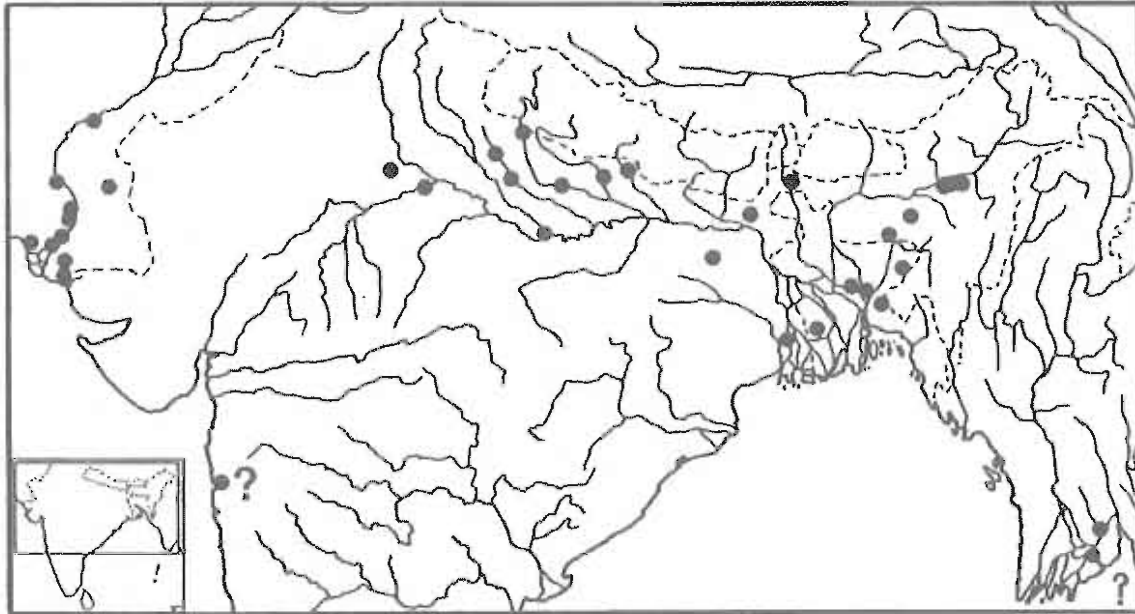
**Distribution:** Indus and Ganges-Brahmaputra river systems in Pakistan, northern India, (probably) Nepal, and Bangladesh; a record from near Bombay, India (Grumwaldt, 1980) is probably in error

**Subspecies:** Two are recognized:

*H. t. thurjii* (Gray 1831b:22) Ganges Crowned River turtle [Holotype: see above; type locality: see above; range: Ganges river basin]

*H. t. indi* Gray (1870c:58) Indus Crowned River Turtle [Holotype: BMNH 1947.3.4.74; type locality: "Indus River" [Pakistan]; range: Indus river basin]

**Comment:** Reviewed by Smith (1931: as *Hardella thurji*), Tikader and Sharma (1985: as *Hardella thurji*), and Das (1991). *Hardella indi* (Gray, 1870c:58) is variably recognized as a synonym of *H. thurjii* (many recent authors), a separate species (McDowell, 1964), or a subspecies of *H. thurjii* (Wermuth and Mertens, 1977:40). It is recognized here as a subspecies pending further taxonomic study.



## EMYDIDAE; BATAGURINAE

*Heosemys* Stejneger, 1902b:238  
Forest Turtles

**Type species:** *Emys spinosa* Gray (1831b) by original designation

**Distribution:** Burma to Vietnam and Malaya; Sumatra; Borneo; Java; Philippines

**Comment:** Tribe Geoemydini. Lorenz (1984) and Moll et al. (1987) discussed the species composition of this genus and the genus *Geoemyda*. Stejneger (1902b:238) cites himself (1902a:216) as author of the genus name.

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Medial vertebral keel present on all five vertebral scutes.....2
- 1b. Medial vertebral keel absent, or if present, only on the posterior vertebral scutes.....*H. leytensis* (p. 127)
- 2a. Anterior margin of carapace unserrated.....3
- 2b. Anterior margin of carapace strongly serrated.....*H. spinosa* (p. 128)
- 3a. Carapace high, but flattened across the vertebral scutes; carapace large, to 43 cm.....*H. grandis* (p. 126)
- 3b. Carapace low and flat; medium sized, to 24 cm.....*H. depressa* (p. 125)

**Phylogenetic hypothesis:** None has been published

*Heosemys depressa* (Anderson, 1875:284)  
Arakan Forest Turtle

**Original name:** *Geoemyda depressa*

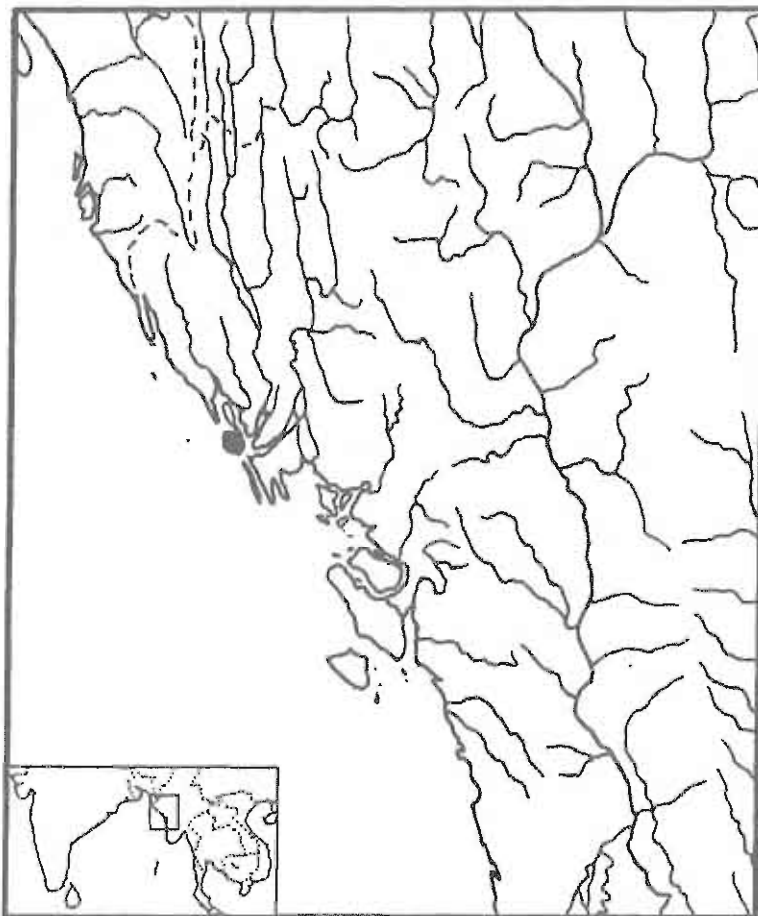
**Holotype:** possibly BMNH 87.3.30.1, but ZSI 751 according to Das (pers. comm.)

**Type locality:** "Arakan" [Burma]; restricted to "Akyab, near Arakan" [Burma], by Smith (1931:95)

**Distribution:** presumably the Arakan Hills, Burma (Myanmar), but not collected since its original discovery

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Geoemyda depressa*) and Bourret (1941; as *Geoemyda depressa*).



## EMYDIDAE; BATAGURINAE

*Heosemys grandis* (Gray, 1860a:218)  
Giant Asian Pond Turtle

**Original name:** *Geoemyda grandis*

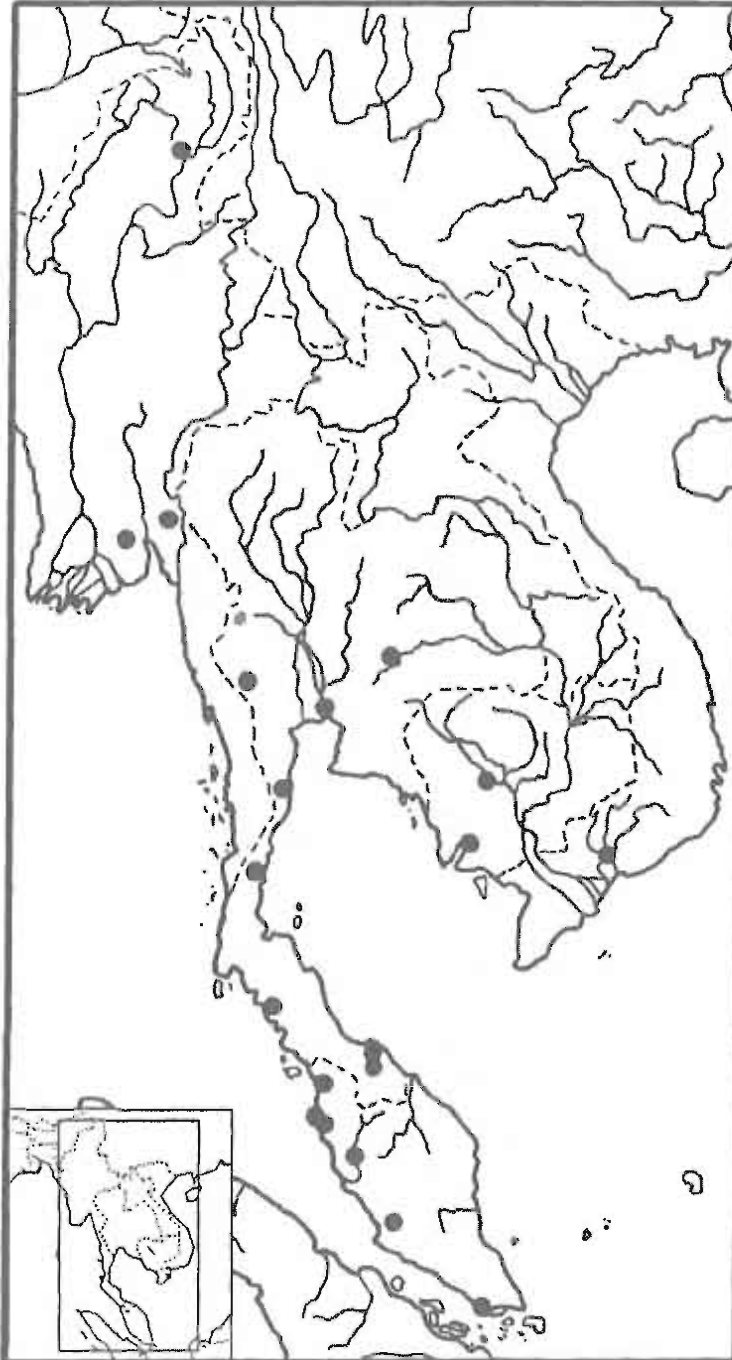
**Syntypes:** (2 specimens) BMNH 1947.3.4.7 and 1947.3.4.55, although the BMNH catalog records a third specimen (BMNH 1947.3.4.56) from "Pachebone" which may also be syntypical.

**Type locality:** "Camboja" [= Kampuchea = Cambodia]

**Distribution:** Burma to Vietnam and south through Malaya (Malaysia)

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Geoemyda grandis*), Bourret (1941; as *Geoemyda grandis*), and Taylor (1970).



## EMYDIDAE; BATAGURINAE

*Heosemys leytensis* Taylor, 1920:131  
Philippine Pond Turtle

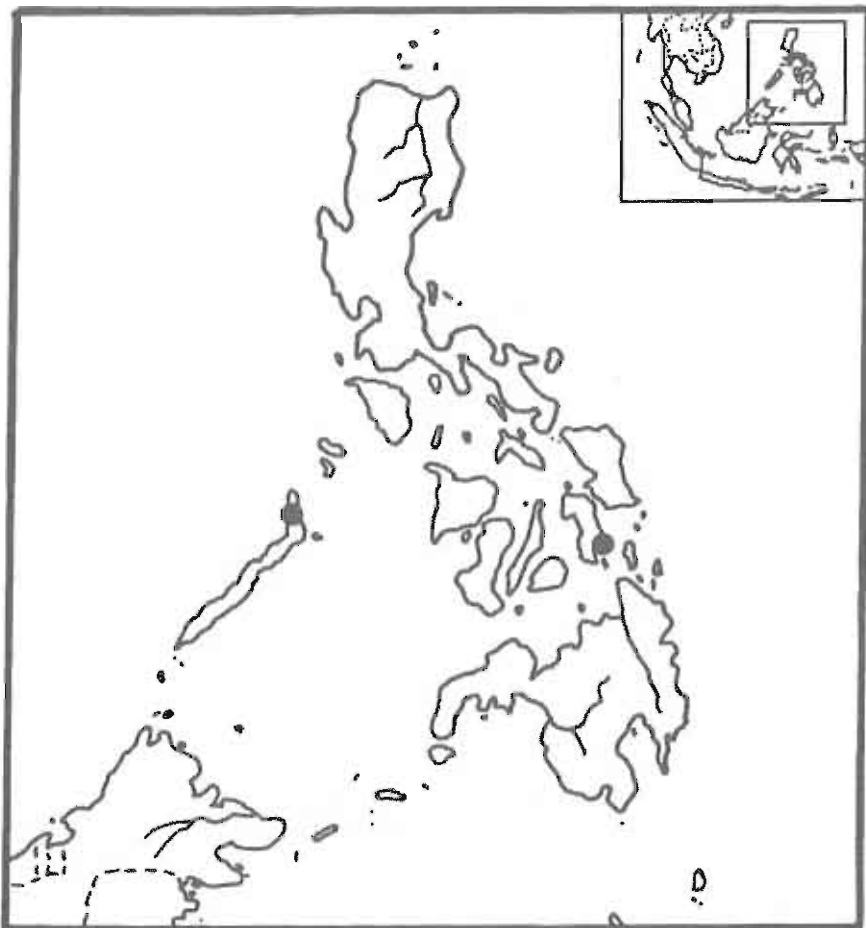
**Holotype:** "An unnumbered specimen in the zoölogical laboratory, University of the Philippines"; transferred to the Bureau of Science according to Taylor (1944:160) and destroyed (along with the paratype) during World War II; CAS 60930 designated neotype by Euzark (1989:226)

**Type locality:** "Cabalian, southern Leyte" [Philippines]

**Distribution:** Leyte Island and Palawan Island, Philippines

**Subspecies:** None

**Comment:** Lorenz (1984) suggested that this species may be more properly placed in the genus *Geoemyda*.



## EMYDIDAE; BATAGURINAE

*Heosemys spinosa* (Gray, 1831b:20)  
Spiny Turtle

**Original name:** *Emys spinosa*

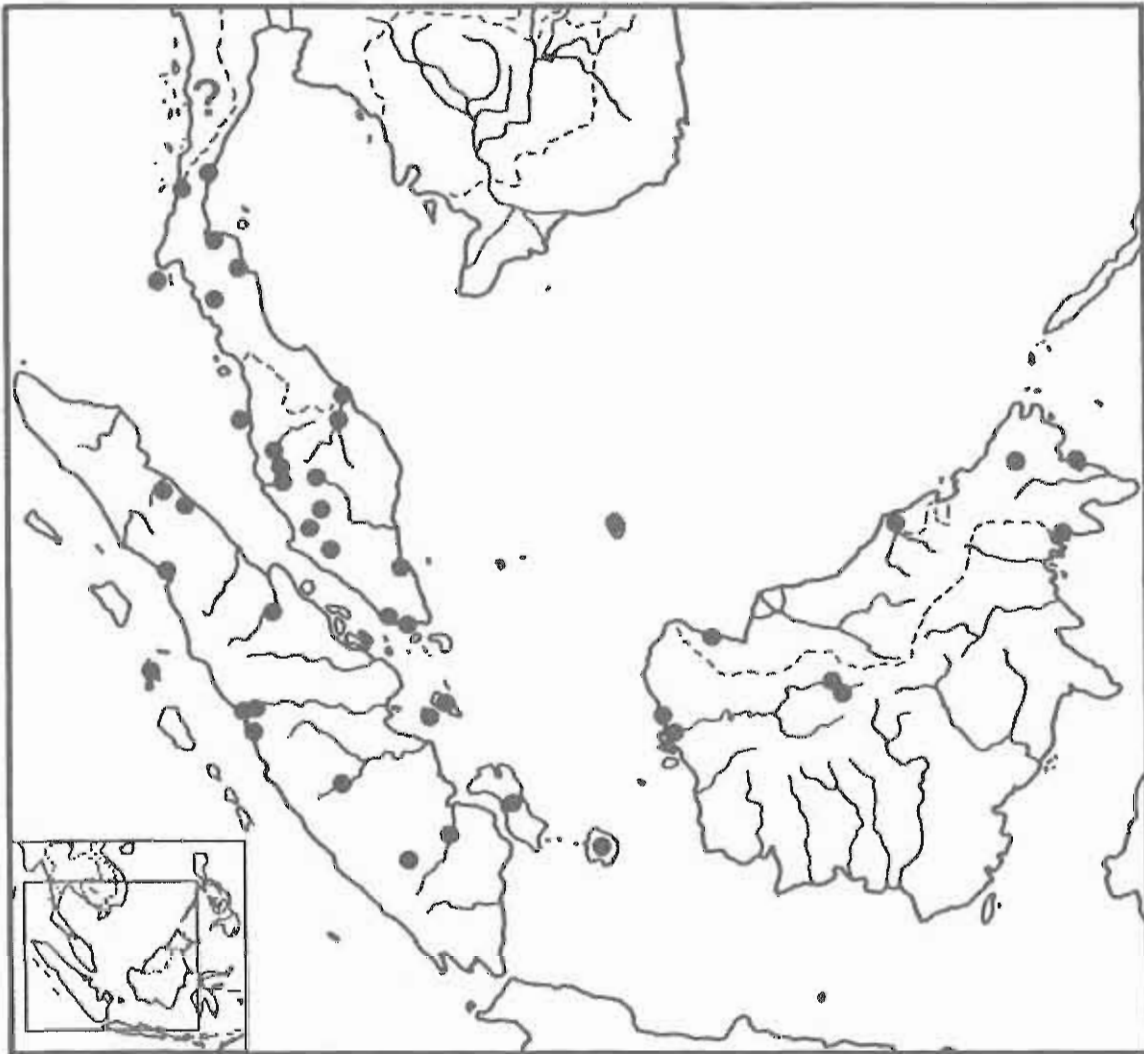
**Holotype:** presumably in the BMNH since it is illustrated in Gray, 1831 "1830-35": Plate 77 as *EMYS SPINOSAE*, but not identified as such in Boulenger (1889:138); however, Bourret (1941:159) suggested that the type is specimen "c" in Boulenger (1889:138); that is, BMNH 62.8.28.1.

**Type locality:** "apud Penang" [Malaya, Malaysia]

**Distribution:** Thailand and possibly southern Burma (Myanmar) south through Malaysia to Sumatra and Kalimantan (Indonesia), including numerous small Indonesian islands

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Geoemyda spinosa*), Bourret (1941; as *Geoemyda spinosa*), and Taylor (1970).



## EMYDIDAE; BATAGURINAE

*Hieremys* Smith, (1916:50)  
Yellow-headed Temple Turtles

**Type species:** *Cyclemys annandalii* Boulenger (1903), by monotypy

**Distribution:** As for the only species

**Comment:** Tribe Batagurini.

*Hieremys annandalii* (Boulenger, 1903:142)  
Yellow-headed temple turtle

**Original name:** *Cyclemys annandalii*

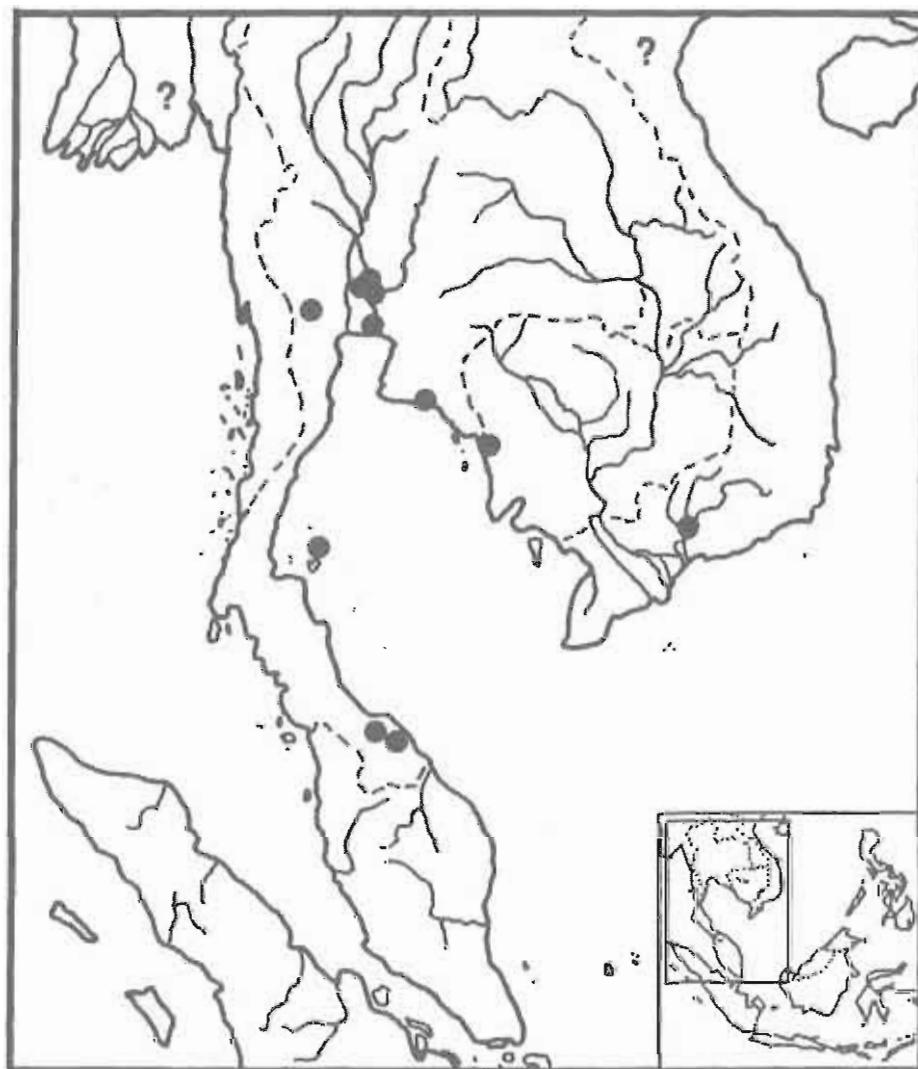
**Syntypes:** (3 specimens) BMNH 1947.3.5.62 and 1946.1.22.67-68

**Type locality:** "Kampong Jalor" [Patani, Malaya]

**Distribution:** Vietnam to Thailand to the northern Malay Peninsula

**Subspecies:** None

**Comment:** The species name has been erroneously spelled *annandalei* by some authors (e.g., Smith, 1916:50). Reviewed by Smith (1931), Bourret (1941), and Taylor (1970).



## EMYDIDAE; BATAGURINAE

*Kachuga* Gray, 1869a:186, 200  
Indian Roofed Turtles

**Type species:** *Kachuga trilineata* Gray (1869a) [= *Emys trivittata* Duméril and Bibron, 1835:331] by subsequent designation of Smith (1931:124)

**Distribution:** southern Asia

**Comment:** Tribe Batagurini. Reviewed by Smith (1931), Bourret (1941) and Moll (1985, 1986, 1987). Most closely related to the genera *Batagur*, *Callagur*, *Hardella* and *Morenia* according to Moll (1986:540). Subgenera in species accounts (i.e., *Kachuga* and *Pangshura*) follow Moll (1985, 1986, 1987).

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Fourth vertebral scute narrowly pointed anteriorly, only in slight contact with the third vertebral; fourth vertebral covering portions of four (rarely) or five (usually) neural bones.....2
- 1b. Fourth vertebral scute not pointed anteriorly, in broad contact with the third vertebral; fourth vertebral covering portions of four neural bones.....5
- 2a. Fifth vertebral scute widest on anterior half of scute; twenty-six marginal scutes; posterior rim of carapace strongly serrated.....*K. sylhetensis* (p. 134)
- 2b. Fifth vertebral scute widest on posterior half of scute; twenty-four marginal scutes; posterior rim of carapace smooth or only slightly serrated.....3
- 3a. Posterior border of the third vertebral scute straight, not pointed.....*K. smithii* (p. 133)
- 3b. Posterior border of the third vertebral scute with a posteriorly projecting spine-like point.....4
- 4a. At least two black blotches on each plastral scute; second vertebral scute longer than third vertebral scute.....*K. tecta* (p. 135)
- 4b. One or no black blotch on each plastral scute; second vertebral scute shorter than third vertebral scute.....*K. tentoria* (p. 136)
- 5a. Vertebral keel low and obscure; carapace with three conspicuous longitudinal stripes in males, but none in females.....*K. trivittata* (p. 137)
- 5b. Vertebral keel represented as backward projections on second and third vertebrae.....6
- 6a. Posterior border of second vertebral scute pointed backward; a medial vertebral stripe and usually two dorsolateral stripes present on the carapace of both sexes.....*K. dhongoka* (p. 131)
- 6b. Posterior border of second vertebral scute straight, not pointed; carapacial stripes absent.....*K. kachuga* (p. 132)

**Phylogenetic hypothesis:** None has been published, although Capler and Moll (1990) argued that the genus is paraphyletic.

## EMYDIDAE; BATAGURINAE

*Kachuga dhongoka* (Gray, 1835 "1830-35":Plate 60)  
Three-striped Roofed Turtle

**Original name:** *EMYS DHONGOKA*

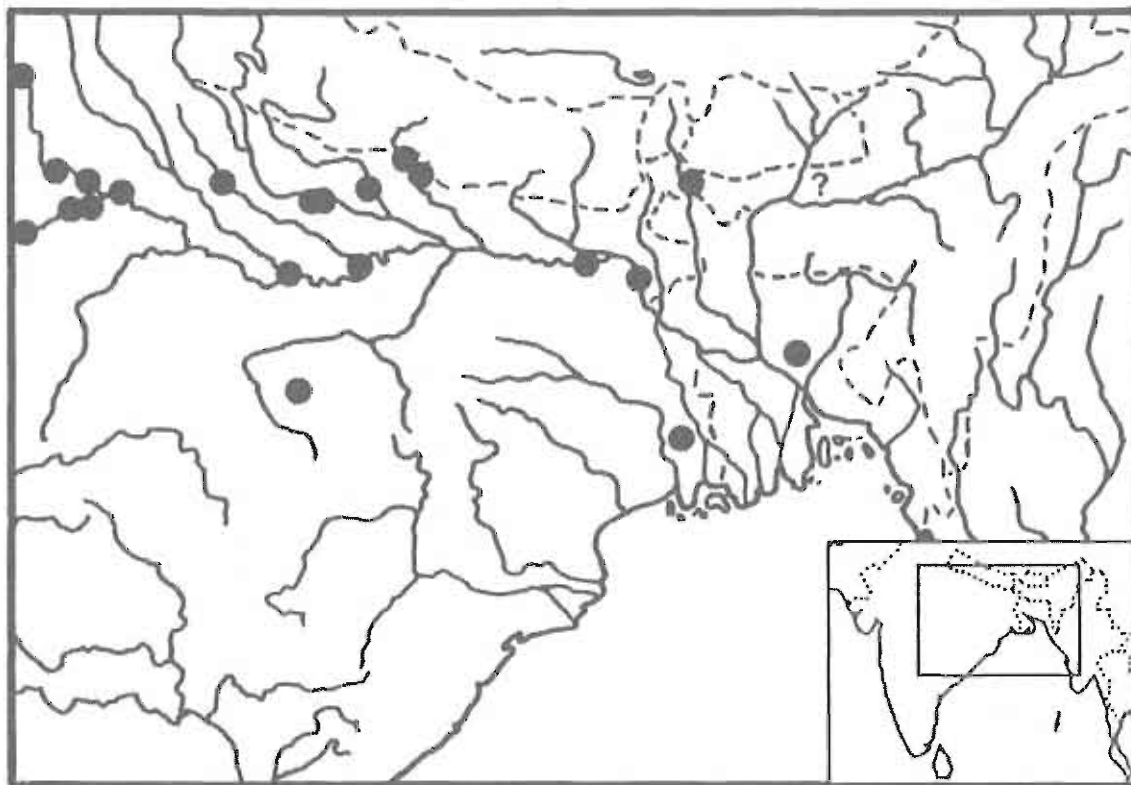
**Holotype:** Not located

**Type locality:** Not stated; restricted by Smith (1931:130) to "N. India"

**Distribution:** Ganges-Brahmaputra river drainage in Nepal, northern India, and Bangladesh

**Subspecies:** None

**Comment:** Subgenus *Kachuga*. Reviewed by Smith (1931), Tikader and Sharma (1985), Moll (1986), and Das (1991).





## EMYDIDAE; BATAGURINAE

*Kachuga kachuga* (Gray, 1831 "1830-35":Plate 74)  
Red-crowned Roofed Turtle

**Original name:** *EMYS KACHUGA*

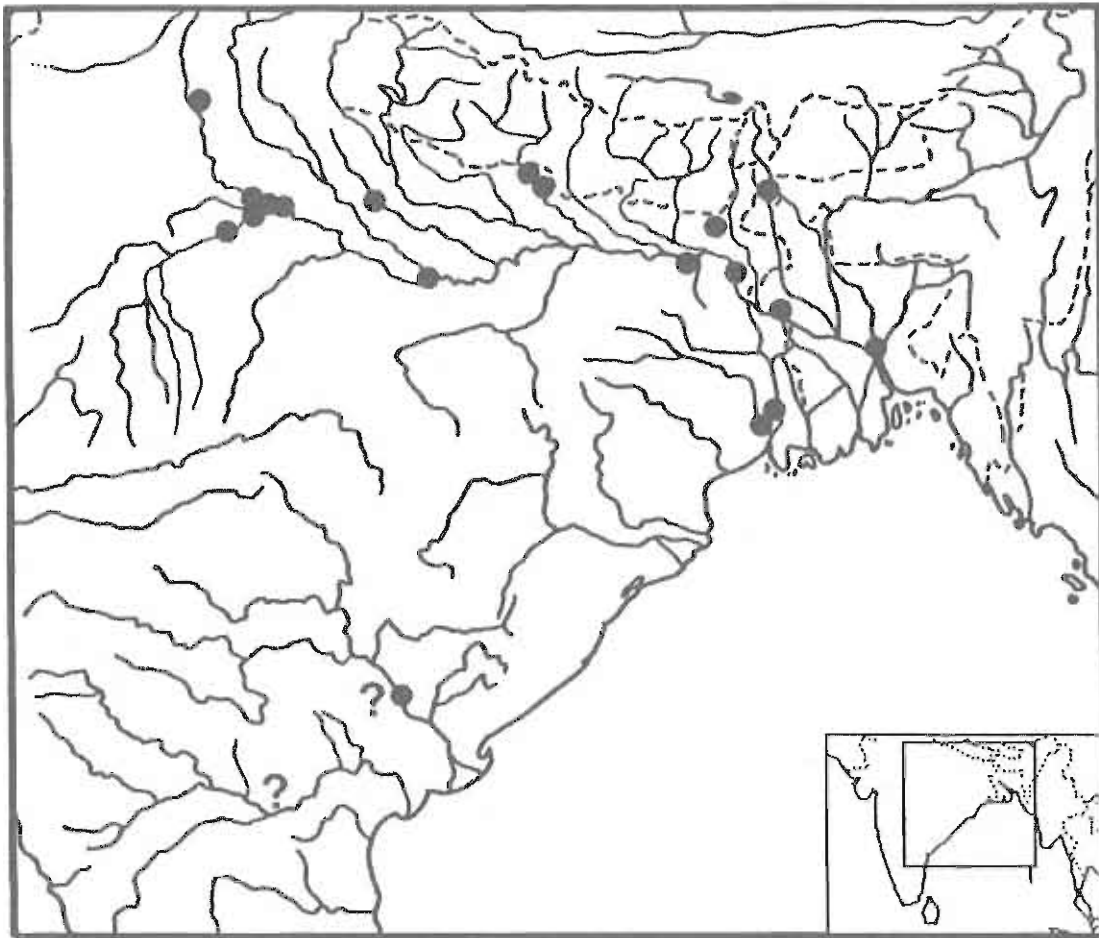
**Holotype:** Not located (presumably originally in the BMNH, since illustrated in the original description)

**Type locality:** "India"; restricted by Smith (1931:131) to "N. India."

**Distribution:** Ganges-Brahmaputra river basin in northern India, southern Nepal, and Bangladesh; records from the Godavari and Krishna river basins on the Indian peninsula are unverified

**Subspecies:** None

**Comment:** Subgenus *Kachuga*. Reviewed by Smith (1931), Bourret (1941), Tikader and Sharma (1985), Moll (1986), and Das (1991).



## EMYDIDAE; BATAGURINAE

### *Kachuga smithii* (Gray, 1863e:253) Brown Roofed Turtle

**Original name:** *Batagur smithii*

**Syntypes:** (2 specimens) BMNH 1947.3.4.69-70

**Type locality:** "North-western India: Punjab; 'River Chenab...'"

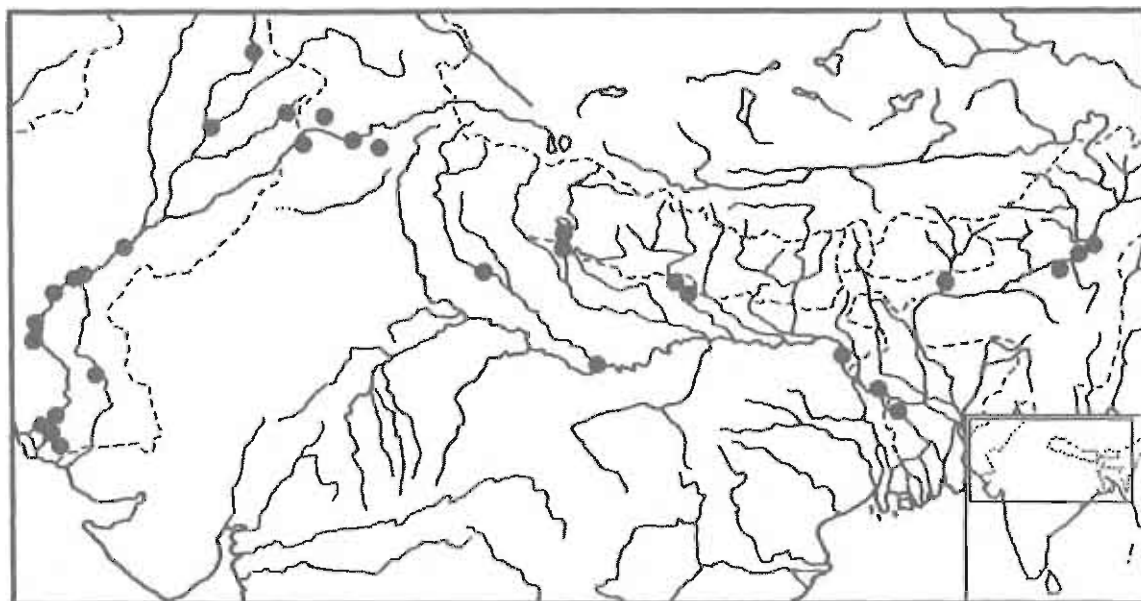
**Distribution:** Indus and Ganges-Brahmaputra river systems in Pakistan, northern India, Nepal and Bangladesh

**Subspecies:** Two are recognized:

*K. s. smithii* (Gray 1863e:253) Brown roofed turtle [Syntypes: see above; type locality: see above; range: Indus and lower Ganges River systems in Pakistan, India and Bangladesh]

*K. s. pallidipes* Moll (1987:8) Pale-footed roofed turtle [Holotype: FMNH 224177; type locality: "Gandak River, Bherihari Wildlife Sanctuary, Bettiah (West Champaran) District, Bihar" [India]; range: northern tributaries of the Ganges River in India and Nepal]

**Comment:** Subgenus *Pangshura*. Reviewed by Smith (1931), Tikader and Sharma (1985), Moll (1987), and Das (1991).



## EMYDIDAE; BATAGURINAE

*Kachuga sylhetensis* (Jerdon, 1870:69)  
Assam Roofed Turtle

**Original name:** *Pangshura Sylhetensis*

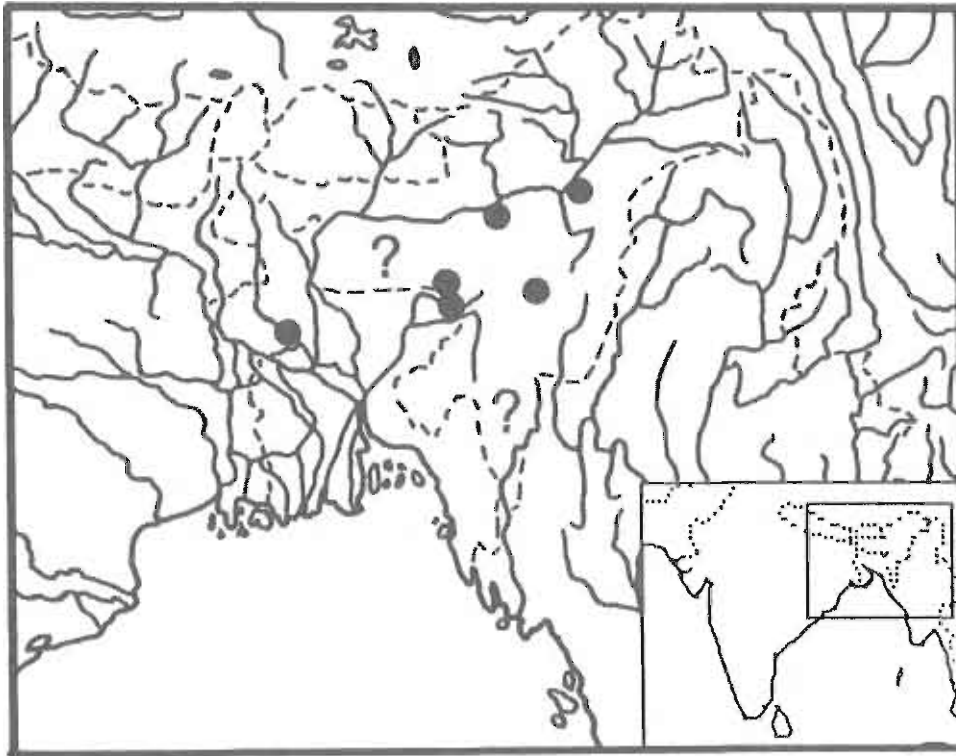
**Syntypes:** (3 specimens) BMNH 1947.3.4.22, 1947.3.4.62-63

**Type locality:** "from the stream that runs from the Terria Ghat at the foot of the Khasi hills" [Sylhet district, Bangladesh]; listed as "Sylhet River, Khasi Hills, Assam" by Wermuth and Mertens (1961:119 and 1977:42)

**Distribution:** Assam, India

**Subspecies:** None

**Comment:** Subgenus *Pangshura*. Reviewed by Smith (1931), Tikader and Sharma (1985), Moll (1987), and Das (1991).



## EMYDIDAE; BATAGURINAE

*Kachuga tecta* (Gray, 1831b:23)  
Indian Roofed Turtle

**Original name:** *Emys tecta*

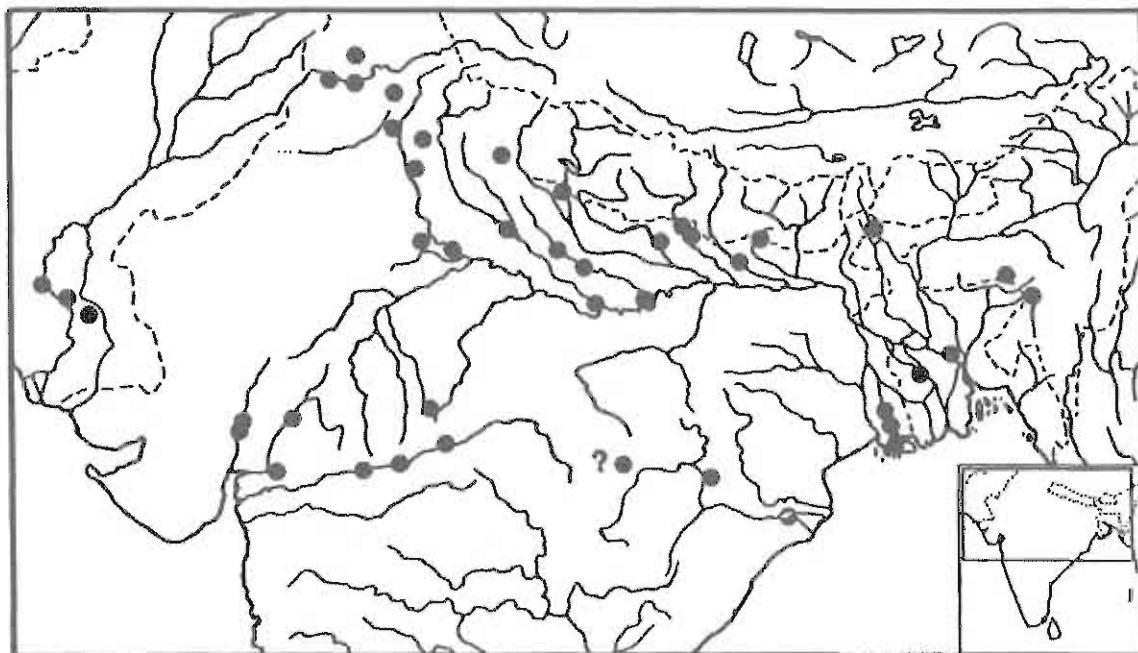
**Holotype:** Not located, although presumably in the BMNH since two specimens were illustrated in Gray (1831 "1830-35": Plate 72 as *EMYS TECTUM*)

**Type locality:** "India"

**Distribution:** Indus to Narmada and Indus-Brahmaputra river basins of Pakistan, northern India, (probably) Nepal, and Bangladesh; also in the Mahanadi basin according to Das (1991)

**Subspecies:** None

**Comment:** Subgenus *Pangshura*. See Comment under *K. tentoria*. Reviewed by Smith (1931; as *Kachuga tectum*), Tikader and Sharma (1985), Moll (1987), and Das (1991).



## EMYDIDAE; BATAGURINAE

*Kachuga tentoria* (Gray, 1834a:54)  
Indian Tent Turtle

**Original name:** *Emys tentoria*

**Holotype:** BMNH 1947.3.4.72

**Type locality:** "in Indiac Orientalis regione Dukhun [= Deccan] dictâ"; restricted by Smith (1931:128) to "Dhond, Poona Dist." [India]

**Distribution:** peninsular India and Bangladesh; recent records from Gujarea (e.g., Vyas and Patel, 1990) need confirmation

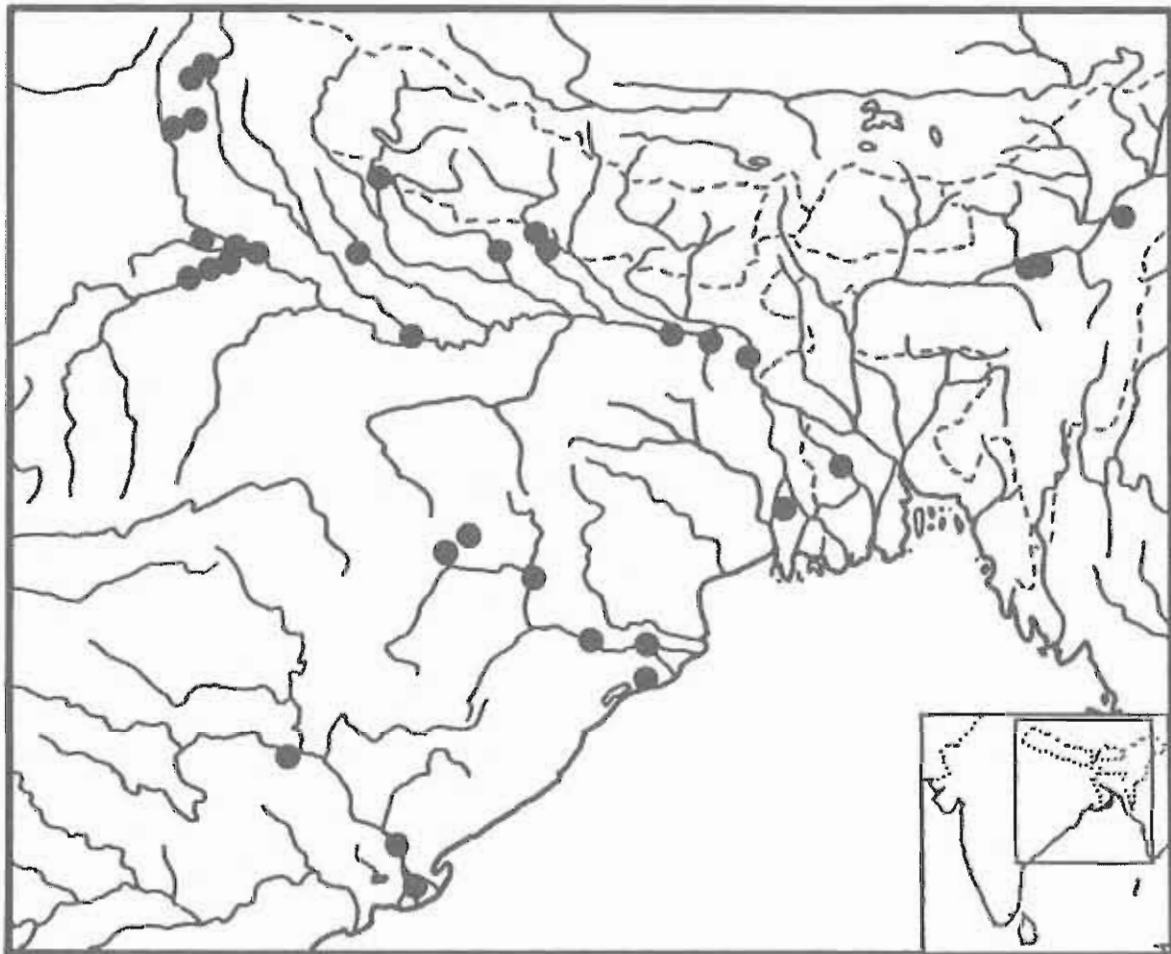
**Subspecies:** Three are recognized:

*K. t. tentoria* (Gray 1834a:54) Indian tent turtle [Holotype: see above; type locality: see above; range: Mahanadi to Krishna drainages of peninsular India]

*K. t. circumdata* Mertens (1969a:24) Pink-ringed tent turtle [Holotype: SMF 52793; type locality: "Meerut, Indici"; range: upper and central Ganges river basin in India.

*K. t. flaviventer* (Günther 1864:35) Yellow-bellied tent turtle [Holotype: BMNH 1947.3.4.82; type locality: none designated; range: northern tributaries of the Ganges from Bihar, India eastward to Bangladesh]

**Comment:** Subgenus *Pangshura*. Sympatric with *Kachuga tecta* in Bangladesh according to Khan (1982) and Moll (1985). Reviewed by Smith (1931; who confused *tecta* and *tentoria*), Tikader and Sharma (1985), Moll (1987) and Das (1991).



## EMYDIDAE; BATAGURINAE

*Kachuga trivittata* (Duméril and Bibron, 1835:331)  
Burmese Roofed Turtle

**Original name:** *Emys trivittata*

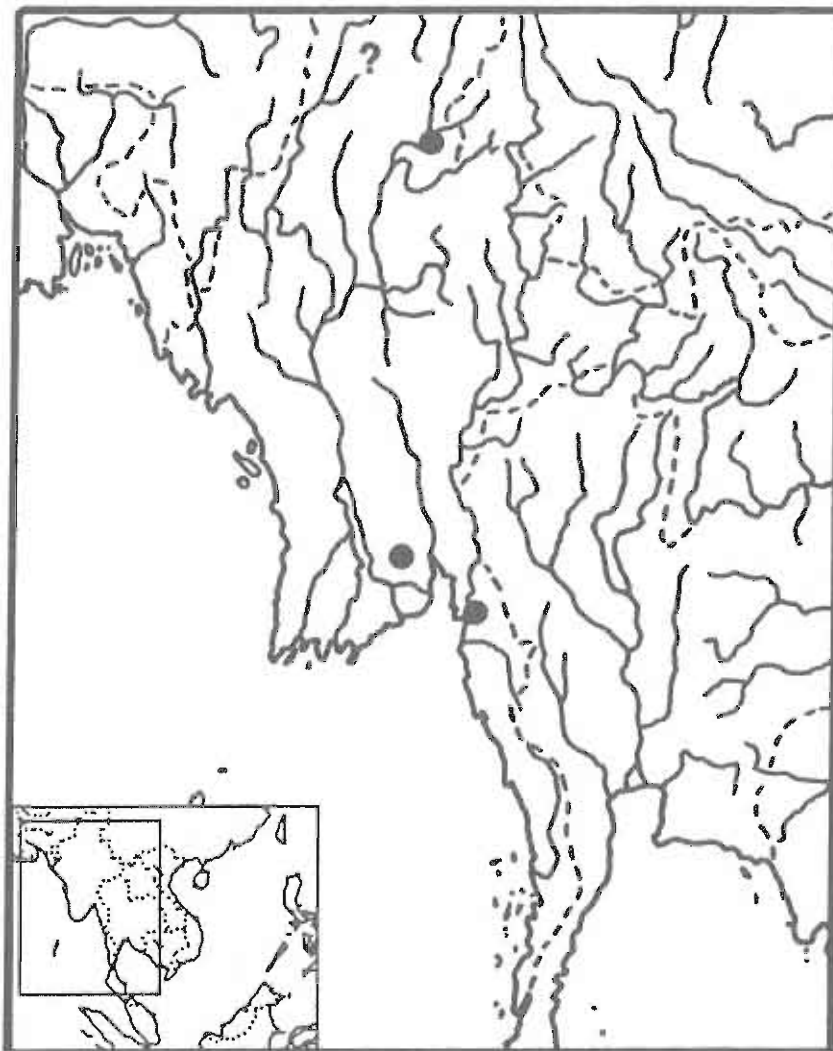
**Syntypes:** (2 specimens) MNHN 7889 and 7892

**Type locality:** "Bengale" [= Bengal (in error)]

**Distribution:** Salween and Irawaddy river basins, Burma (Myanmar)

**Subspecies:** None

**Comment:** Subgenus *Kachuga*. Reviewed by Smith (1931) and Bourret (1941).



## EMYDIDAE; BATAGURINAE

### *Malayemys* Lindholm, 1931:30 Malayan Snail-eating Turtles

**Type species:** *Geoclemys macrocephala* Gray (1859) [= *Emys subtrijuga* Schlegel and Müller (1844)], by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini. *Malayemys* is a replacement name for *Damonia* Gray (1869a:193), which is preoccupied by *Damonia* Robineau-Desvoidy (1847; Insecta: Diptera)

### *Malayemys subtrijuga* (Schlegel and Müller, 1844:30) Malayan Snail-eating Turtle

**Original name:** *Emys subtrijuga*

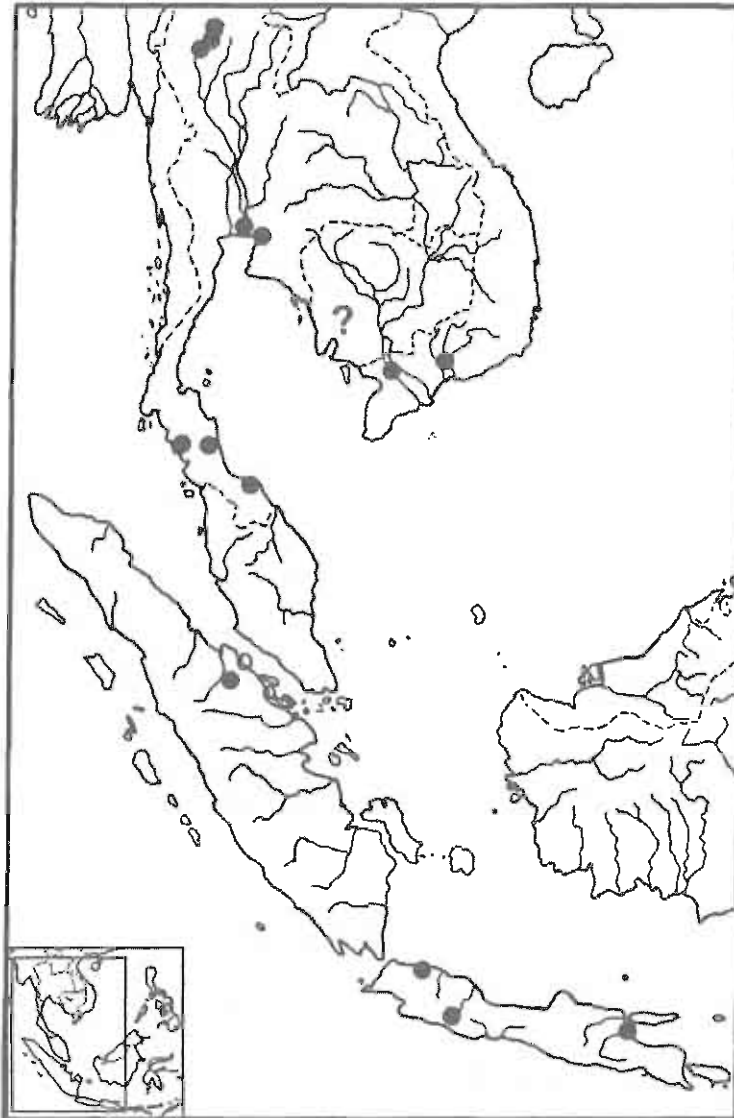
**Holotype:** BMNH 1947.3.4.53 (= specimen "m" listed in Boulenger, 1889:95); however, King and Burke (1989:41) cite RMNH 6082, 6084, and 6085 as syntypes

**Type locality:** "Java" [Indonesia]

**Distribution:** Thailand to southern Vietnam south through the base of the Malay Peninsula (Malaysia) to Sumatra and Java, Indonesia; unknown from the southern Malay Peninsula

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Damonia subtrijuga*), Bourret (1941; as *Damonia subtrijuga*), and Taylor (1970).



## EMYDIDAE; BATAGURINAE

*Mauremys* Gray, 1869b:500  
Stripe-necked Turtles

**Type species:** *Emys fuliginosus* Gray (1860c) [= *Emys leprosa* Schweigger (1812)], by subsequent designation of Lindholm (1929:281)

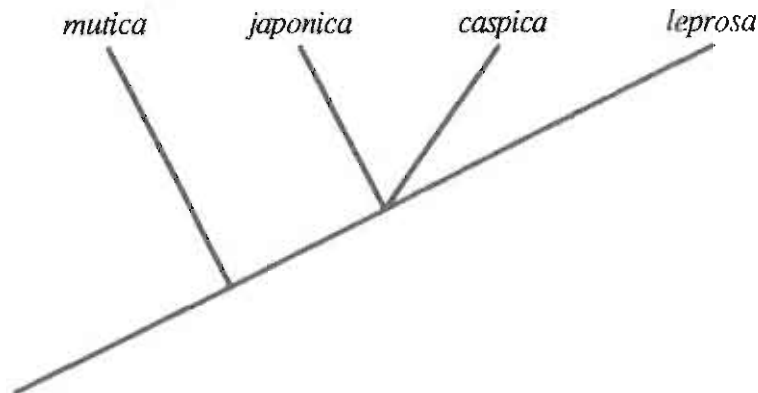
**Distribution:** northwestern Africa, and southern Europe, to Japan

**Comment:** Tribe Batagurini. An undescribed species from Burma has recently been imported to the USA through the pet trade (W. P. McCord, pers. comm.).

**Key to the species:** (modified from Ernst and Barbour, 1989)

- 1a. Side of head with dark spots, but no longitudinal light stripes.....*M. japonica* (p. 142)
- 1b. Side of head with at least one longitudinal light stripe.....2
- 2a. Sides of head with a broad yellow postorbital stripe with a dark dorsal border extending backward from the orbit over the tympanum to the neck (a second stripe may extend downward and backward from the lower edge of the orbit or corner of the mouth to below the tympanum).....3
- 2b. More than two longitudinal stripes: occur on the side of the head.....4
- 3a. Interanal seam length more than 12% of maximum plastron length.....*M. iversoni* (p.141)
- 3b. Interanal seam length less than 12% of maximum plastron length.....*M. mutica* (p. 144)
- 4a. A round yellow or orange spot lies between the orbit and tympanum.....*M. leprosa* (p. 143)
- 4b. Narrow lines may lie between the orbit and tympanum but no round yellow or orange spot.....*M. caspica* (p. 140)

**Phylogenetic hypothesis:** (after Hirayama, 1984)





## EMYDIDAE; BATAGURINAE

### *Mauremys caspica* (Gmelin, 1774:59) Caspian Turtle

**Original name:** *Testudo caspica*

**Holotype:** Not located, although pictured in the original description

**Type locality:** Pusahat Creek [= Pirsagat] near Schamachie, Transcaucasia [USSR]

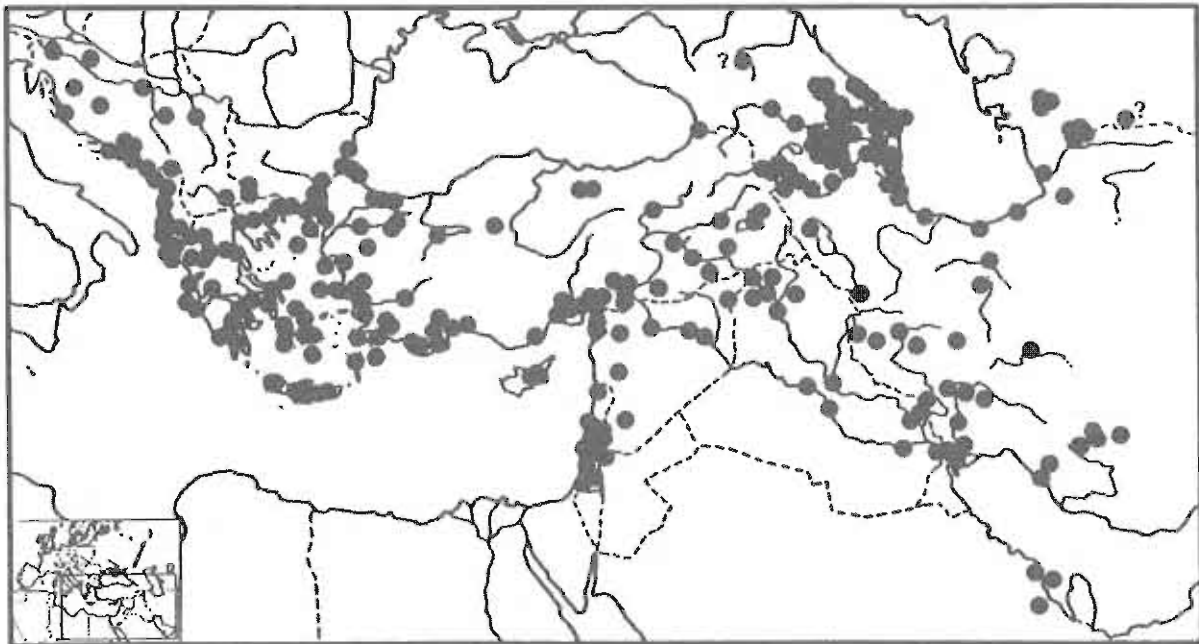
**Distribution:** Yugoslavia and Bulgaria south and east through Greece (including Crete), Cyprus, and Turkey to Israel, Syria, Saudi Arabia, Iraq, Iran and extreme southern USSR

**Subspecies:** Two are recognized:

*M. c. caspica* (Gmelin, 1774:59) Eastern Caspian turtle [Holotype: see above; type locality: see above; range: central Turkey to southern Arabia and east to Iran, Iraq and southern USSR]

*M. c. rivulata* (Valenciennes, 1833:Plate 9) Western Caspian turtle [Syntypes: (6 specimens) MNHN 1930, 1930A, 4094, 4095, 9491, and 9492; type locality: "dans le Siloso et aux environs de Modon [=Methoni]" in "Morée [= Peloponnese]"; restricted to "Umgebung von Modon, Morca, Griechenland" by Mertens and Müller (1928:22); range: Yugoslavia, Bulgaria, and Greece to Cyprus, western Turkey, and Israel]

**Comment:** Reviewed by Busack and Ernst (1980).



## EMYDIDAE; BATAGURINAE

*Mauremys iversoni* Pritchard and McCord, 1991:140  
Fujian Pond Turtle

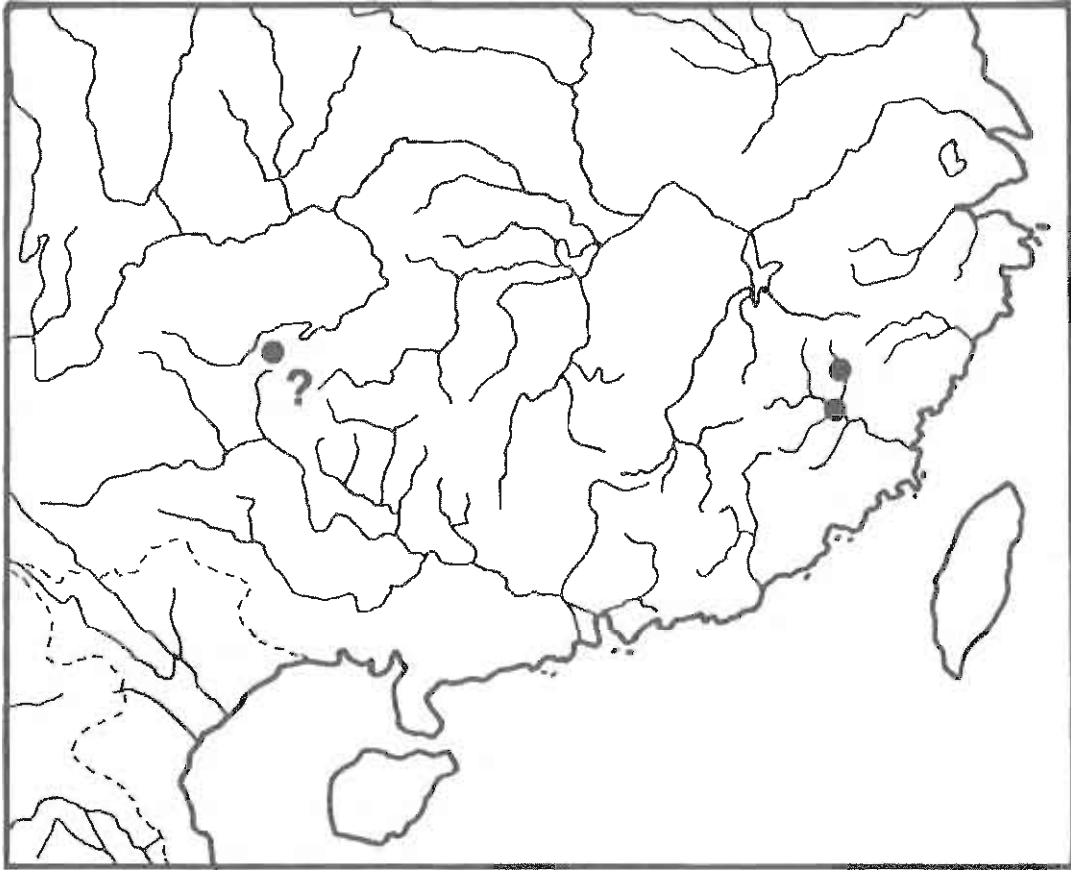
**Holotype:** UF 71865

**Type locality:** "People's Republic of China: Fujian Province, vicinity of Nanping (26° 38' N, 118° 10' E)"

**Distribution:** Fujian and possibly Guizhou province, China (PRC)

**Subspecies:** None

**Comment:** None



## EMYDIDAE; BATAGURINAE

*Mauremys japonica* (Temminck and Schlegel, 1835:139)  
Japanese Pond Turtle

**Original name:** *Emys vulgaris japonica*

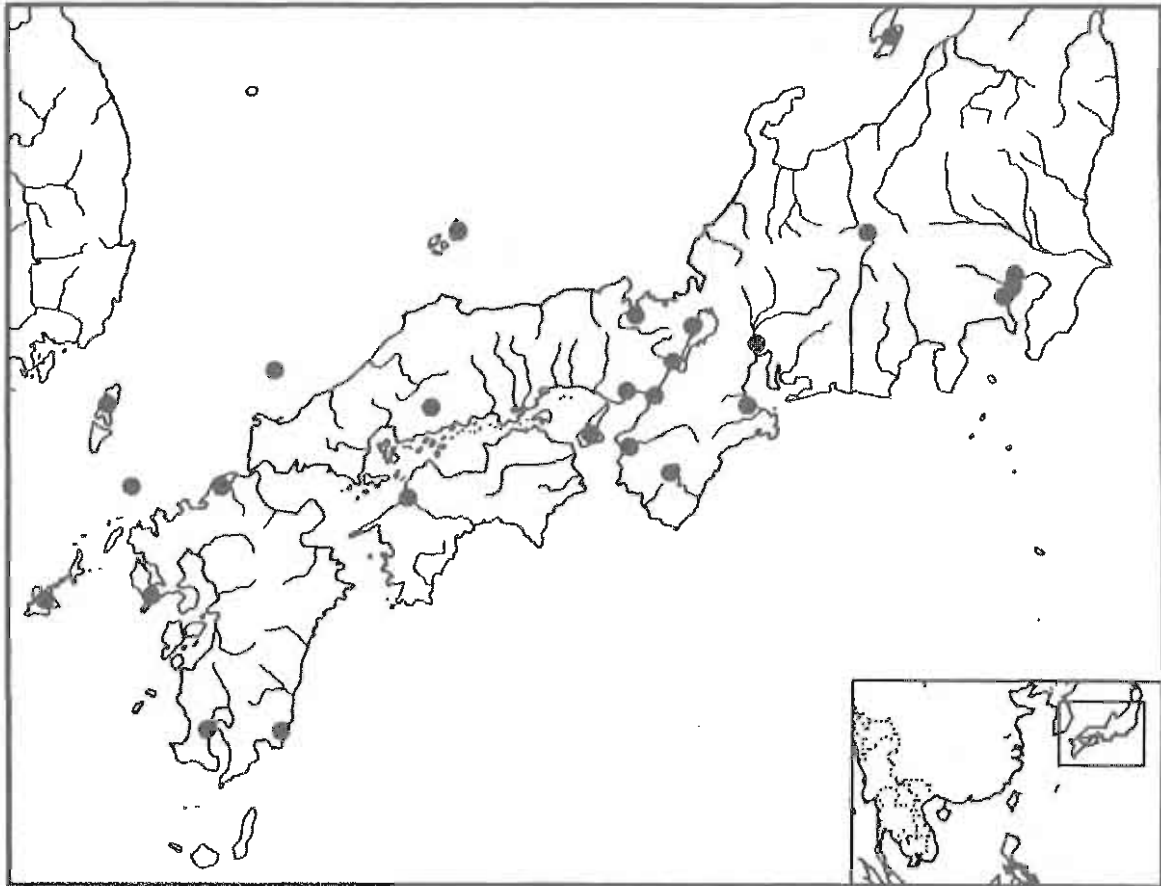
**Syntypes:** (9 specimens) RMNH 3330-34 (8 total specimens), MNHN 1954

**Type locality:** Japan

**Distribution:** Honshu, Shikoku, and Kyushu, Japan

**Subspecies:** None

**Comment:** Reviewed by Stejneger (1907: as *Clemmys japonica*).



## EMYDIDAE; BATAGURINAE

### *Mauremys leprosa* (Schweigger, 1812:298) Mediterranean Turtle

**Original name:** *Emys leprosa*

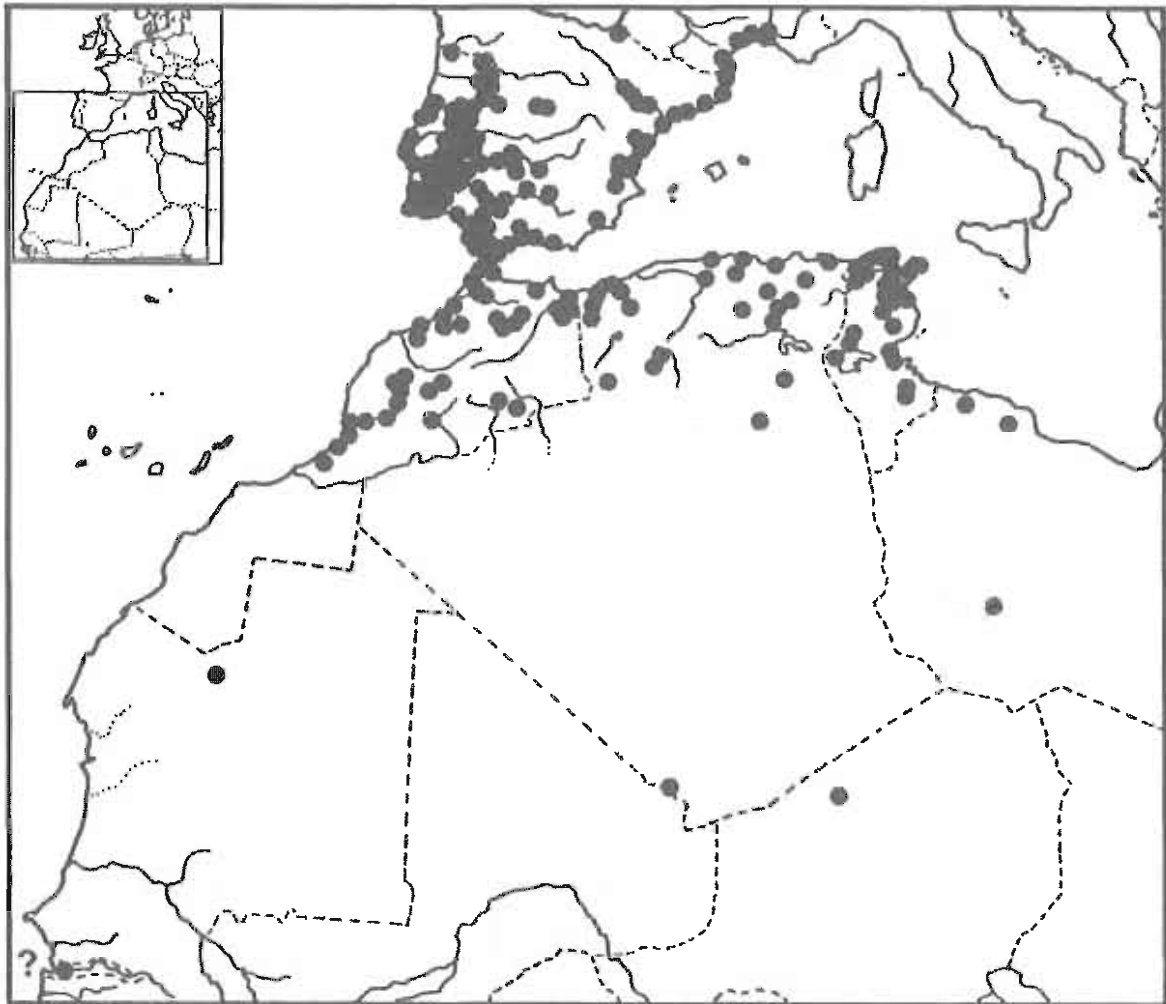
**Holotype:** Not stated; MNHN according to Loveridge and Williams (1957:195); MNHN 7936 according to R. Bour (pers. comm.)

**Type locality:** Not stated; restricted to "Südspanien" [= southern Spain] by Mertens and Müller (1928:22)

**Distribution:** southwestern Europe (France, Spain, and Portugal) and northwestern Africa (at least Mauritania and Morocco to northern Niger and western Libya)

**Subspecies:** None

**Comment:** Reviewed by Loveridge and Williams (1957; as *Clemmys caspica leprosa*) and Busack and Ernst (1980).



## EMYDIDAE; EATAGURINAE

*Mauremys mutica* (Cantor, 1842:482)  
Yellow Pond Turtle

**Original name:** *Emys muticus*

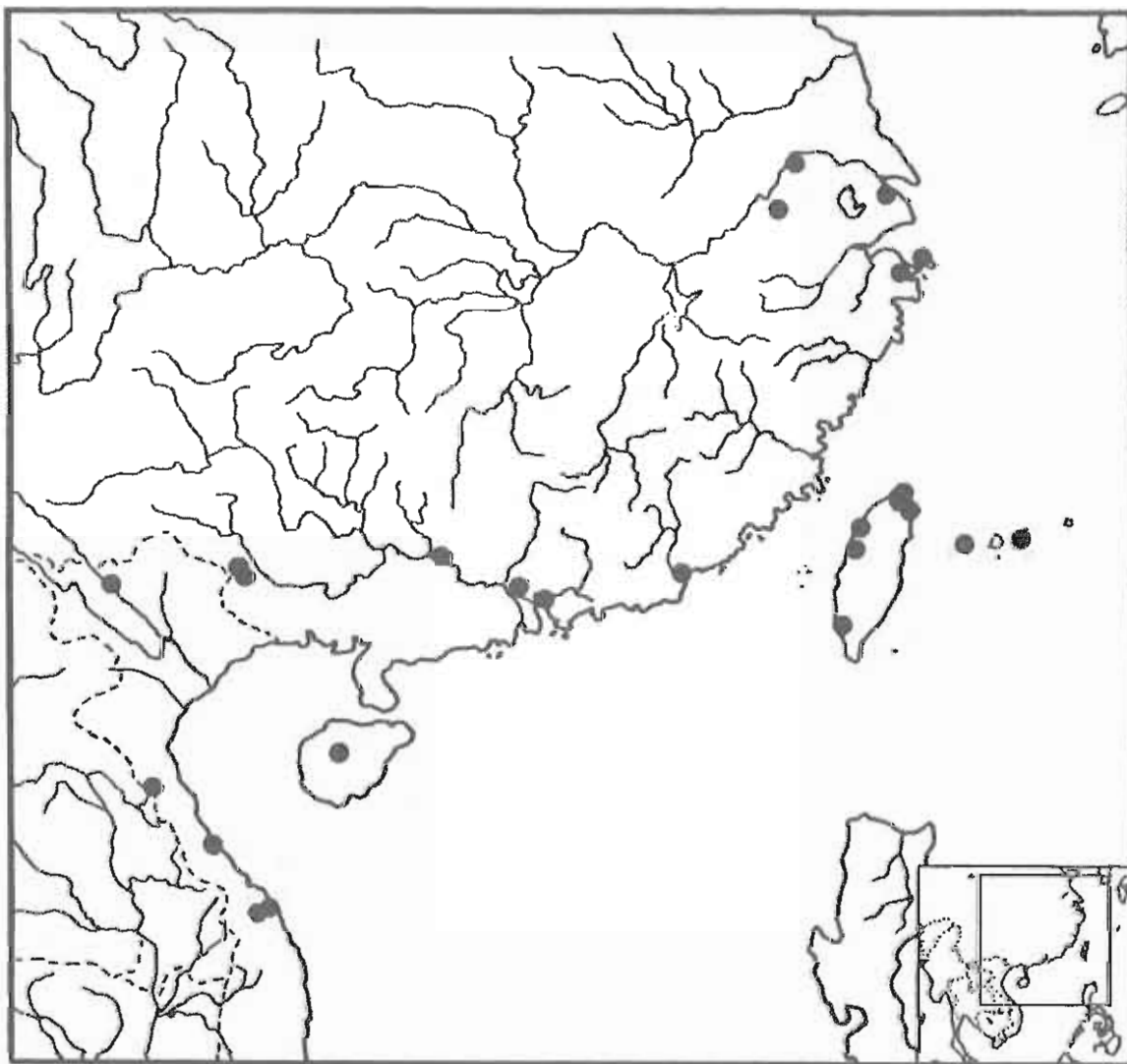
**Holotype:** BMNH 1947.3.5.34

**Type locality:** "Chusan" [= Zhoushan Island, Zhejiang Province, China (PRC)]; not "Canton" as reported by most authors (clarified by Iverson and McCord, 1989:23)

**Distribution:** southern China (PRC), including Taiwan and Hainan Islands, the western Ryukyu Islands and northern Indochina; introduced into Japan (Nakamura, 1934; Sengoku, 1979)

**Subspecies:** None described, although the Ryukyu island population represents an undescribed subspecies (Iverson, unpublished)

**Comment:** Reviewed by Smith (1931; as *Clemmys mutica*), Pope (1935, as *Clemmys mutica*), Bourret (1941; as *Clemmys mutica*), and Iverson and McCord (1989). See Comments under *Annamemys annamensis* and *Chinemys nigricans*.



## EMYDIDAE; BATAGURINAE

### *Melanochelys* Gray, 1869a:187 Indian Black Turtles

**Type species:** *Emys trijuga* Schweigger (1812), by monotypy

**Distribution:** India, Nepal, Bangladesh, Burma, and Sri Lanka

**Comment:** Tribe Geoemydini.

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Foretoes only half webbed, hind toes barely webbed, if at all; carapace with three prominent yellow longitudinal stripes; plastron yellow.....*M. tricarinata* (p. 145)
- 1b. All toes fully webbed to the claws, or nearly so; carapace uniformly dark; plastron with extensive dark pattern.....*M. trijuga* (p. 146)

### *Melanochelys tricarinata* (Blyth, 1856:714) Tricarinate Hill Turtle

**Original name:** *Geoemyda tricarinata*

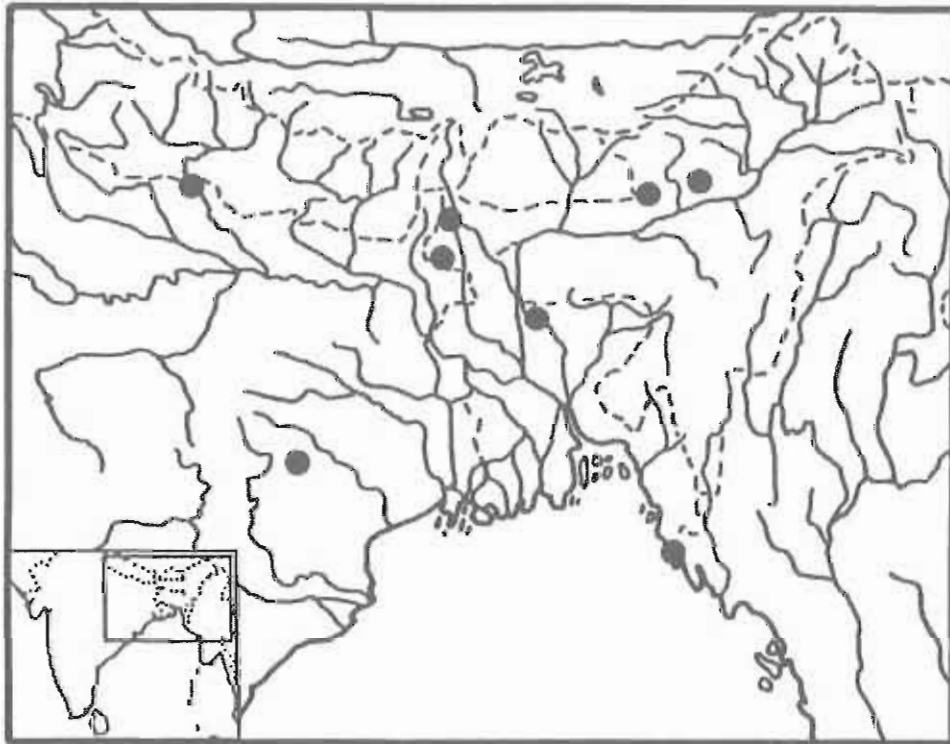
**Holotype:** ZSI 816 according to Das (pers. comm.)

**Type locality:** Chaibasa District, Chota Nagpur [Bihar, India]

**Distribution:** Ganges-Brahmaputra and adjacent river basins in eastern India, Bangladesh, and (possibly) Nepal

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Geoemyda tricarinata*), Tikader and Sharma (1985), and Das (1991).



## EMYDIDAE; BATAGURINAE

### *Melanochelys trijuga* (Schweigger, 1812:310) Indian Black Turtle

**Original name:** *Emys trijuga*

**Holotype:** Possibly in MNHN

**Type locality:** "insula Java" [Indonesia] (in error)

**Distribution:** India, Nepal, Sri Lanka, Bangladesh, and Burma; found in the Maldive Islands and on Diego Garcia in the Chagos Islands, although possibly introduced according to Boulenger (1889) and Deraniyagala (1939)

**Subspecies:** Seven are recognized:

*M. t. trijuga* (Schweigger 1812:310) Peninsular black turtle [Holotype: see above; type locality: see above; range: central peninsular India]

*M. t. coronata* (Anderson 1878:729) Cochin black turtle [Holotype: "Ind. Mus. No. 1012" according to Annandale (1913:69); presumably in the ZSI; type locality: Travancore; range: southwestern peninsular India]

*M. t. edeniana* (Theobald 1876:12) Burmese black turtle [Syntypes: (7 specimens) ZSI 830, 1010, 1011, 1018, 1097, 1369 and 2589, according to Annandale (1913:71); type-locality: "near Tounghu", Burma; range: Burma]

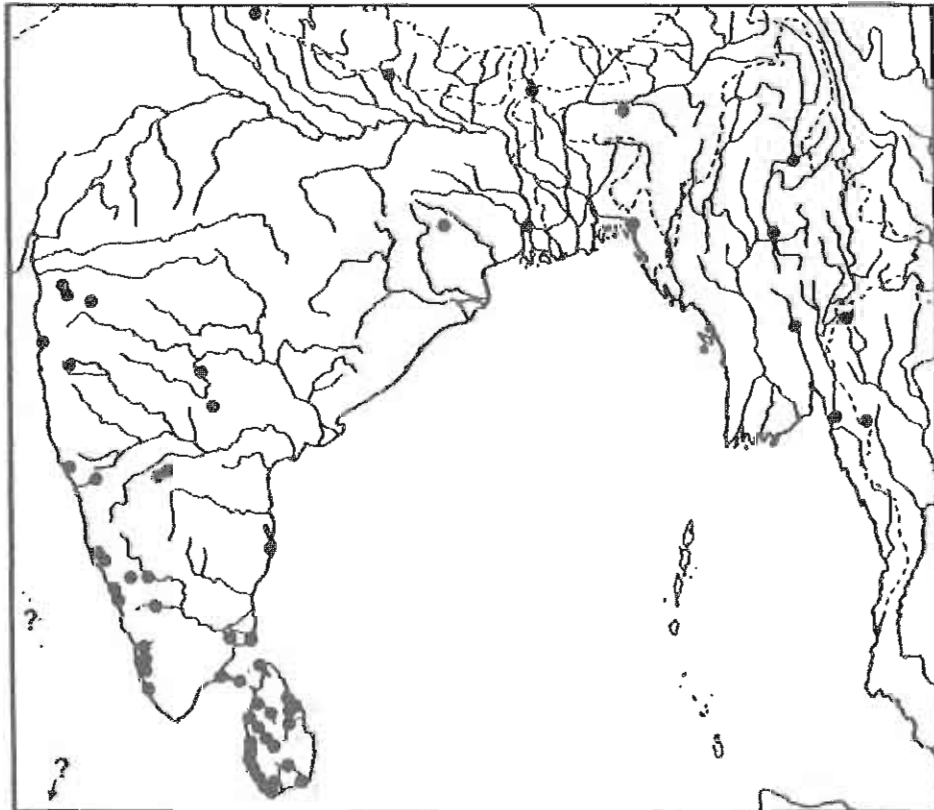
*M. t. indopeninsularis* (Annandale 1913:71) Bengal black turtle [Syntypes: (2 specimens) ZSI 17098 and 17100; type locality: "Singhbhum district of Chota Nagpur", India; range: northeastern India and northern Bangladesh]

*M. t. parkeri* Deraniyagala (1939:269) Parker's black turtle [Holotype: BMNH 1947.3.6.14; type locality: "Polonnaruwa", Sri Lanka; range: northern Sri Lanka]

*M. t. thermalis* (Lesson 1830:86) Sri Lanka black turtle [Holotype: not located; type locality: "dans les eaux thermales de Cannia, près Trinquemalé, à Ceylan"; range: Sri Lanka, southeastern peninsular India and the Maldives Islands]

*M. t. wiroti* Reimann, in Wirot (1979:177) Thailand black turtle [Holotype: not designated; type locality: "Thai-Burmese border area (Tak and Mae Hong Son Provinces)"; range: western Thailand]

**Comment:** *Testudo scabra* Linnaeus (1758:198; holotype: ZMUU 129) may be an older name for this species (Boulenger, 1889:121), but its identification has not been confirmed (see Lönnberg 1896; Pritchard and Trebbau 1984:182). Reviewed by Smith (1931; as *Geoemyda trijuga*), Bourret (1941; as *Geoemyda trijuga*), Tikader and Sharma (1985), and Das (1991).



## EMYDIDAE; BATAGURINAE

*Morenia* Gray, 1870c:62  
Eyed Turtle

**Type species:** *Emys bermorei* Blyth (1859) [= *Emys ocellata* Duméril and Bibron (1835)], by subsequent designation of Lindholm (1929:279).

**Distribution:** southern Asia

**Comment:** Tribe Batagurini.

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Snout not strongly projecting, shorter than orbital width; cervical scute about one fourth as wide as the first marginal scute.....*M. ocellata* (p. 147)
- 1b. Snout strongly projecting, as long or longer than the orbital width; cervical scute about one half as wide as the first marginal scute.....*M. petersi* (p. 148)

*Morenia ocellata* (Duméril and Bibron, 1835:329)  
Burmese Eyed Turtle

**Original name:** *Emys ocellata*

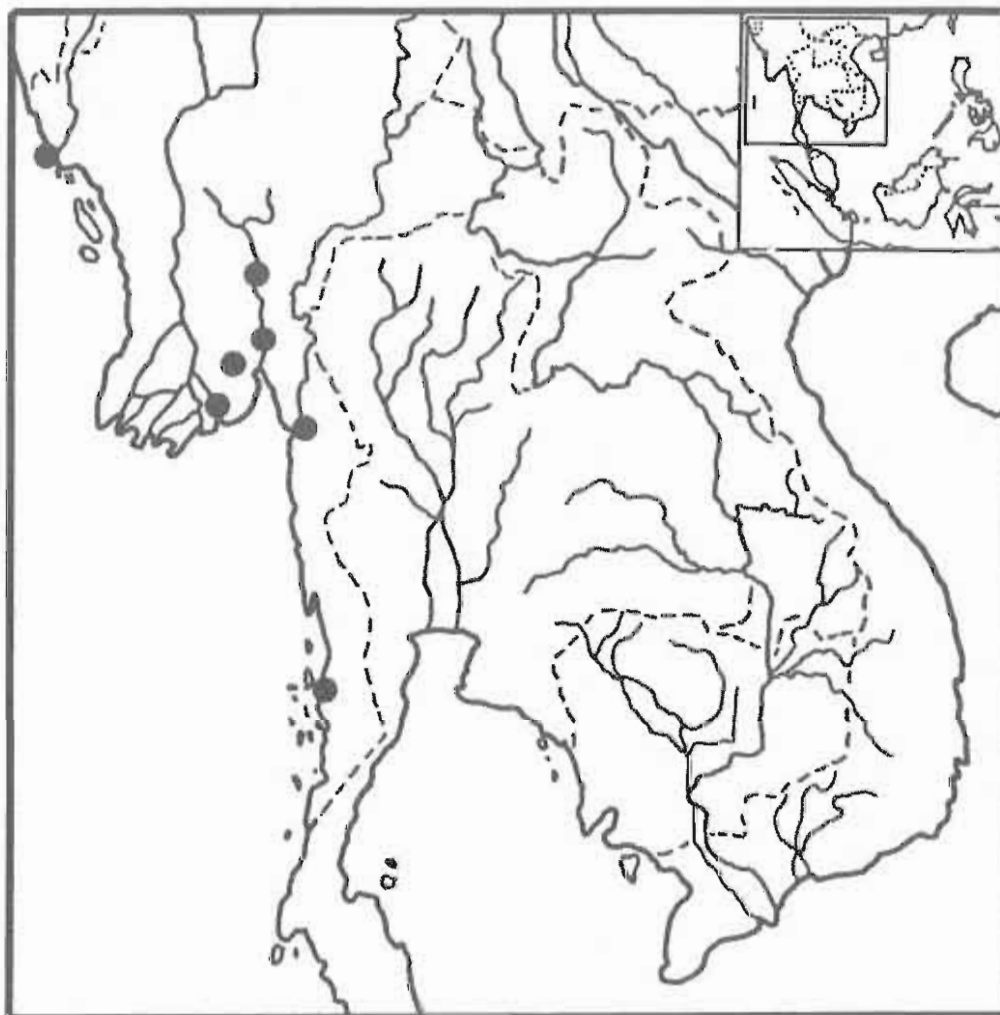
**Syntypes:** (3 specimens) MNHN 9167-69

**Type locality:** "Bengale" (in error)

**Distribution:** Southern Burma

**Subspecies:** None

**Comment:** Reviewed by Smith (1931) and Bourret (1941).

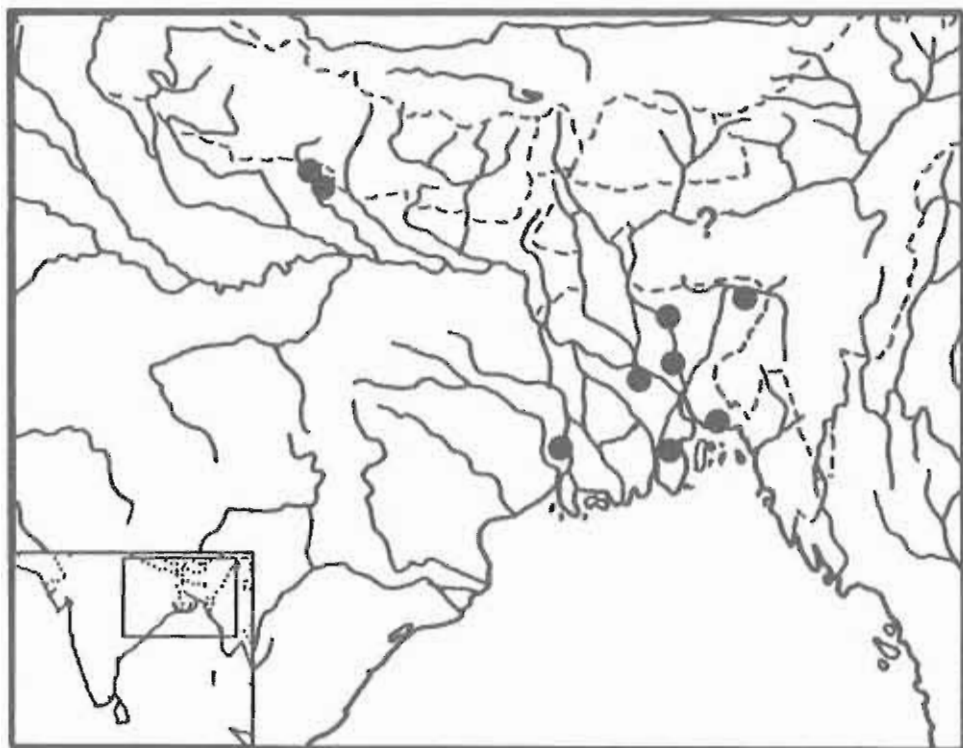




## EMYDIDAE; BATAGURINAE

*Morenia petersi* (Anderson, 1879:761)

Indian Eyed Turtle

**Original name:** *Batagur (Morenia) petersi***Syntypes:** ZSI 155 and 156 according to Das (pers. comm.)**Type locality:** Huzurapur (Jessore District), Furreedpore and Dacca [Bangladesh]**Distribution:** Ganges river basin in eastern India and Bangladesh**Subspecies:** None**Comment:** Reviewed by Smith (1931) and Das (1991).

## EMYDIDAE; BATAGURINAE

*Notochelys* Gray, 1863a:177  
Malayan Flat-shelled Turtles

**Type species:** *Emys platynota* Gray (1834a), by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini.

*Notochelys platynota* (Gray, 1834a:54)  
Malayan Flat-shelled Turtle

**Original name:** *Emys platynota*

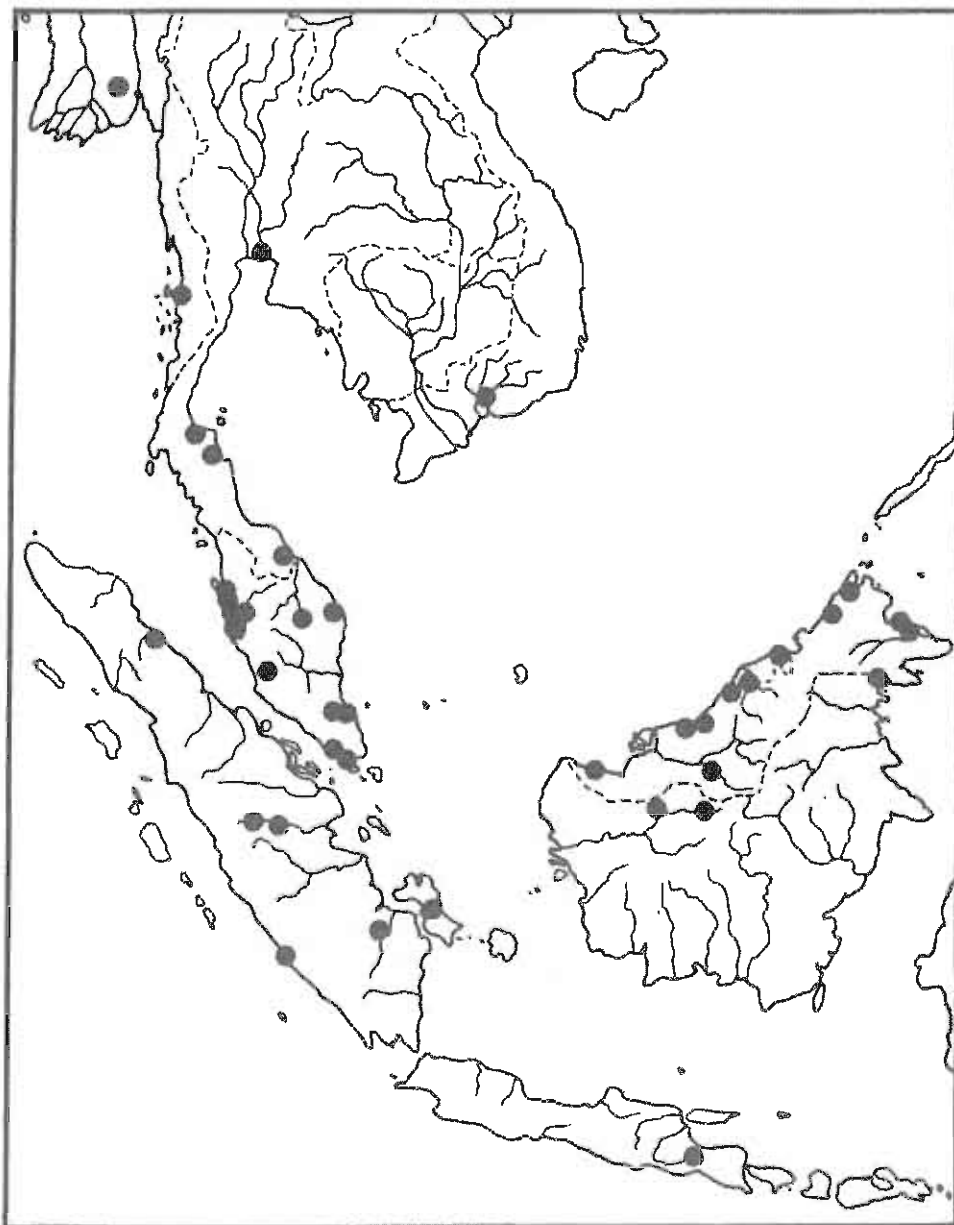
**Holotype:** BMNH 1947.3.4.6; probably the specimen illustrated by Gray (1834 "1830-35":Plate 57 as *EMYS PLATYNOTHA*)

**Type locality:** "in Indiâ Orientali"; "Sumatra" according to Gray (1834 "1830-35":Plate 57) restricted to "Sumatra; Singapore" by Gray (1863a:177)

**Distribution:** Thailand to southern Vietnam and south through the Malay Peninsula and Sarawak (Malaysia), and Sumatra and Kalimantan, Indonesia; records from Burma (Myanmar) may be in error.

**Subspecies:** None

**Comment:** Reviewed by Smith (1931), Bourret (1941), and Taylor (1970).



## EMYDIDAE; BATAGURINAE

*Ocadia* Gray, 1870c:35  
Chinese Stripe-necked Turtles

**Type species:** *Emys Sinensis* Gray (1834a), by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini. Reviewed by McCord and Iverson (1992). A third species, from northern Vietnam is being described by Iverson and McCord.

**Key to species:**

- 1a. Sides of head with four black-bordered yellow stripes separated by brown stripes; ventral shell and skin areas of light pigment washed with pink to orange; bridge length usually less than 90% of anterior width of plastral hindlobe; interfemoral seam length usually less than 120% of maximum gular length.....*O. philippeni* (p. 150)
- 1b. Sides of head with at least eight black-bordered, narrow, cream to yellow stripes; ventral shell and skin areas of light pigment cream to yellow; bridge length usually more than 80 % of anterior width of plastral hindlobe; interfemoral seam length usually greater than 110% of maximum length of gular scutes.....*O. sinensis* (p. 151)

*Ocadia philippeni* (McCord and Iverson 1992:13)  
Philippen's Stripe-necked Turtle

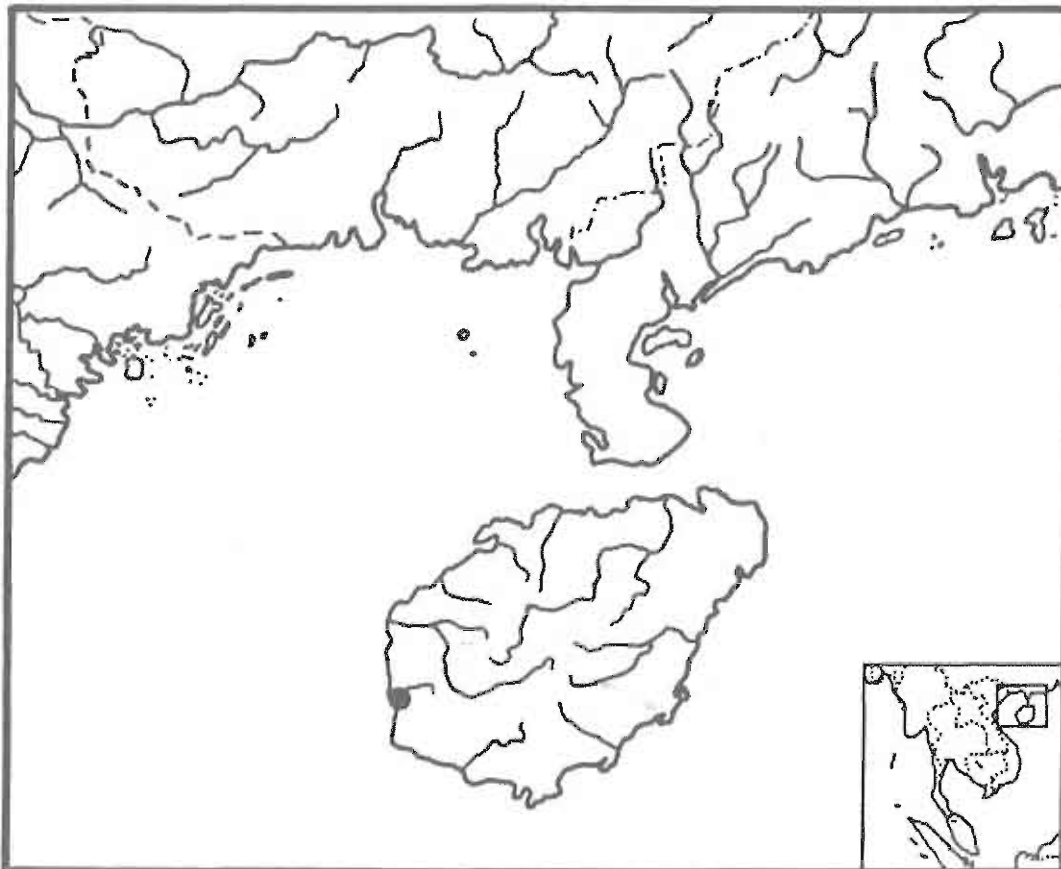
**Holotype:** UF 80766

**Type Locality:** "near Kancheng [18° 51' N, 108° 37' E; = 48 km from Tungfang (19° 03' N, 108° 56' E), western Hainan Island, China" [PRC]

**Distribution:** Known only from the type locality

**Subspecies:** None

**Comment:** None



## EMYDIDAE; BATAGURINAE

*Ocadia sinensis* (Gray, 1834a:53)  
Chinese Stripe-necked Turtle

**Original name:** *Emys Sinensis*

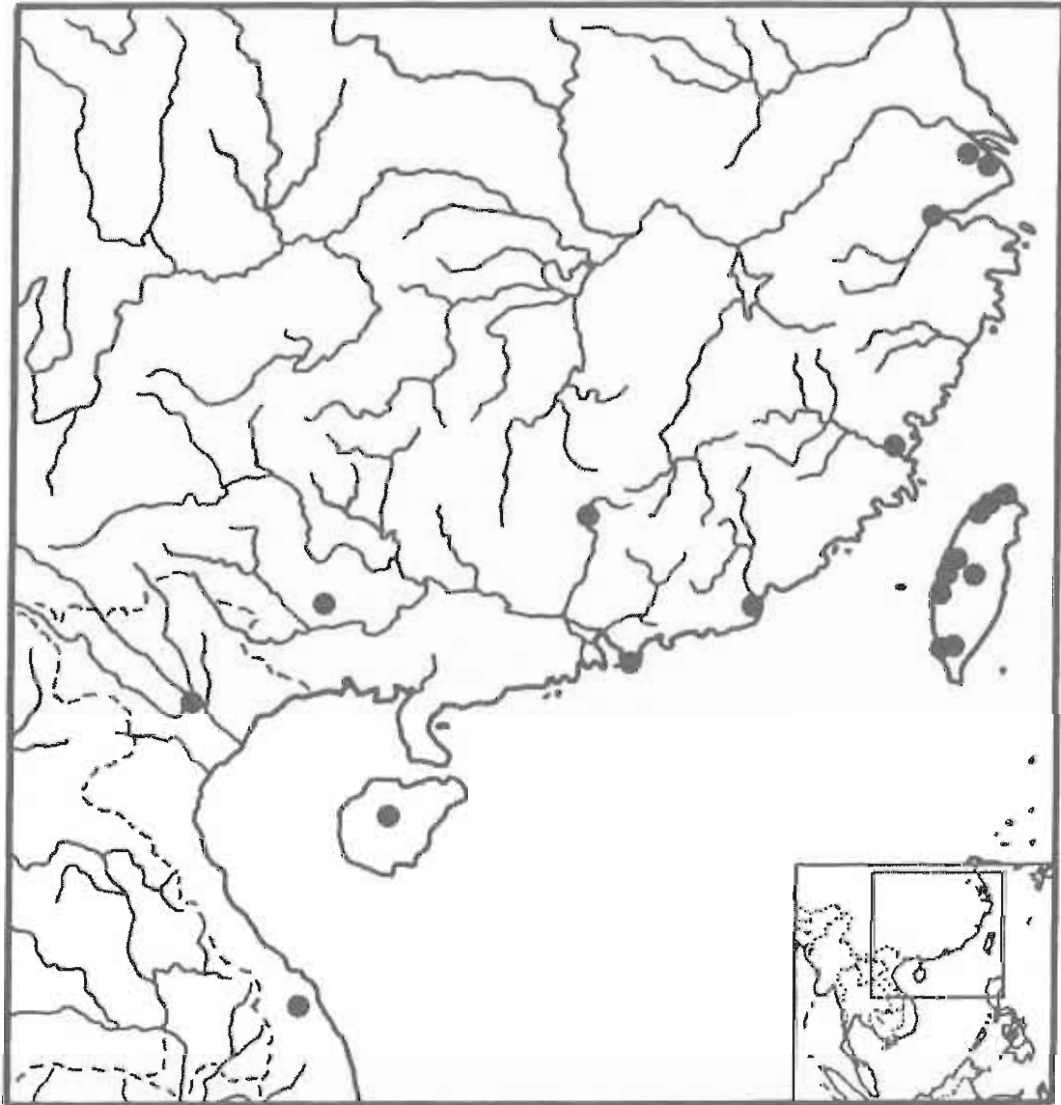
**Holotype:** BMNH 1947.3.5.26

**Type locality:** "in Chinâ" [PRC]; "S. China" according to Boulenger (1889:87)

**Distribution:** southern China (including the islands of Taiwan and Hainan) to central Vietnam and apparently Laos

**Subspecies:** None

**Comment:** Reviewed by Stejneger (1907), Smith (1931), Pope (1935), and Bourret (1941).



## EMYDIDAE; BATAGURINAE

*Orlitia* Gray, 1873c:156  
Malaysian Giant Turtles

**Type species:** *Orlitia borneensis* Gray (1873c), by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini.

*Orlitia borneensis* Gray, 1873c:157  
Malaysian Giant Turtle

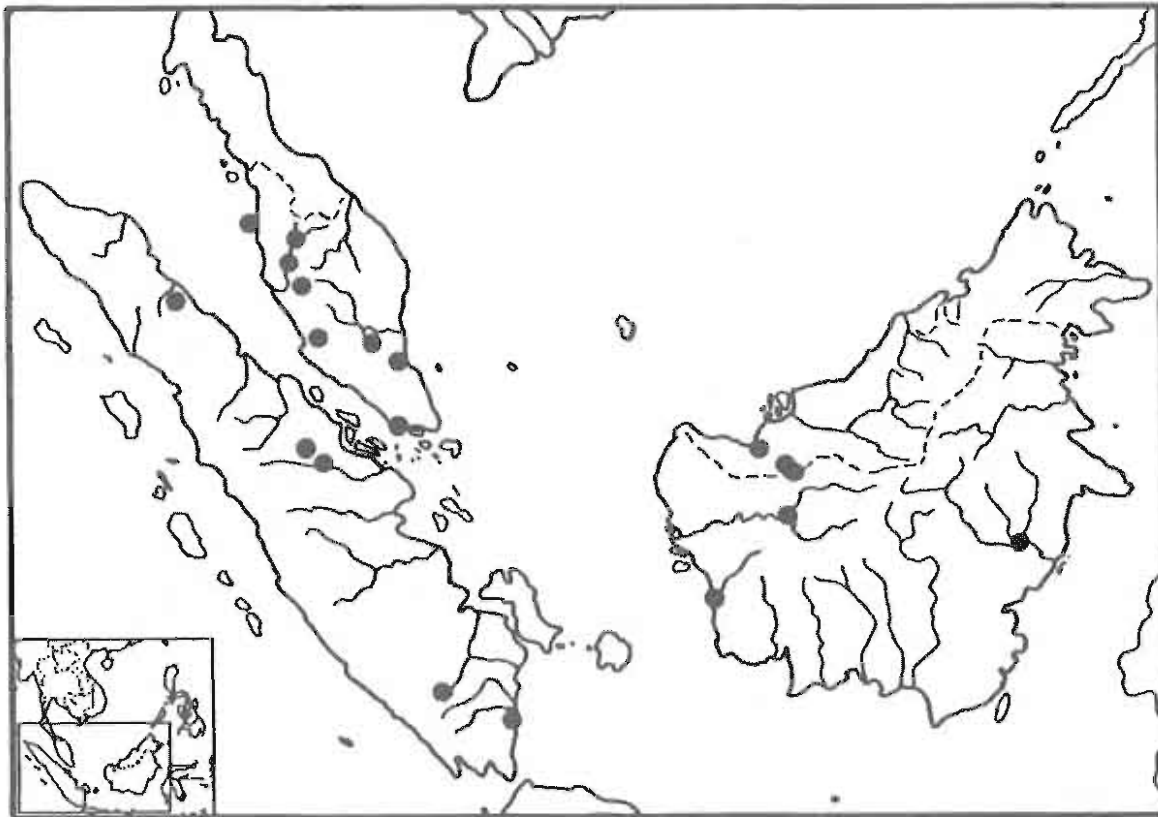
**Holotype:** BMNH 1947.3.4.9

**Type locality:** "Borneo"

**Distribution:** Malaya and Sarawak (Borneo), Malaysia and Sumatra and Kalimantan (Borneo), Indonesia

**Subspecies:** None

**Comment:** Reviewed by de Rooij (1915) and Boulenger (1912:24-25).



## EMYDIDAE; BATAGURINAE

*Pyxidea* Gray, 1863a:175  
Keel'd Box Turtles

**Type species:** *Cyclemys Mouhotii* Gray (1862), by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini. Placed in the synonymy of *Geoemyda* by McDowell (1964:269-270) but considered a monotypic genus by nearly all subsequent authors (e.g., Pritchard and Trebbau, 1984).

*Pyxidea mouhotii* (Gray, 1862:157)  
Keel'd Box Turtle

**Original name:** *Cyclemys Mouhotii*

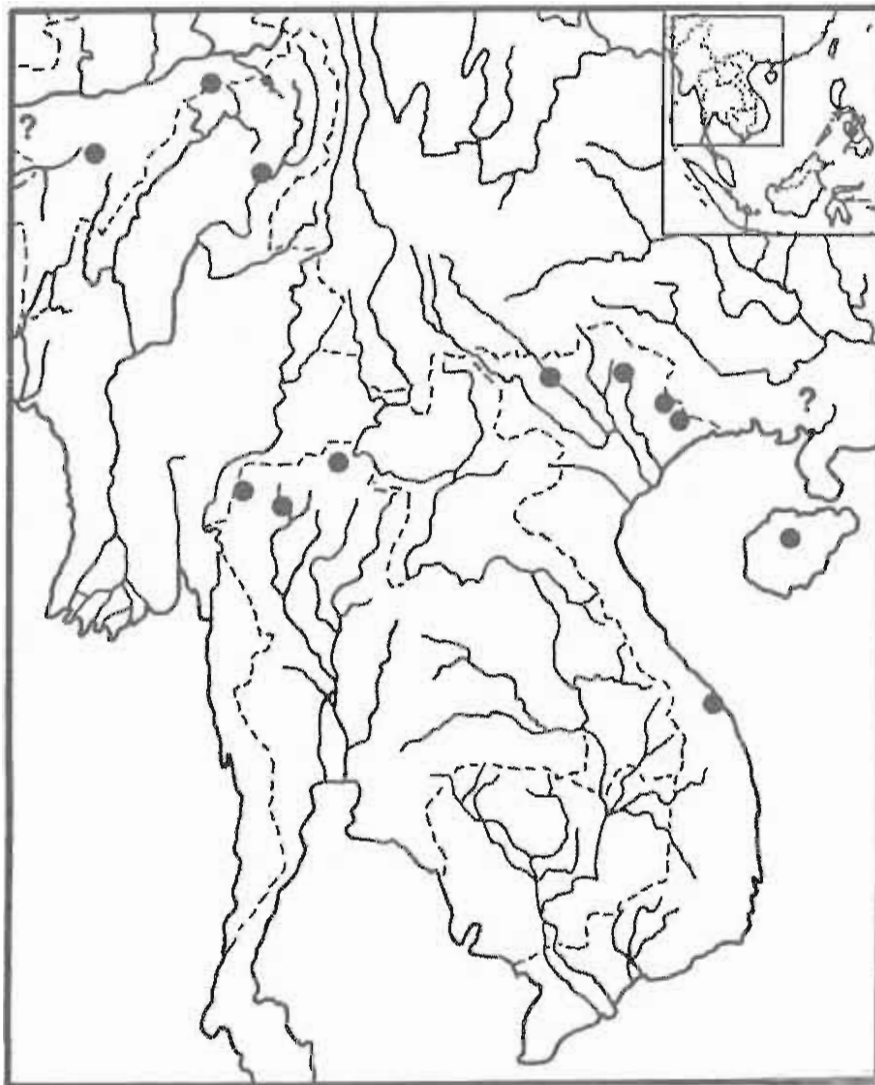
**Syntypes:** (7 specimens) BMNH 1947.3.4.27, 1947.3.4.48-49, and 1947.3.4.64-67

**Type locality:** "Lao Mountains, in Siam," modified to "presumably the Luang Prabang mountain range on the border between Thailand and Laos" by King and Burke (1989:46) without explanation

**Distribution:** southern China (PRC) and Vietnam to Assam, India

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Cyclemys mouhotii*), Bourret (1941; as *Cyclemys mouhotii*), Pope (1935; as *Cyclemys mouhotii*), McDowell (1964; as *Geoemyda mouhotii*), Taylor (1970), Tikader and Sharma (1985), and Das (1991).



## EMYDIDAE; BATAGURINAE

*Rhinoclemmys* Fitzinger, 1835:115  
Neotropical Wood Turtles

**Type species:** *Testudo dorsata* Schoepfl (1801) [= *Testudo punctularia* Daudin (1802) by subsequent designation of Lindholm (1929:283)]

**Distribution:** southern Sonora and southern Veracruz (Mexico) to northern Ecuador and northern Brazil; Trinidad

**Comment:** Tribe Geoemydini. The nomenclatural history of this genus is complex. See Smith and Smith (1979) and Smith et al. (1980) for discussion. Some recent literature used the synonyms *Callopsis* or *Rhinoclemys*. Reviewed by Ernst (1978, as *Callopsis*; 1981a) and Pritchard and Trebbau (1984; in part).

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Hindfeet heavily webbed.....2
- 1b. Hindfeet with little or no webbing.....6
- 2a. Dorsal head stripes from nape to level of orbits or less; no light spots present on the occipital region.....3
- 2b. Dorsal head stripes from nape to beyond orbits or broken at orbits with a spot anteriorly; light spots on the occipital region.....4
- 3a. Snout strongly pointed; chin and lower jaw with dark bars; shell distinctly depressed.....  
.....*R. nasuta* (p. 160)
- 3b. Snout only moderately protruding; chin and lower jaw with numerous large black spots; shell domed.....  
.....*R. funerea* (p. 158)
- 4a. Dorsal head stripes broken; a large light spot anterior to orbit, or the stripes unite behind the orbits forming a horseshoe-like pattern.....5
- 4b. Dorsal head stripes unbroken and extending anterior to orbits, never united.....  
.....*R. melanosterna* (p. 159)
- 5a. Dorsal head stripes united behind orbits by a transverse bar; posterior horns flared and enclosing a large dark spot.....  
.....*R. diademata* (p. 157)
- 5b. Dorsal head stripes may bend to unite behind the orbit, but never flared posteriorly to enclose the dark pigment of the back of head.....  
.....*R. punctularia* (p. 162)
- 6a. Tip of jaw hooked and unnotched.....7
- 6b. Tip of jaw straight and notched, sometimes with cusps.....8
- 7a. Dorsal head pattern consists of a large, irregular horseshoe-shaped blotch; carapace depressed....  
.....*R. rubida* (p. 163)
- 7b. Dorsal head pattern consists of a pair of supratemporal stripes, or no stripes are present; carapace rather high, but flat on top.....  
.....*R. annulata* (p. 155)
- 8a. Head pattern with red stripes (usually 2 or 3) crossing tip of snout and a prefrontal arrow formed where a mid-sagittal stripe meets two supratemporal stripes on the dorsal tip of snout; bridge with extensive dark pigment.....  
.....*R. pulcherrima* (p. 161)
- 8b. Head pattern with only a pair of broad supratemporal stripes posterior to the orbit; bridge usually plain yellow, without extensive dark pigmentation.....  
.....*R. areolata* (p. 156)

**Phylogenetic hypothesis:** None has been published (but see Carr, 1990, and Batagurinae account)

## EMYDIDAE; BATAGURINAE

*Rhinoclemmys annulata* (Gray, 1860b:231)  
Brown Wood Turtle

**Original Name:** *Geoclemmys annulata*

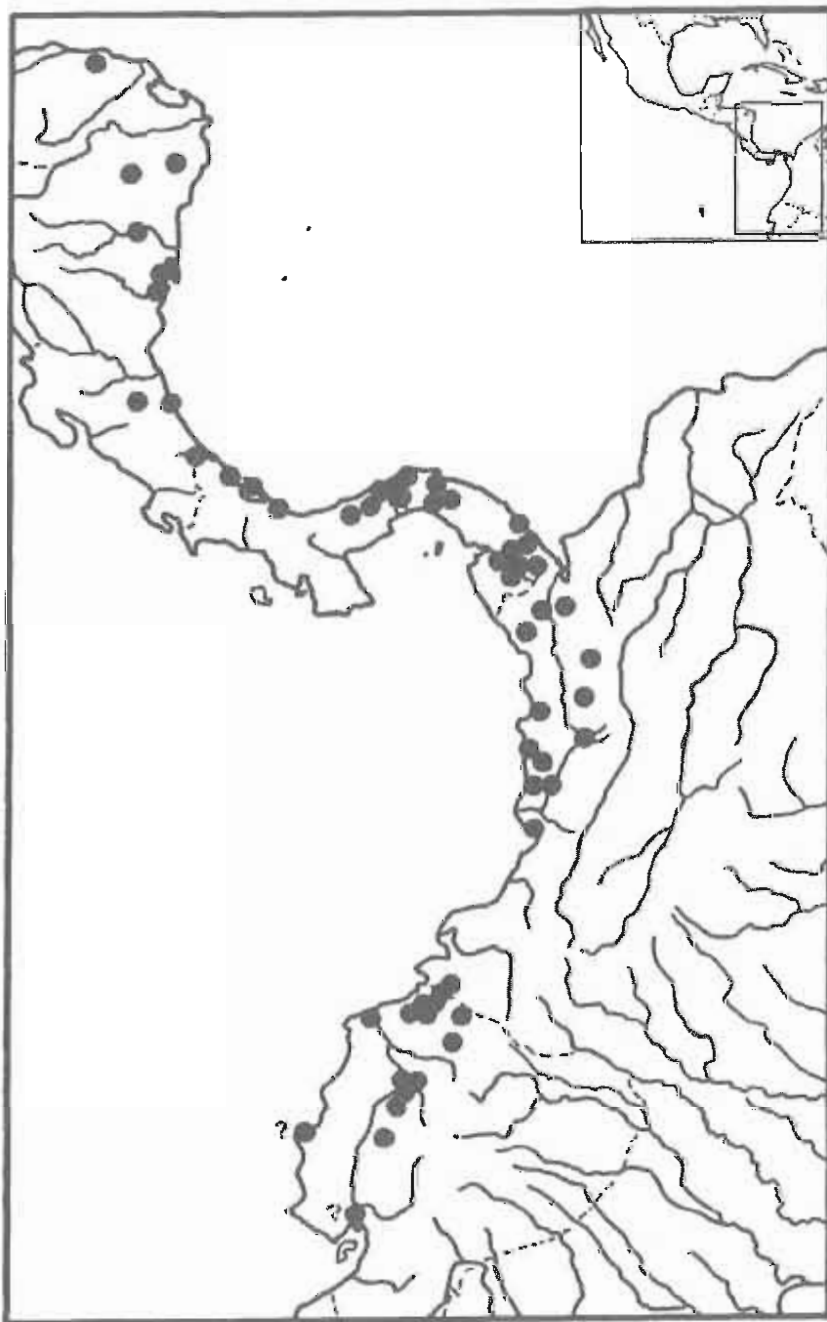
**Syntypes:** (3 specimens) BMNH 1946.1.22.56, 1947.3.5.58 and 1947.3.5.59

**Type locality:** "Esmeraldas, Ecuador"

**Distribution:** Eastern Honduras to western Colombia and western Ecuador

**Subspecies:** None

**Comment:** Reviewed by Ernst (1980a).





## EMYDIDAE; BATAGURINAE

*Rhinoclemmys areolata* (Duméril and Bibron, in Duméril and Duméril 1851:10)  
Furrowed Wood Turtle

**Original name:** *Emys areolata*

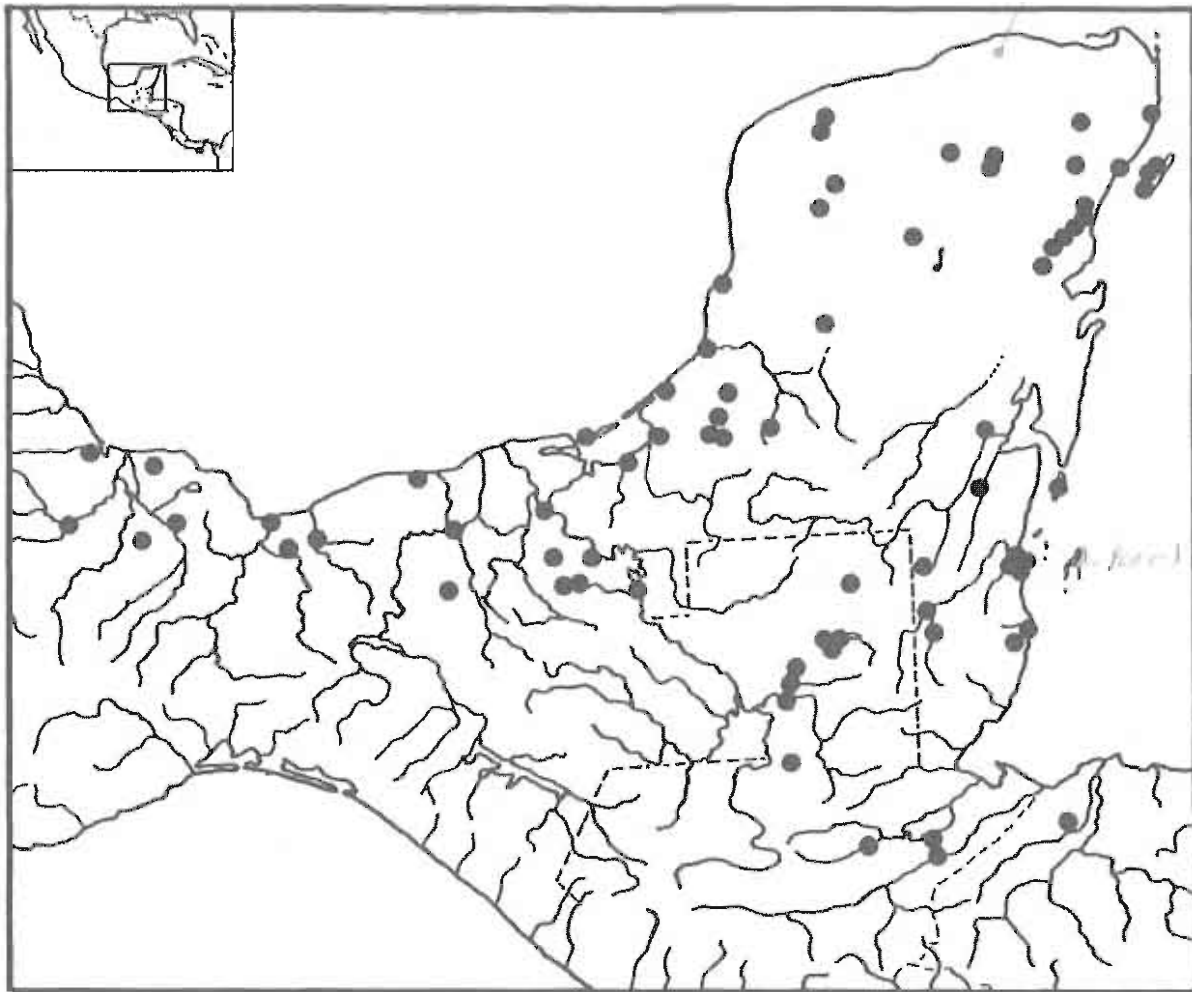
**Holotype:** MNHN 9424

**Type locality:** "Province du Petén (Amér. centr.); restricted to "La Libertad" [El Petén, Guatemala] by Smith and Taylor (1950b:30); corrected to "Flores" [El Petén, Guatemala] by Dunn and Stuart (1951:60)

**Distribution:** Atlantic versant of southern Veracruz to the Yucatan Peninsula and Isla Cozumel (Mexico), Belize, northern Guatemala, and northwestern Honduras

**Subspecies:** None

**Comment:** Reviewed by Ernst (1980b), Smith and Smith (1979), and Groombridge (1982). Geographic variation is discussed by Perez-Higareda and Smith (1987).



## EMYDIDAE; BATAGURINAE

*Rhinoclemmys diademata* (Mertens, 1954a:4)  
Maracaibo Wood Turtle

**Original name:** *Geoemyda punctularia diademata*

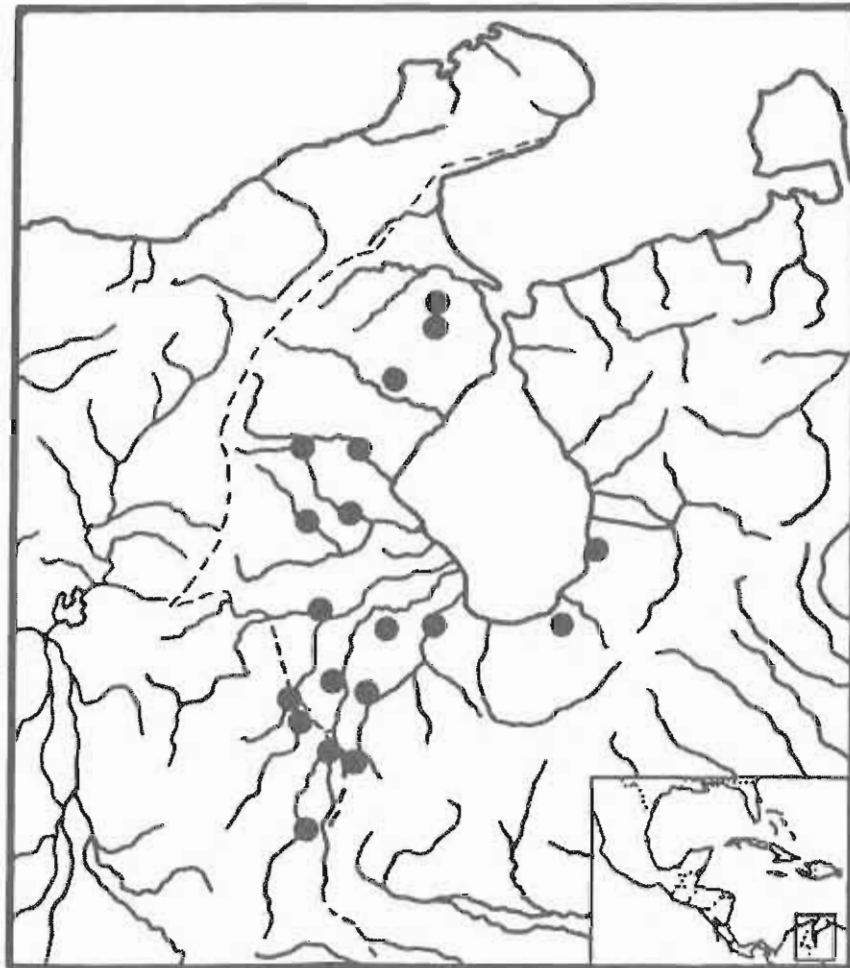
**Holotype:** SMF 48141

**Type locality:** "Maracay, Venezuela"; possibly a lapsus for "Maracaibo" according to Pritchard and Trebbau (1984:172)

**Distribution:** Maracaibo basin, Venezuela

**Subspecies:** None

**Comment:** Reviewed and elevated to species status by Pritchard and Trebbau (1984; see also Pritchard, 1979), although Paolillo (1985; among others) considered it a subspecies of *punctularia*.



## EMYDIDAE; BATAGURINAE

*Rhinoclemmys funerea* (Cope, 1875b:154)  
Black Wood Turtle

**Original name:** *Chelopus funereus*

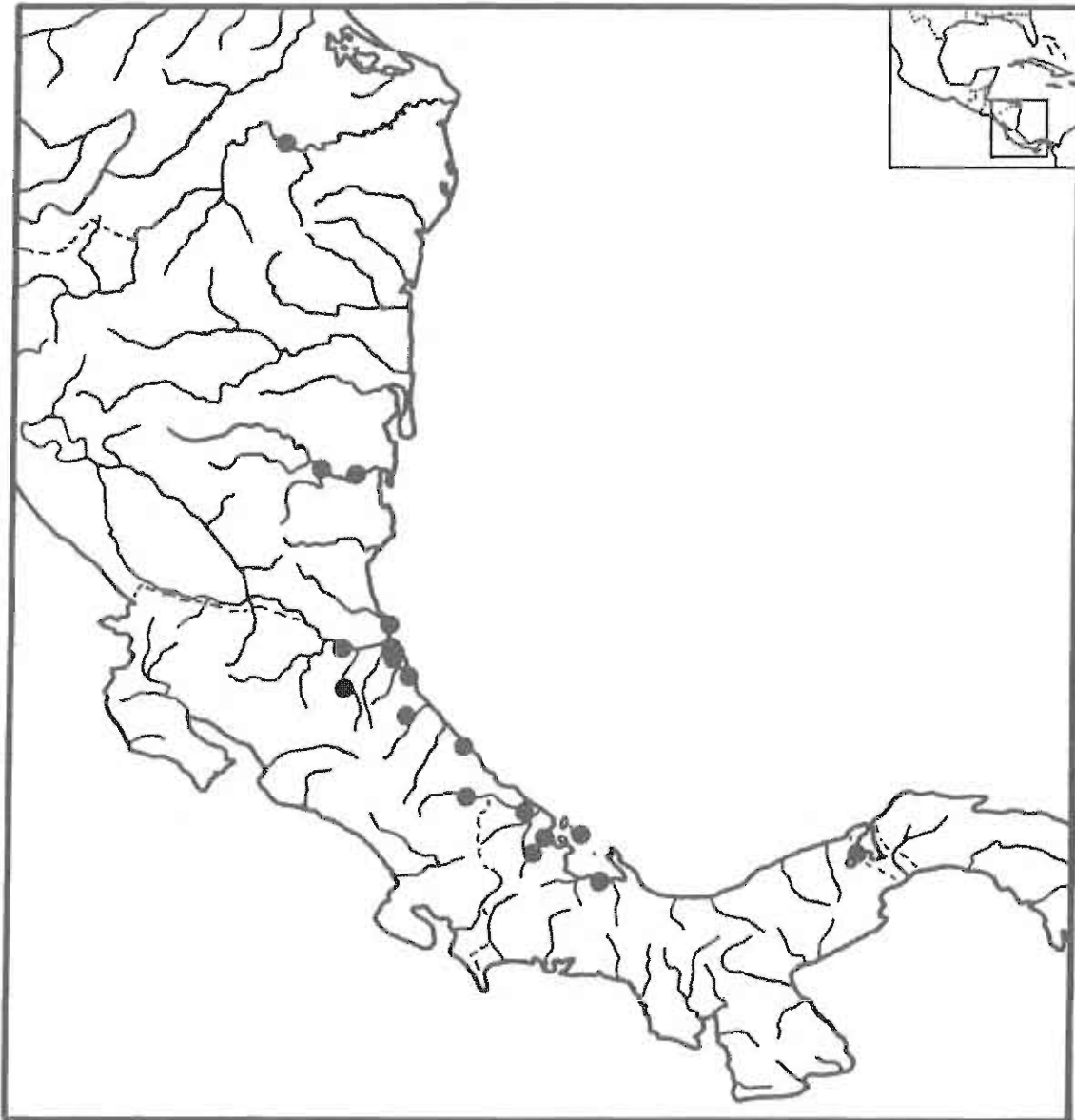
**Syntypes:** (4 specimens) USNM 45000-01, 46134-35

**Type locality:** "Limon" [= Puerto Limón, Costa Rica]

**Distribution:** From the Coco River on the Honduras-Nicaragua border to central Panama along the Caribbean versant

**Subspecies:** None

**Comment:** Reviewed by Ernst (1980c).



## EMYDIDAE; BATAGURINAE

### *Rhinoclemmys melanosterna* (Gray, 1861:205) Colombian Wood Turtle

**Original name:** *Geoclemmys melanosterna*

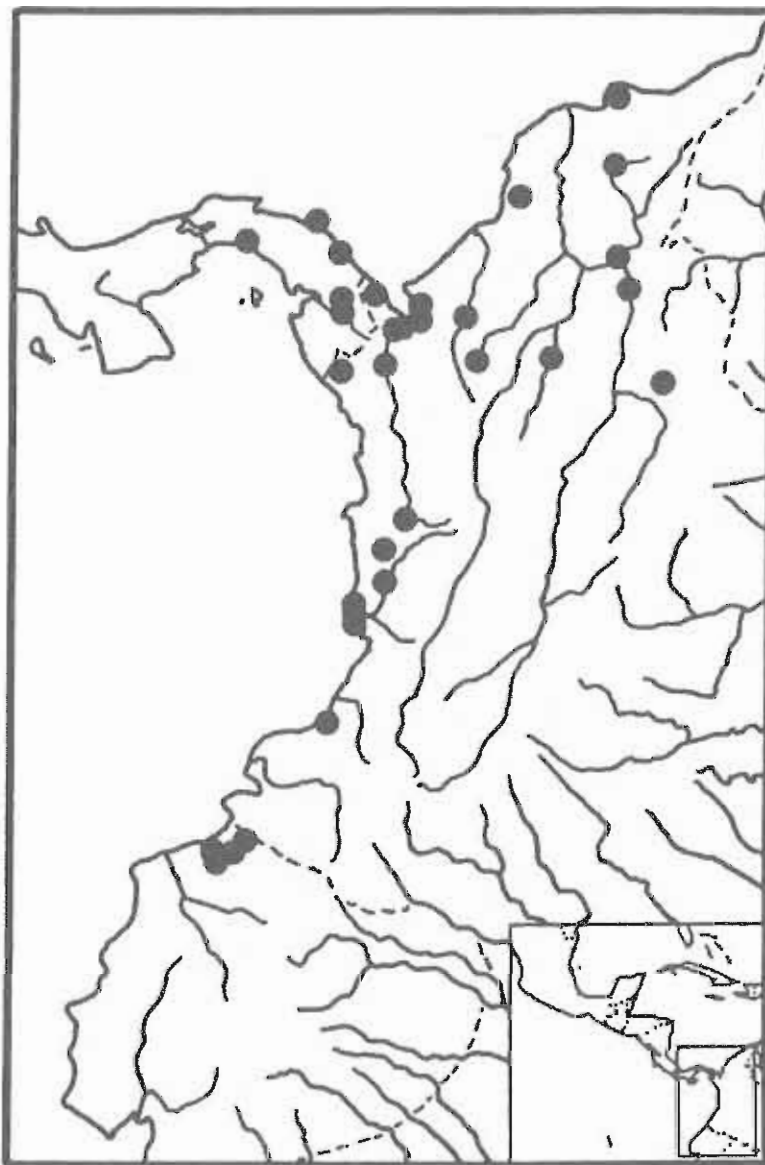
**Syntypes:** (2 specimens) BMNH 1947.3.4.8 and 1947.3.5.51

**Type locality:** "Cherunha ... Gulf of Darien", although the types are listed as coming from "River Buenaventura" and "Chirambira, Gulf of Darien" by Boulenger (1889:124); restricted to "Chirambira near Buenaventura" by Mertens and Wermuth (1955:352) and to "Punta Chirambirá delta del rio San Juan, Chocó, Colombia" by Medem (1958:21)

**Distribution:** eastern Panama to northwestern Colombia south to extreme northwestern Ecuador

**Subspecies:** None

**Comment:** Elevated to species status from the synonymy of *R. punctularia* (e.g., Ernst 1978, 1981c) by Pritchard (1979), Pritchard and Trebbau (1984), Paolillo (1985), and Carr and Bickham (1986).



## EMYDIDAE; BATAGURINAE

*Rhinoclemmys nasuta* (Boulenger, 1902:53)  
Large-nosed Wood Turtle

**Original name:** *Nicoria nasuta*

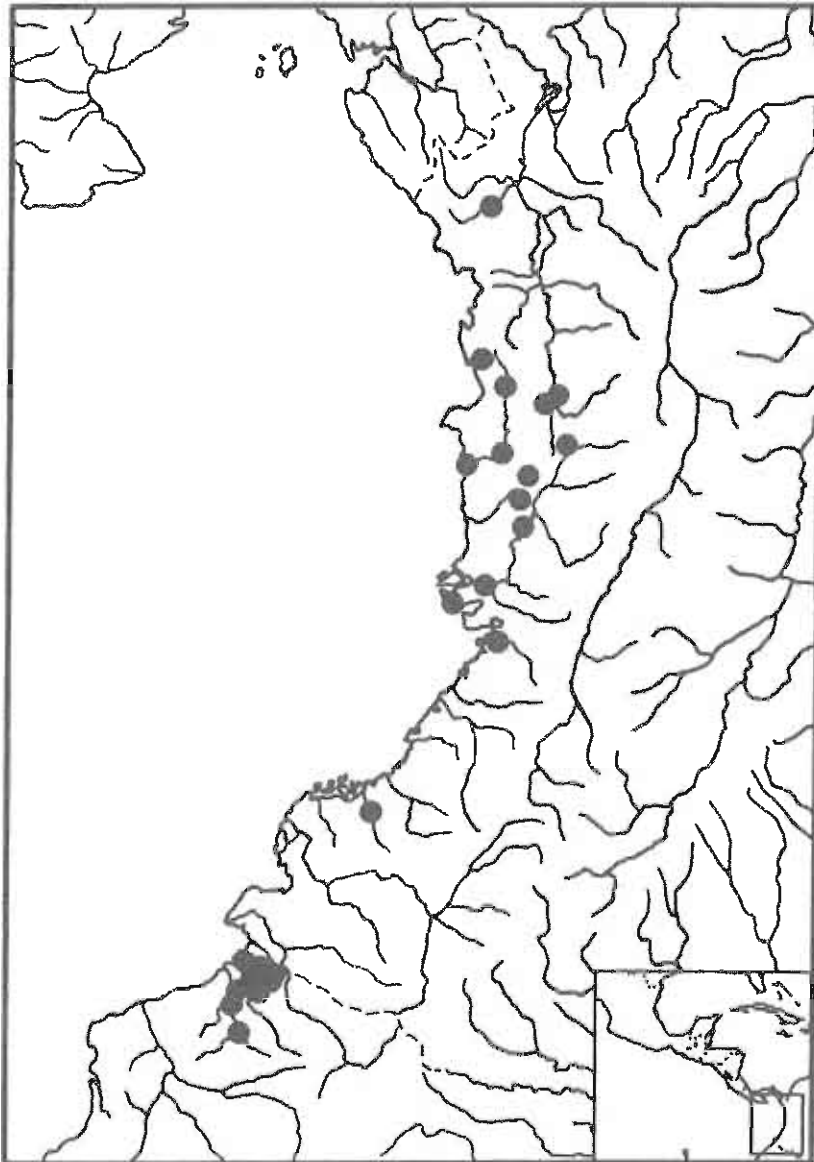
**Syntypes:** (4 specimens) BMNH 1947.3.5.54-57

**Type locality:** "Bulón [= San Francisco de Pulun], 160 feet, and from the Rio Durango, 350 feet"  
[Esmeraldas Province, Ecuador]; Carr and Almendariz (1990:91-93) discuss the precise location of the type locality.

**Distribution:** western Colombia and northwestern Ecuador

**Subspecies:** None

**Comment:** Reviewed by Ernst (1980d) and Carr and Almendariz (1990).



## EMYDIDAE; BATAGURINAE

### *Rhinoclemmys pulcherrima* (Gray, 1855:25) Painted Wood Turtle

**Original name:** *Emys pulcherrimus*

**Holotype:** BMNH 1947.3.5.52

**Type locality:** "Mexico"; restricted by Smith and Taylor (1950a:343 and 1950b:30) to "Presidio de Mazatlan" [Sinaloa, Mexico]; restriction corrected to the "vicinity of San Marcos, Guerrero, Mexico" by Ernst (1978:125)

**Distribution:** southern Sonora, Mexico to northwestern Costa Rica on the Pacific versant; Atlantic versant in eastern Guatemala and eastern Honduras

**Subspecies:** Four are recognized:

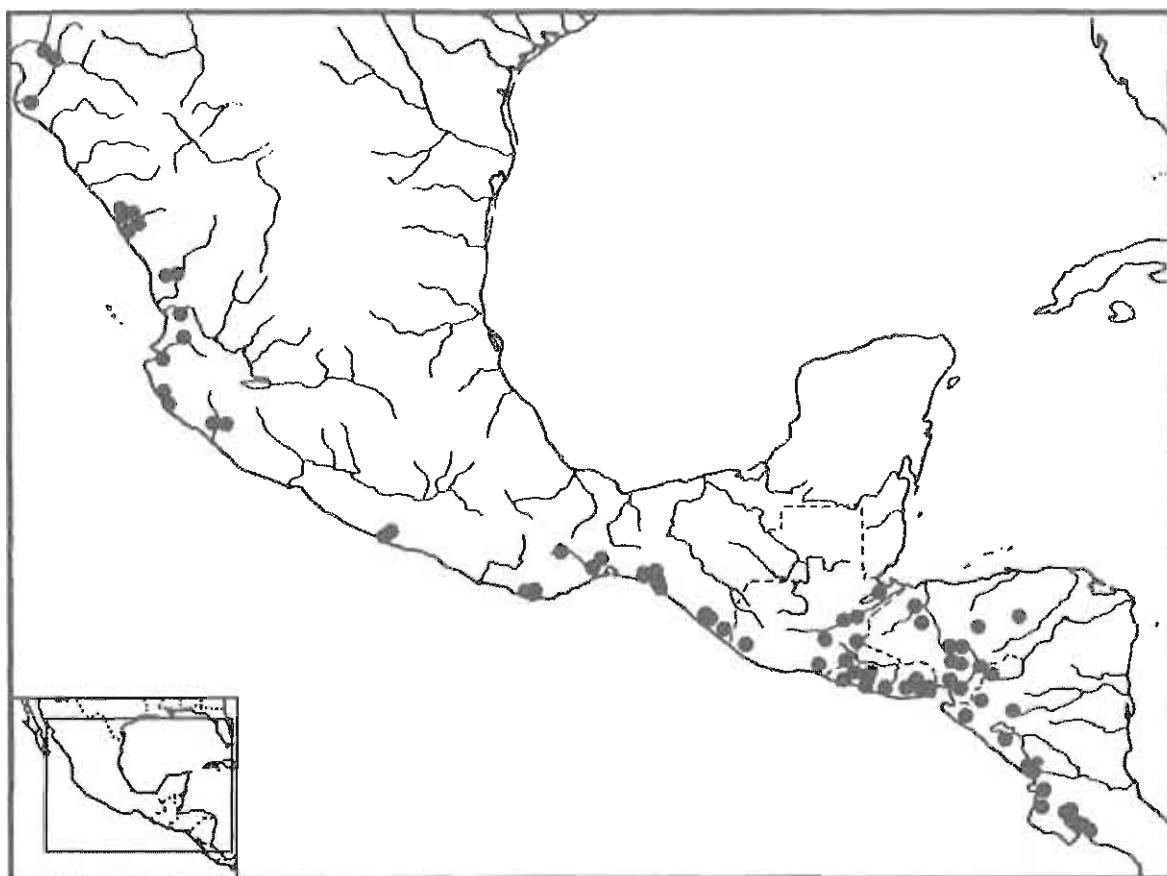
*R. p. pulcherrima* (Gray 1855:25) Guerrero wood turtle [Holotype: see above; type locality: see above; range: coastal Guerrero and Oaxaca, Mexico]

*R. p. incisa* (Bocourt 1868:121) Incised wood turtle [Holotype: MNHN 9131; type locality: "l'Union [La Union], un des ports du [El] Salvador", but recorded as "la Union un des ports du Salvador sur le Pacifique; elle a été trouvée sur la montagne de Conchavoua" by Duméril and Bocourt (1870:12), and unnecessarily restricted to "montagne Conchavoua" by Ernst (1978:129)]; range: Oaxaca, Mexico south to northern Nicaragua]

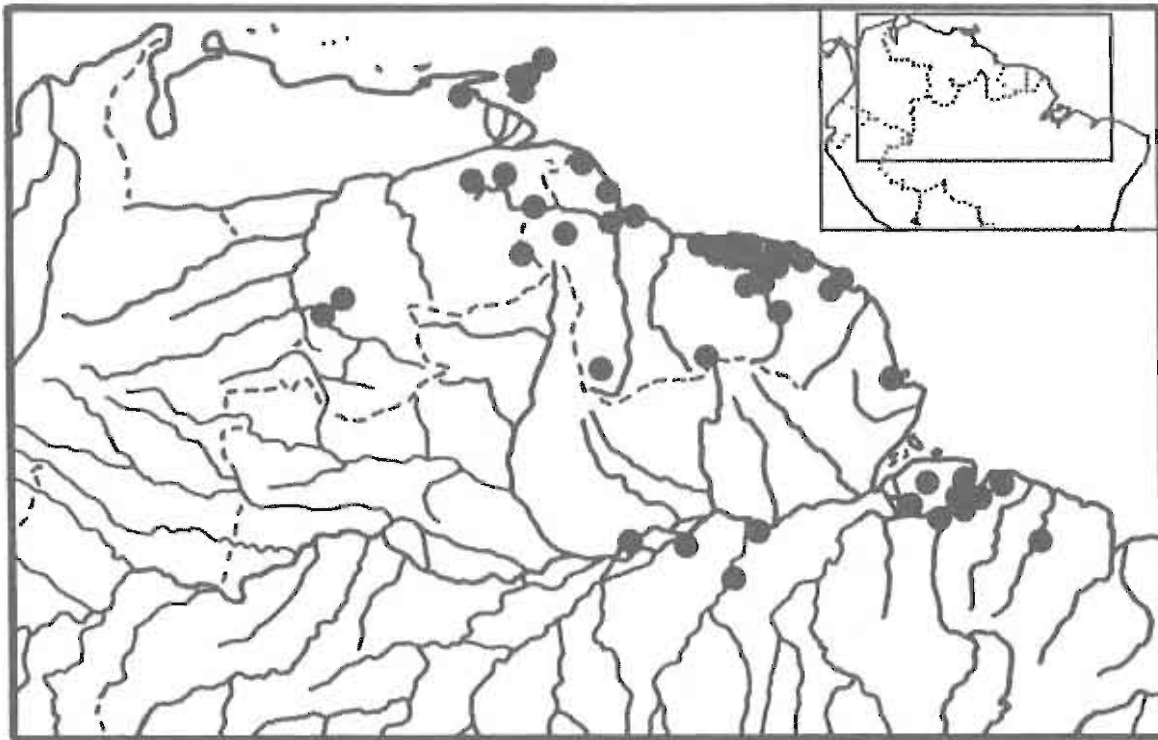
*R. p. manni* Dunn (1930:33) Central American wood turtle [Holotype: MCZ 29097; type locality: "San Jose, Costa Rica"; range: southern Nicaragua to northwestern Costa Rica]

*R. p. rogerbarbouri* Ernst (1978:127) Western Mexican wood turtle [Holotype: AMNH 63760; type locality: "Guirocoba, Sonora, Mexico"; range: southern Sonora to Colima, Mexico]

**Comment:** Reviewed by Smith and Smith (1979) and Ernst (1981b).



## EMYDIDAE; BATAGURINAE

*Rhinoclemmys punctularia* (Daudin, 1802:249)  
Spot-legged Turtle**Original name:** *Testudo punctularia***Holotype:** MNHN 9130**Type locality:** "Cayenne" [French Guiana]**Distribution:** Orinoco to lower Amazon river basins of Venezuela, the Guianas and Brazil; Trinidad and Tobago**Subspecies:** Two are recognized:*R. p. punctularia* (Daudin 1802:249) Eastern spot-legged turtle [Holotype: see above; type locality: see above; range: northeastern Venezuela and Tobago to northeastern Brazil]*R. p. flammigera* Paolillo (1985:294) Upper Orinoco spot-legged turtle [Holotype: EBRG 1467; type locality: "Caño Maica, 10 km SE of Carmelitas, Territorio Federal Amazonas, Venezuela (4° 4' N, 66° 31' W)"; range: southwestern Venezuela]**Comment:** Reviewed by Fretey et al. (1977), Ernst (1981c), Pritchard and Trebbau (1984), and Paolillo (1985). Includes *R. p. lunata* (Gray, 1873b:144) according to Fretey et al. (1977). See Comments under *R. diademata* and *R. melanosterna*.

## EMYDIDAE; BATAGURINAE

### *Rhinoclemmys rubida* (Cope, 1869:148) Mexican Spotted Wood Turtle

**Original name:** *Chelopus rubidus*

**Syntypes:** (9 specimens) USNM 45612-14 and ANSP 285, 337-341, although Cope only noted 4 specimens, numbered 264-67, in the description

**Type locality:** "Tuchitán [= Juchitán], Tehuantepec, [Oaxaca] Mexico"

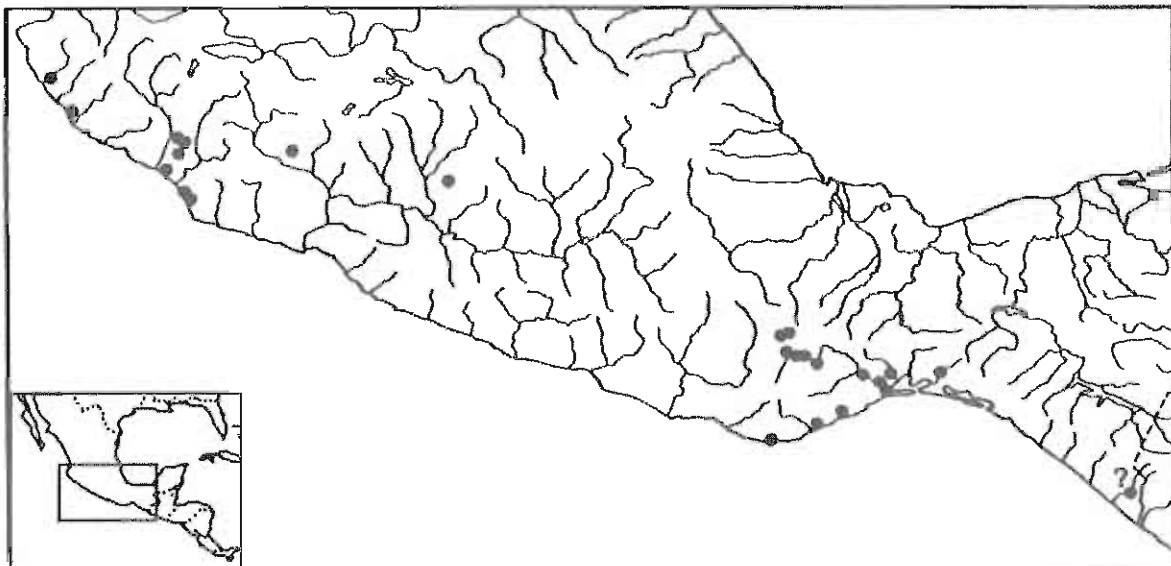
**Distribution:** Mexico: southwestern Jalisco through Colima to southwestern Michoacán (Mexico) and east in the Balsas basin to Mexico (state); central Oaxaca to Chiapas (Mexico)

**Subspecies:** Two are recognized:

*R. r. rubida* (Cope 1869:148) Oaxaca wood turtle [Syntypes: see above; type locality: see above; range: southeastern Mexico (Oaxaca and Chiapas)]

*R. r. perixantha* Mosimann and Rabb (1953:1) Colima wood turtle [Holotype: UMMZ 80336; type locality: "8 kilometers south of Tecoman, Colima, Mexico"; range: southwestern Mexico (Colima, México, and Michoacán)]

**Comment:** Reviewed by Smith and Smith (1979), Ernst (1981d), and Groombridge (1982).





## EMYDIDAE; BATAGURINAE

### *Sacalia* Gray, 1870c:35 Eyed Turtles

**Type species:** *Cistuda Bealei* Gray (1831), by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini. A third species is being described by Iverson and McCord (1992).

**Key to the species:** (after Iverson and McCord, 1992)

- 1a. Anterior dorsum of head finely spotted with black; anterior pair of ocelli on head much less obvious than posterior pair; interpectoral seam usually greater than 25% of maximum carapace width.....*S. bealei* (p. 164)
- 1b. Dorsum of head uniform in color, unmarked with black; anterior pair of ocelli on head nearly or as obvious as posterior pair; interpectoral seam usually less than 25% of maximum carapace width.....*S. quadriocellata* (p. 165)

### *Sacalia bealei* (Gray, 1831b:71) Beal's-eyed Turtle

**Original name:** *Cistuda Bealei*

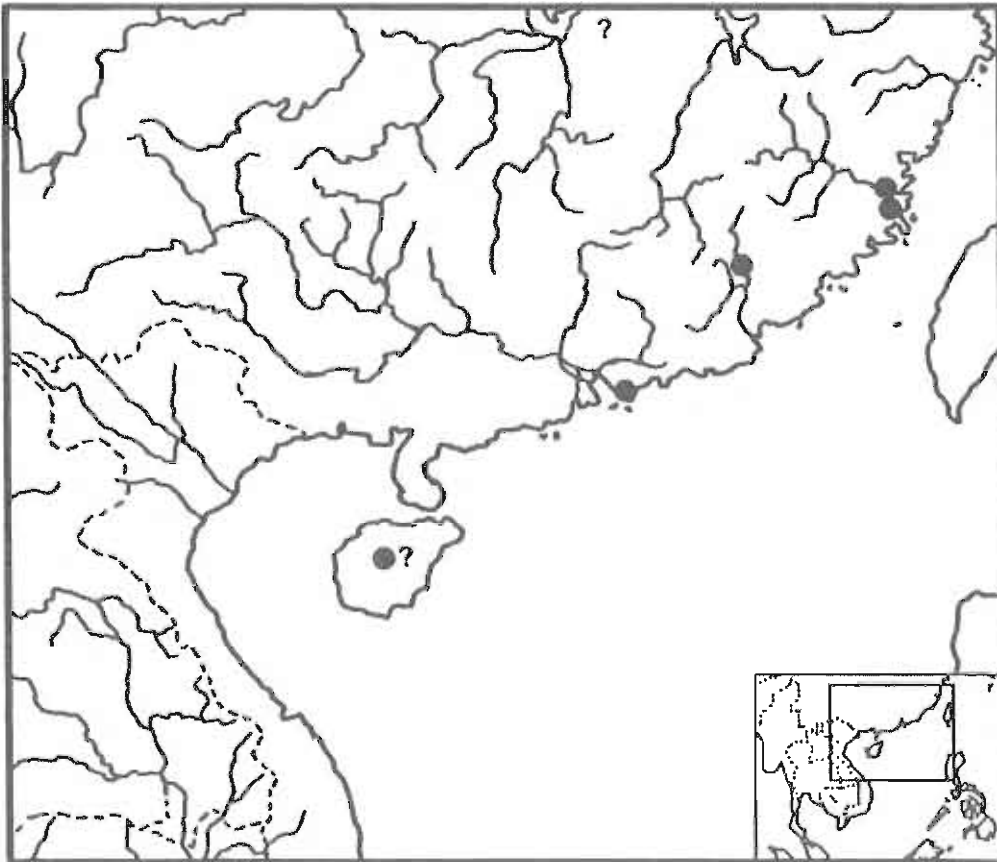
**Syntypes:** (2 specimens) BMNH 1947.3.4.33 and 1947.3.4.42

**Type locality:** "China"

**Distribution:** Hong Kong and southeastern China (PRC), from Fujian to Guangdong Provinces; possibly also in Anhui Prov. and on Hainan Island

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Clemmys bealei*), Pope (1935; as *Clemmys bealei*), and Rödel and Praedicow (1988). Sachsse (1975), Rödel (1985), and Rödel and Praedicow (1988) suggested that *Sacalia quadriocellata* (Siebenrock, 1903a:336) was based on female *S. bealei*, and thus is synonymous with the latter. However, Fu and Zhao (1990) and Iverson and McCord (1992) argued that they are distinct species.



## EMYDIDAE; BATAGURINAE

*Sacalia quadriocellata* Siebenrock, 1903a:336  
Four-eyed turtle

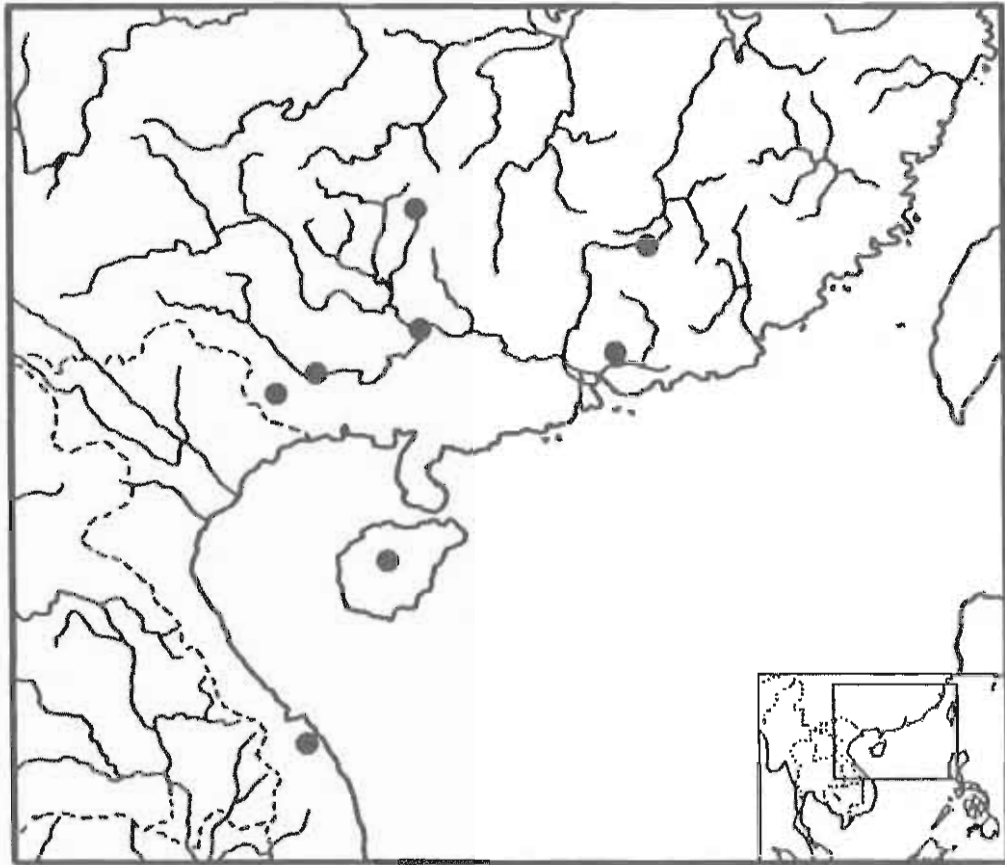
**Original name:** *Clemmys bealii quadriocellata*

**Holotype:** In the NMW according to Smith (1931:115) and Bourret (1941:171)

**Type locality:** "Annam" [central Vietnam]; "Annam, Phuc-Son" according to Siebenrock (1909:482)

**Distribution:** Vietnam to Guangdong and Jiangxi Provinces and Hainan Island, China (PRC)

**Comment:** See account for *S. bealei*. Reviewed by Pope (1935; as *Clemmys quadriocellata*) and Bourret (1941; as *Clemmys quadriocellata*).



## EMYDIDAE; BATAGURINAE

*Siebenrockiella* Lindholm, 1929:280  
Black Marsh Turtles

**Type species:** *Emys crassicollis* Gray (1831b), by monotypy

**Distribution:** As for the single species

**Comment:** Tribe Batagurini. *Siebenrockiella* is a replacement name for *Bellia* Gray (1869a:169), which is preoccupied by *Bellia* Milne-Edwards (1848; Crustacea).

*Siebenrockiella crassicollis* (Gray, 1831b:21)  
Black Marsh Turtle

**Original name:** *Emys crassicollis*

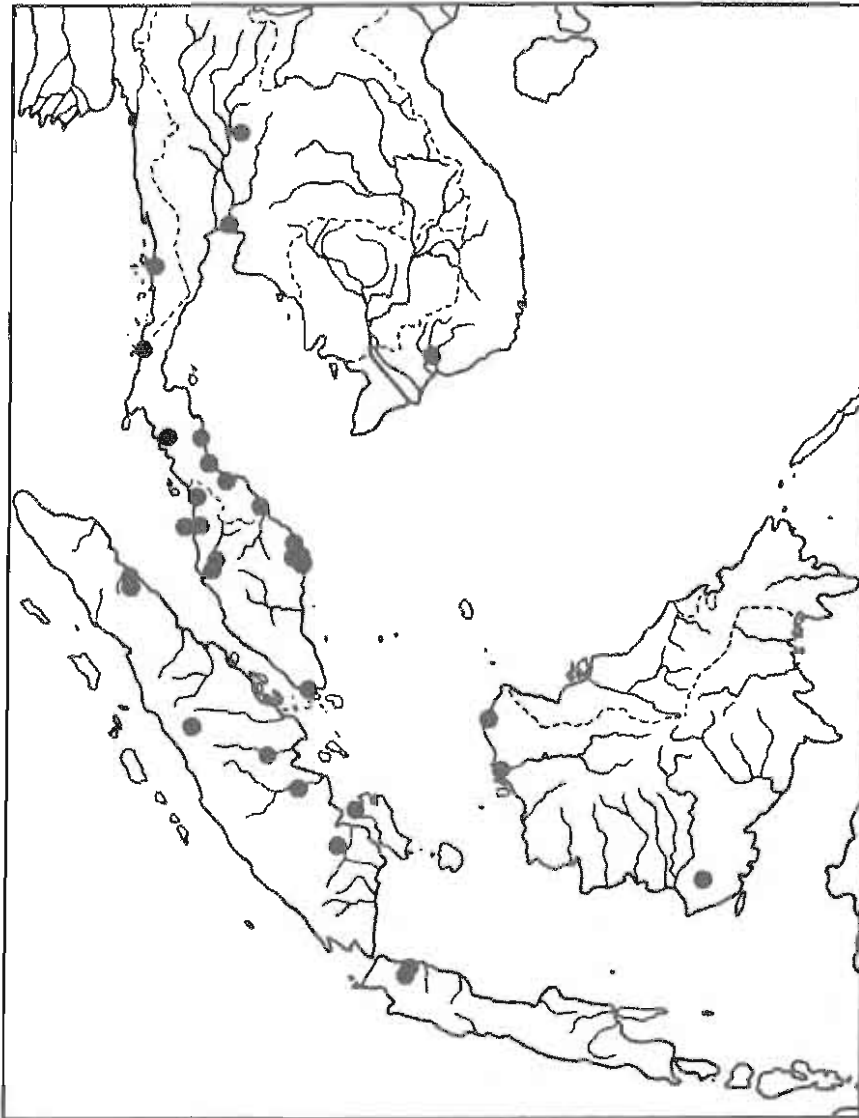
**Holotype:** BMNH 1947.3.5.36; although OUM has a shell (#8480) that is labelled as a syntype, and the legend in Gray (1831 "1830-35":Plate 76) suggests a specimen from the T. Bell collection, which is in the OUM.

**Type locality:** "Sumatra" [Indonesia]

**Distribution:** lower Burma, Thailand and southern Vietnam south through the Malay Peninsula (Malaysia) to Sumatra, Java, and Kalimantan (Borneo), Indonesia

**Subspecies:** None

**Comment:** Reviewed by Smith (1931), Bourret (1941), and Taylor (1970).



## EMYDIDAE; EMYDINAE

### Subfamily *Emydinae* Rafinesque, 1815:75 Emydine Turtles

**Original Name:** Emidania

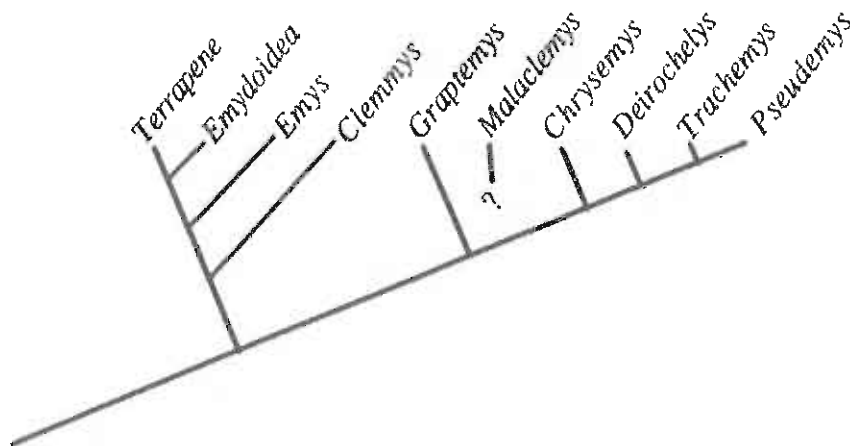
**Distribution:** Americas and Eurasia; North Africa

**Comment:** Phylogenetic relationships are discussed by McDowell (1964), Bramble (1974), and Dryden (1989). See Smith and Smith (1979:413-415) for taxonomic history. Gaffney and Meylan (1988) and Seidel and Adkins (1989) favor the recognition of two subfamilies: the Emydinae (*Clemmys*, *Emys*, *Emydoidea*, and *Terrapene*) and the Deirochelyinae (*Chrysemys*, *Deirochelys*, *Graptemys*, *Malaclemys*, *Pseudemys*, and *Trachemys*).

**Key to the genera:** (after Ernst and Barbour, 1989)

- 1a. Plastron with a well-developed hinge.....2
- 1b. Plastron without a well-developed hinge.....4
- 2a. Neck extremely long (distance from snout to shoulder approximately equal to plastron length); chin and throat bright yellow.....*Emydoidea* (p. 176)
- 2b. Neck not long (distance from snout to shoulder approximately equal to half the plastron length); chin and throat not bright yellow.....3
- 3a. Upper jaw medially notched.....*Emys* (p. 177)
- 3b. Upper jaw not medially notched.....*Terrapene* (p. 198)
- 4a. Neck extremely long (distance from snout to shoulder approximately equal to plastron length); pattern of vertical stripes on rear surface of thighs and a broad light stripe along anterior margin of each forelimb.....*Deirochelys* (p. 175)
- 4b. Neck not long (distance from snout to shoulder approximately equal to half the plastron length); usually no pattern of vertical stripes on rear surface of thighs, but if present, light stripes on anterior margin of each forelimb are narrow .....5
- 5a. Upper jaw with prominent notch bordered on each side by tooth-like cusps.....6
- 5b. Upper jaw without prominent notch on cusps.....8
- 6a. Carapace not serrated posteriorly; no vertebral keel.....*Chrysemys* (p. 168)
- 6b. Carapace serrated posteriorly; vertebral keel present.....7
- 7a. Crushing surface of upper jaw without a tuberculate ridge extending parallel to its margin.....*Trachemys* (p. 204)
- 7b. Crushing surface of upper jaw with a row of tubercles on ridge extending parallel to its margin.....*Pseudemys* (p. 190)
- 8a. Crushing surface of the upper jaw with a ridge or tuberculate row extending parallel to its margin.....*Pseudemys* (in part) (p. 190)
- 8b. Crushing surface of the upper jaw smooth or undulating but not ridged.....9
- 9a. Crushing surface of the upper jaw narrow.....*Clemmys* (p. 170)
- 9b. Crushing surface of the upper jaw broad.....10
- 10a. Scutes of the carapace rough, with concentric ridges or striations formed by growth annuli; head and neck without longitudinal stripes.....*Malaclemys* (p. 189)
- 10b. Scutes of the carapace smooth, without concentric ridges or striations formed by growth annuli; head and neck striped.....*Graptemys* (p. 178)

**Phylogenetic hypothesis:** (after Gaffney and Meylan, 1988 and Seidel and Adkins, 1989)



## EMYDIDAE; EMYDINAE

*Chrysemys* Gray, 1844:27  
Painted turtles

**Type species:** *Testudo picta* Schneider (1783:348), by subsequent designation of Brown (1908:114).

**Distribution:** As for the single species

**Comment:** Considered by McDowell (1964), Weaver and Rose (1967), Holman (1977), and Fritz (1981b) to include *Pseudemys* and *Trachemys*. This view has been rejected by Vogt and McCoy (1980), Ernst and Ernst (1980), Ward (1984), Iverson (1986), Seidel and Smith (1986), Ernst (1990), and Legler (1990). Reviewed by Ernst (1988c) and in part by Smith and Smith (1979:418-433).

*Chrysemys picta* (Schneider, 1783:348)  
Painted Turtle

**Original name:** *Testudo picta*

**Holotype:** Not stated; possibly in the MZUS according to R. Bour (pers. comm.)

**Type locality:** "Unknown, said to be England" (in error) according to Stejneger and Barbour (1943:203); designated as "Lancaster [Lancaster Co.], Pennsylvania" [USA] by Mittleman (1945:171); designated as "vicinity of New York City" [New York, USA] by Schmidt (1953:99; in error, according to Smith and Smith, 1979:424)

**Distribution:** southern Canada, the USA (except for the southeast and southwest), and northern Chihuahua, Mexico; introduced in California, USA (Stebbins, 1985)

**Subspecies:** Four are recognized:

*C. p. picta* (Schneider 1783:348) Eastern painted turtle [Holotype: see above; type locality: see above; range: northern Georgia to Nova Scotia]

*C. p. bellii* (Gray 1831b:31) Western painted turtle [Holotype: originally in RCSM, but destroyed in 1941 by bombing during World War II; type locality: not stated but designated as "Manhattan, Kans." [Riley Co., Kansas] by Smith and Taylor (1950b:34); range: southern Canada from southwestern Ontario to Vancouver Island; Washington and northern Oregon to Missouri and Wisconsin, and isolated populations in New Mexico, southern Utah, southwestern Colorado, and northern Chihuahua, Mexico]

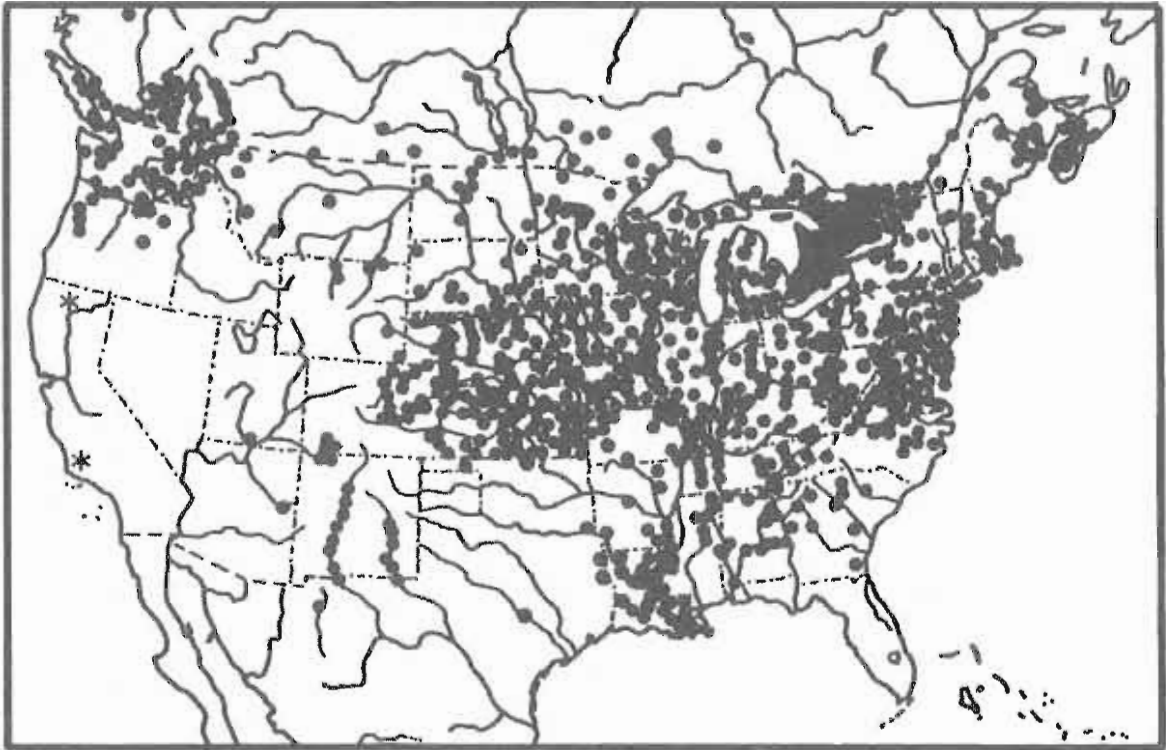
*C. p. dorsalis* Agassiz (1857:440) Southern painted turtle [Syntypes: (3 specimens) USNM 21 and MCZ 1801 and 31960; type locality: "States of Mississippi and Louisiana . . . Lake Concordia is the locality whence most specimens were obtained"; restricted to "vicinity of New Orleans" [Orleans Parish, Louisiana] by Schmidt (1953:100), although Ernst (1967:133) argued this restriction was illogical; range: Louisiana, Arkansas, and east Texas to Alabama and southeastern Missouri]

*C. p. marginata* Agassiz (1857:439) Midland painted turtle [Syntypes: (5 specimens) UMMZ 63519, MCZ 1789-91 and 1796; type locality: "Racine [Racine Co.], Wisconsin...Milwaukee [Milwaukee Co.], Wisconsin...Flint [Genesee Co.], Michigan...Ann-Arbor [Washtenaw Co.], Michigan...Delphi [Carroll Co.], Indiana...Burlington [Des Moines Co.], Iowa"; restricted to "northern Indiana" by Schmidt (1953:99); range: Tennessee to Illinois to New York and New Hampshire to southern Canada]

**Comment:** Reviewed by Ernst (1971).

EMYDIDAE; EMYDINAE

*Chrysemys picta* (continued)



## EMYDIDAE; EMYDINAE

*Clemmys* Ritgen, 1828:270  
Pond Turtles

**Type species:** *Testudo punctata* Schoepff (1792) [= *Testudo guttata* Schneider (1792)], by subsequent designation of Baur (1892:43)

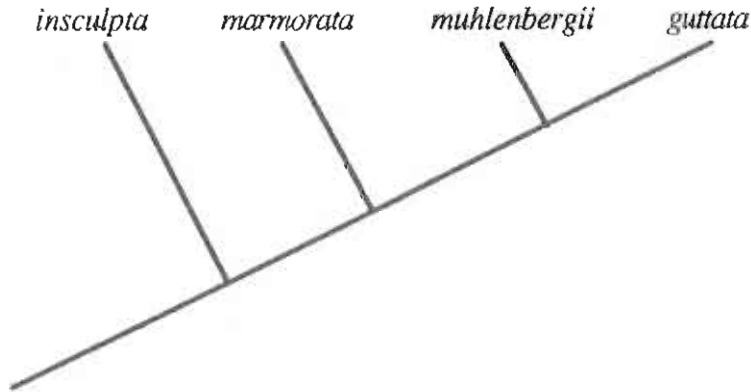
**Distribution:** southeastern Canada and eastern Minnesota to northern Florida (USA); extreme southwestern Canada to northern Baja California (Mexico)

**Comment:** Reviewed by Bury and Ernst (1977) and Smith and Smith (1979). Merkle (1975) studied relationships using protein electrophoresis.

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Hind foot webbed to base of claws; vertebral keel lacking; found west of Rocky Mountains.....*C. marmorata* (p. 173)
- 1b. Hind foot webbed to base of penultimate phalanges of three middle toes; vertebral keel may be present; found east of the Rocky Mountains.....2
- 2a. Carapace strongly serrated along posterior margin; strong vertebral keel...*C. insculpta* (p. 172)
- 2b. Carapace with nearly or quite smooth posterior margin; vertebral keel weak or absent.....3
- 3a. Head and carapace black with small yellow spots, temporal region of head with elongate yellow blotch; carapace never keeled.....*C. guttata* (p. 171)
- 3b. Head and carapace brown to black without small yellow spots; temporal region of head with large, bright yellow, orange or red, rounded blotch; carapace weakly keeled.....*C. muhlenbergii* (p. 174)

**Phylogenetic hypothesis:** (after Merkle, 1975)



## EMYDIDAE; EMYDINAE

*Clemmys guttata* (Schneider, 1792:264)  
Spotted Turtle

**Original name:** *Testudo guttata*

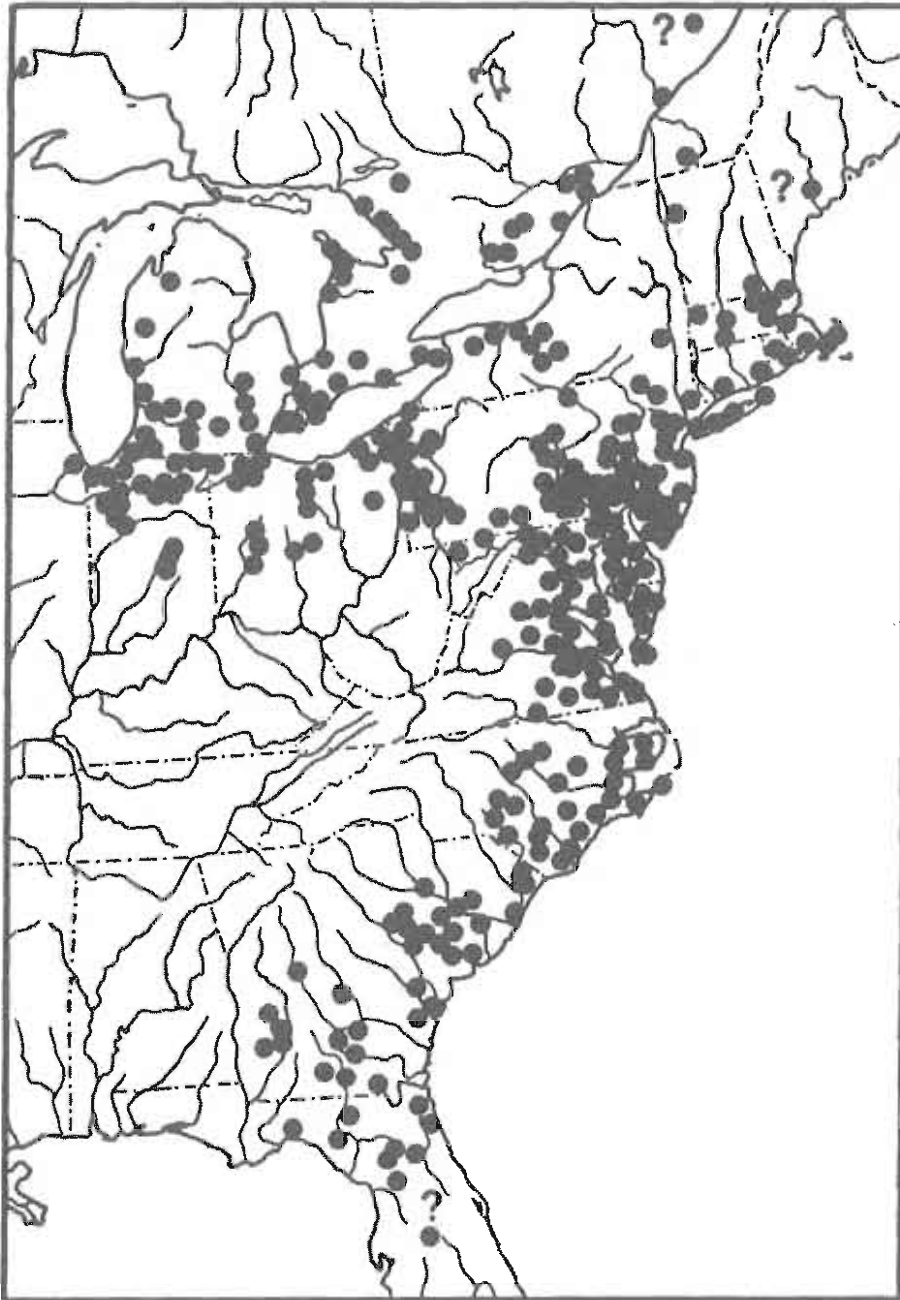
**Holotype:** Not known to exist

**Type locality:** Not stated; designated as "vicinity of Philadelphia" [Philadelphia Co., Pennsylvania, USA] by Mittleman (1945:171)

**Distribution:** southeastern Canada and from northeastern Illinois and Michigan to southern Maine and south to northern Florida in the USA

**Subspecies:** None

**Comment:** Reviewed by Ernst (1972a).





## EMYDIDAE; EMYDINAE

*Clemmys insculpta* (LeConte, 1829:112)  
Wood Turtle

**Original name:** *Testudo insculpta*

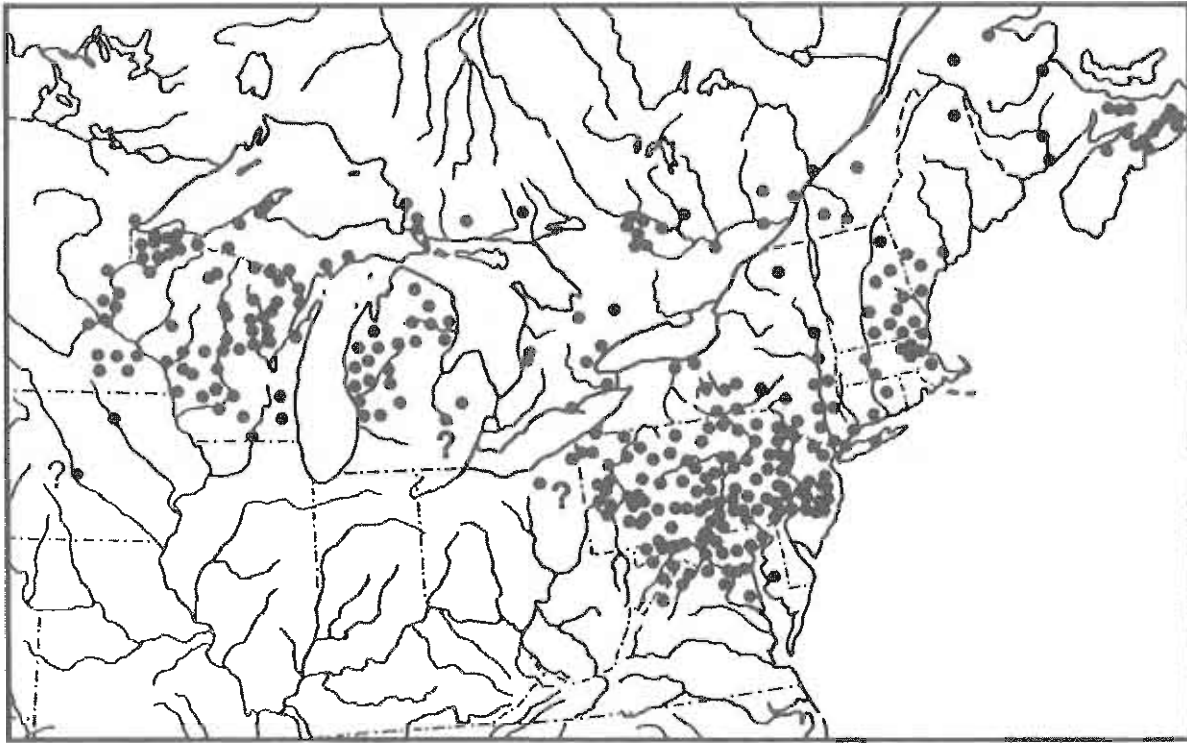
**Holotype:** A specimen in the MNHN is being designated as lectotype by R. Bour (pers. comm.)

**Type locality:** "inhabits the northern states" [USA]; restricted by Schmidt (1953:92) to the "vicinity of New York City" [New York, USA]

**Distribution:** eastern Minnesota and northeastern Iowa to northern Virginia and Maine, USA and southeastern Canada

**Subspecies:** None

**Comment:** Reviewed by Ernst (1972b).



## EMYDIDAE; EMYDINAE

### *Clemmys marmorata* (Baird and Girard, 1852:177) Pacific Pond Turtle

**Original name:** *Emys marmorata*

**Syntypes:** (4 specimens) USNM 7594-96 and 131830 (formerly 7593)

**Type locality:** "Puget Sound" [Washington, USA]

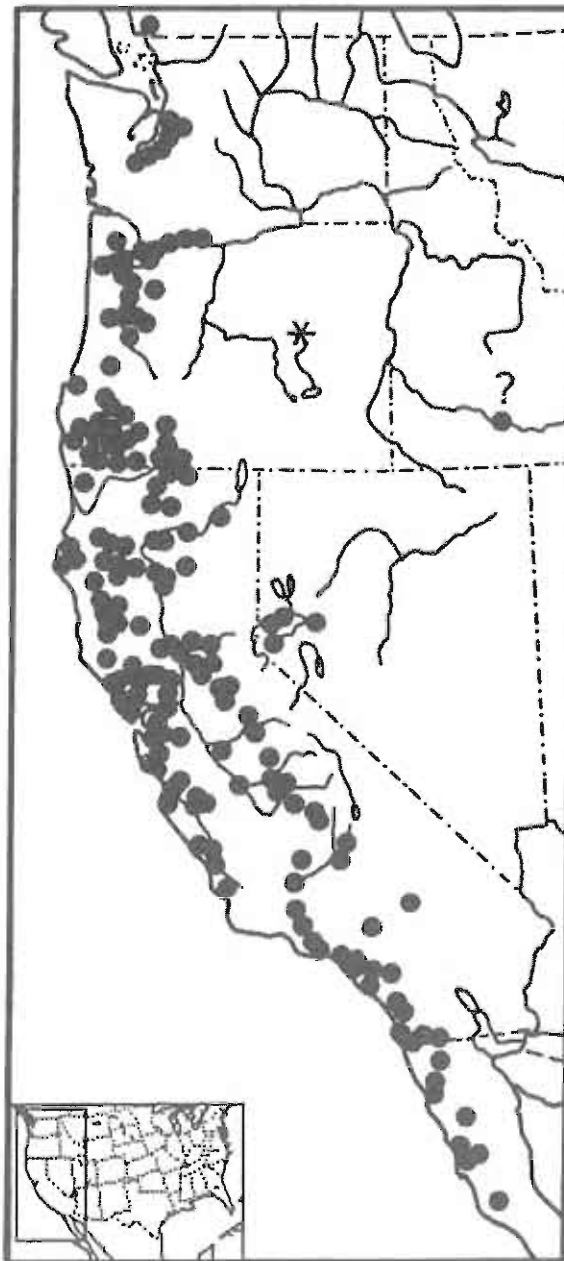
**Distribution:** Pacific coastal region of Washington, Oregon, and California, and extreme western Nevada (USA) to northern Baja California (Mexico); extirpated in southern British Columbia (Canada); introduced in Grant Co., Oregon, USA (Stebbins, 1985)

**Subspecies:** Two are recognized:

*C. m. marmorata* (Baird and Girard 1852:177) Northern Pacific pond turtle [Holotype: see above; type locality: see above; range: British Columbia, Canada to west-central California, USA]

*C. m. pallida* Seeliger (1945:158) Southern Pacific pond turtle [Holotype: MVZ 6716; type locality: "Lower Coyote Creek, near Alamitos, Orange County, California"; range: west-central California, USA, and northwestern Baja California Norte, Mexico]

**Comment:** Reviewed by Bury (1970) and Smith and Smith (1979).



*Clemmys marmorata*  
May have been  
1852  
  
1852: 18-20  
  
W. Girard:  
Living marmorata

## EMYDIDAE; EMYDINAE

*Clemmys muhlenbergii* (Schoepff, 1801:132)  
Bog Turtle

**Original name:** *Testudo muhlenbergii*

**Holotype:** Unknown

**Type locality:** "Pensylvanicae" [= Pennsylvania]; restricted by Stejneger and Barbour (1917:114) to "Lancaster, [Lancaster Co.] Pennsylvania" [USA]

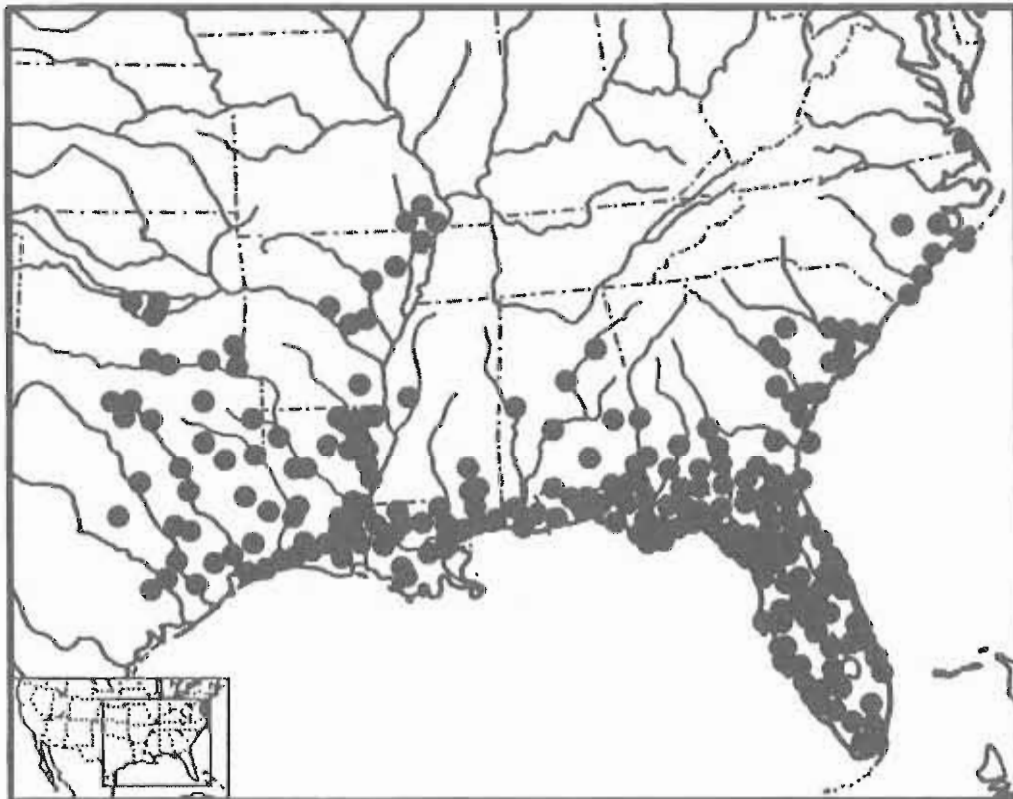
**Distribution:** USA: disjunct populations from western Massachusetts, western New York, and western Pennsylvania to southwestern North Carolina, adjacent South Carolina, and extreme northern Georgia

**Subspecies:** None

**Comment:** Reviewed by Ernst and Bury (1977), Landry (1979), Warner (1981), and Groombridge (1982).



## EMYDIDAE; EMYDINAE

*Deirochelys* Agassiz, 1857:441  
Chicken Turtles**Type species:** *Testudo reticularia* Latreille (1801), by monotypy**Distribution:** As for the single species**Comment:** Considered to be closely related to *Emydoidea* by McDowell (1964) and Dryden (1985) based on skeletal morphology, but not by Frair (1982c) or Seidel and Adkins (1989) based on serology and myoglobins, respectively, or by Bramble (1974) or Gaffney and Meylan (1988) based on morphology.*Deirochelys reticularia* (Latreille, 1801:124)  
Chicken Turtle**Original name:** *Testudo reticularia***Holotype:** Formerly in MNHN, now lost; illustrated in the original description; CFMV 54.48.1 designated neotype by Schwartz (1956a:466)**Type locality:** "Carolina"; restricted to "Charleston" [Charleston Co., South Carolina, USA] by Harper (1940:711); neotype is from "9 miles northwest of Charleston, Charleston County, South Carolina" [USA] according to Schwartz (1956a:466)**Distribution:** USA: eastern Texas and southeastern Oklahoma to Florida and northeast to southeastern Virginia**Subspecies:** Three are recognized:*D. r. reticularia* (Latreille 1801:124) Eastern chicken turtle [Holotype: see above; type locality: see above; range: Mississippi and southeastern Louisiana to north Florida and southeastern Virginia]*D. r. chrysea* Schwartz (1956a:476) Florida chicken turtle [Holotype: UMMZ 111440; type locality: "5.8 miles east of Monroe Station, Collier County Florida"; range: peninsular Florida]*D. r. miaria* Schwartz (1956a:486) Western chicken turtle [Holotype: FMNH 37478; type locality: "College Station, Brazos County, Texas"; range: eastern Texas and southeastern Oklahoma to southeastern Missouri and Louisiana]**Comment:** Reviewed by Schwartz (1956a) and Zug and Schwartz (1971).

## EMYDIDAE; EMYDINAE

*Emydoidea* Gray, 1870c:19  
Blanding's Turtles

**Type species:** *Cistuda Blandingii* Holbrook (1838), by monotypy

**Distribution:** As for the single species

**Comment:** See comment under *Deirochelys*. Considered synonymous with the genus *Emys* until clarified by Loveridge and Williams (1957:188-189).

*Emydoidea blandingii* (Holbrook, 1838:35)  
Blanding's Turtle

**Original name:** *Cistuda Blandingii*

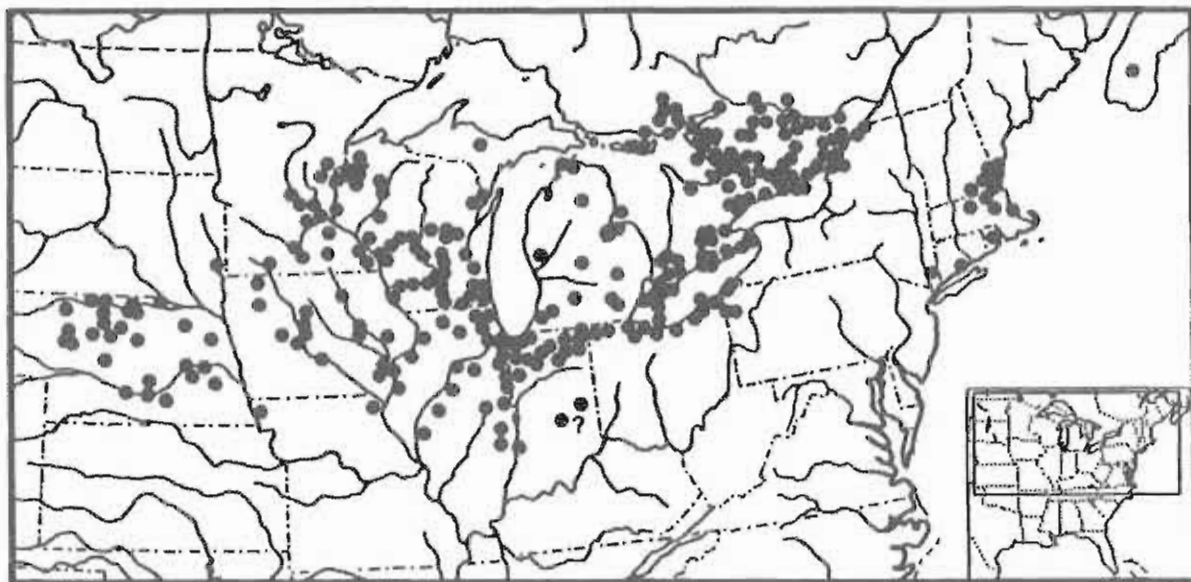
**Holotype:** ANSP 26123

**Type locality:** "... Fox river, a tributary of the Illinois" [Illinois, USA]

**Distribution:** The Great Lakes region of Canada and the USA, west to Nebraska, USA; scattered populations from southeastern New York, USA to Nova Scotia, Canada

**Subspecies:** None

**Comment:** Reviewed by McCoy (1973).



## EMYDIDAE; EMYDINAE

*Emys* Duméril, 1806:76  
European Pond Turtles

**Type species:** *Testudo europaea* Schneider (1783) [= *Testudo orbicularis* Linnaeus (1758)], by subsequent designation of Fitzinger (1843:29)

**Distribution:** As for the single species

**Comment:** See Comment under *Emydoidea*.

*Emys orbicularis* (Linnaeus, 1758:198)  
European Pond Turtle

**Original name:** *Testudo orbicularis*

**Holotype:** Not located

**Type locality:** "meridionalibus Europae" [= Southern Europe]

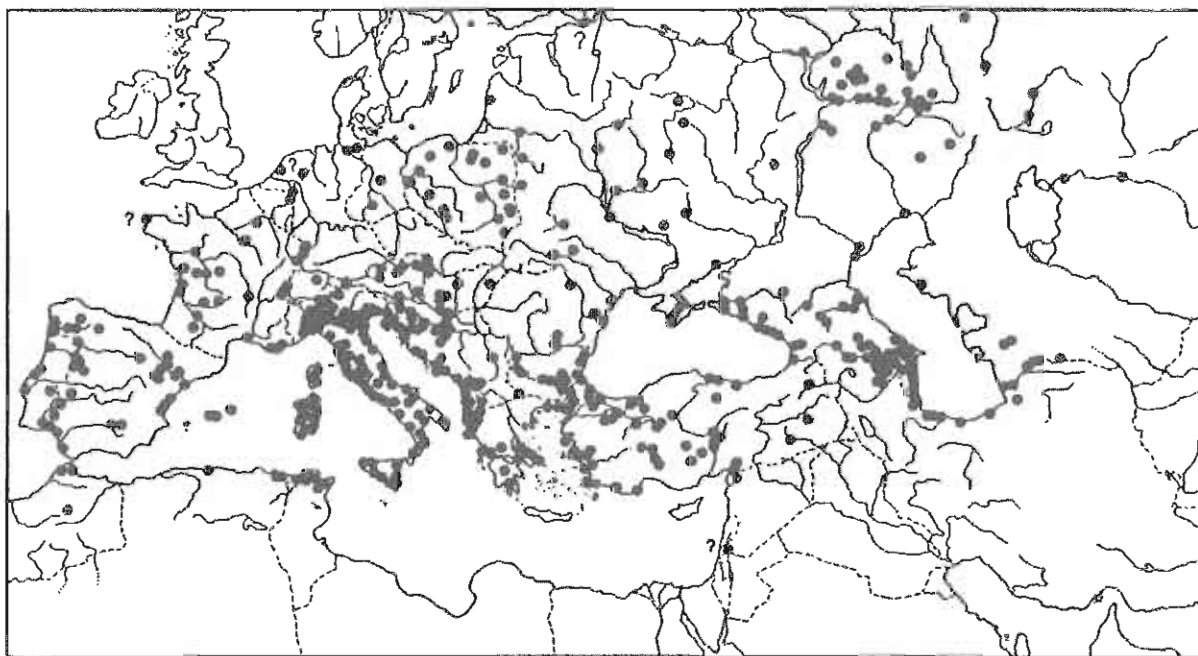
**Distribution:** northwestern Africa (Tunisia to Morocco), Europe (Portugal to Greece to Lithuania) to northern Iran and the Aral Sea region in the USSR; records from northwestern Europe may be introductions

**Subspecies:** Two are recognized:

*E. o. orbicularis* (Linnaeus 1758:198) Common European pond turtle [Holotype: see above; type locality: see above; range: as for the species, except for central Turkey]

*E. o. luteofusca* Fritz (1989:145) Central Turkey pond turtle [Holotype: SMNS 4615:1; type locality: "See-Ebene westlich von Eregli, Provinz Konya, Türkei"; range: high plains area of Konya-Eregli, in Turkey]

**Comment:** Reviewed by Loveridge and Williams (1957), Street (1979), and Fritz (1989).



## EMYDIDAE; EMYDINAE

*Graptemys* Agassiz, 1857:436  
Map Turtles

**Type species:** *Testudo geographica* LeSueur (1817), by subsequent designation of Stejneger and Barbour (1917:117).

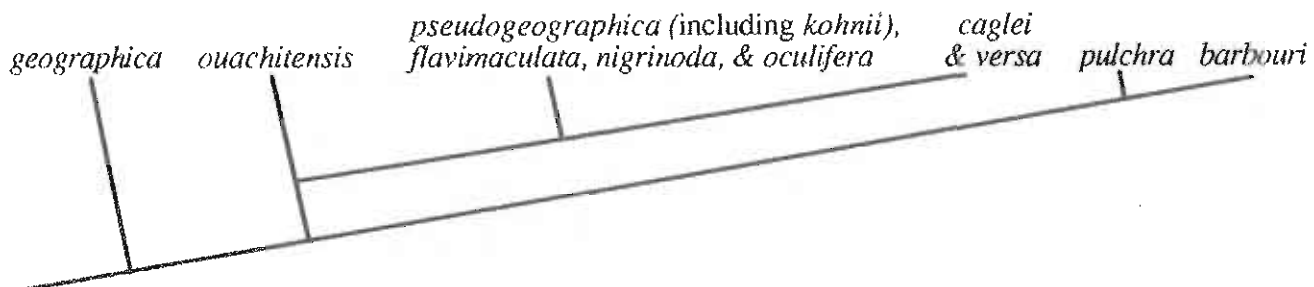
**Distribution:** Eastern USA and southeastern Canada

**Comment:** The species composition of this genus is problematic; see Comments under *G. ouachitensis* and *G. pseudogeographica*. Reviewed by Dobie (1981).

**Key to species:** (after Ernst and Barbour, 1989)

- 1a. Vertebral keel low, without prominent spines or knobs.....2
- 1b. Vertebral keel well developed, with prominent spines or knobs.....3
- 2a. Horizontal or J-shaped reddish to orange mark behind the eye; scutes of carapace distinctly convex; small size.....*G. versa* (p. 188)
- 2b. Yellowish spot behind the eye; scutes of carapace not convex; medium to large size.....*G. geographica* (p. 182)
- 3a. Vertebral keel with blunt, rounded black knobs.....*G. nigrinoda* (p. 183)
- 3b. Vertebral keel with sharp, narrow spines.....4
- 4a. A large solid orange or yellow spot on each pleural scute.....*G. flavimaculata* (p. 181)
- 4b. Solid orange or yellow spot absent from pleural scutes.....5
- 5a. A light ring or oval mark on each pleural scute.....*G. oculifera* (p. 184)
- 5b. No ring or oval mark on each pleural scute.....6
- 6a. Large, solid light mark behind the eye.....7
- 6b. Narrow light lines behind the eye.....8
- 7a. A longitudinal light bar under the chin; broad light bars on the marginal scutes.....*G. pulchra* (p. 187)
- 7b. A curved or transverse bar under the chin; narrow, light bars on the marginal scutes.....*G. barbouri* (p. 179)
- 8a. Light postorbital stripe originates beneath the orbit and continues onto the dorsal surface of the head, usually preventing neck stripes from reaching the eye.....9
- 8b. Light postorbital stripe originates behind the orbit and does not prevent neck stripes from reaching the eye.....10
- 9a. Chin with transverse cream-colored bar; a longitudinal yellow mark occurs at the symphysis of the lower jaw; carapacial scutes appear lumpy.....*G. caglei* (p. 180)
- 9b. Chin lacking a transverse cream-colored bar; a longitudinal yellow mark occurs at the symphysis of the lower jaw; carapacial scutes smooth, not lumpy.....*G. pseudogeographica kohnii* (p. 186)
- 10a. Postorbital mark narrow, no large spots on the jaws.....*G. pseudogeographica* (in part)(p. 186)
- 10b. Postorbital mark square, rectangular, elongated or oval; a large light spot occurs just under the eye, and another on the lower jaw.....*G. ouachitensis* (p. 185)

**Phylogenetic hypothesis:** (after Trip Lamb, unpublished; pers. comm.)



## EMYDIDAE; EMYDINAE

*Gratemys barbouri* Carr and Marchand, 1942:98  
Barbour's Map Turtle

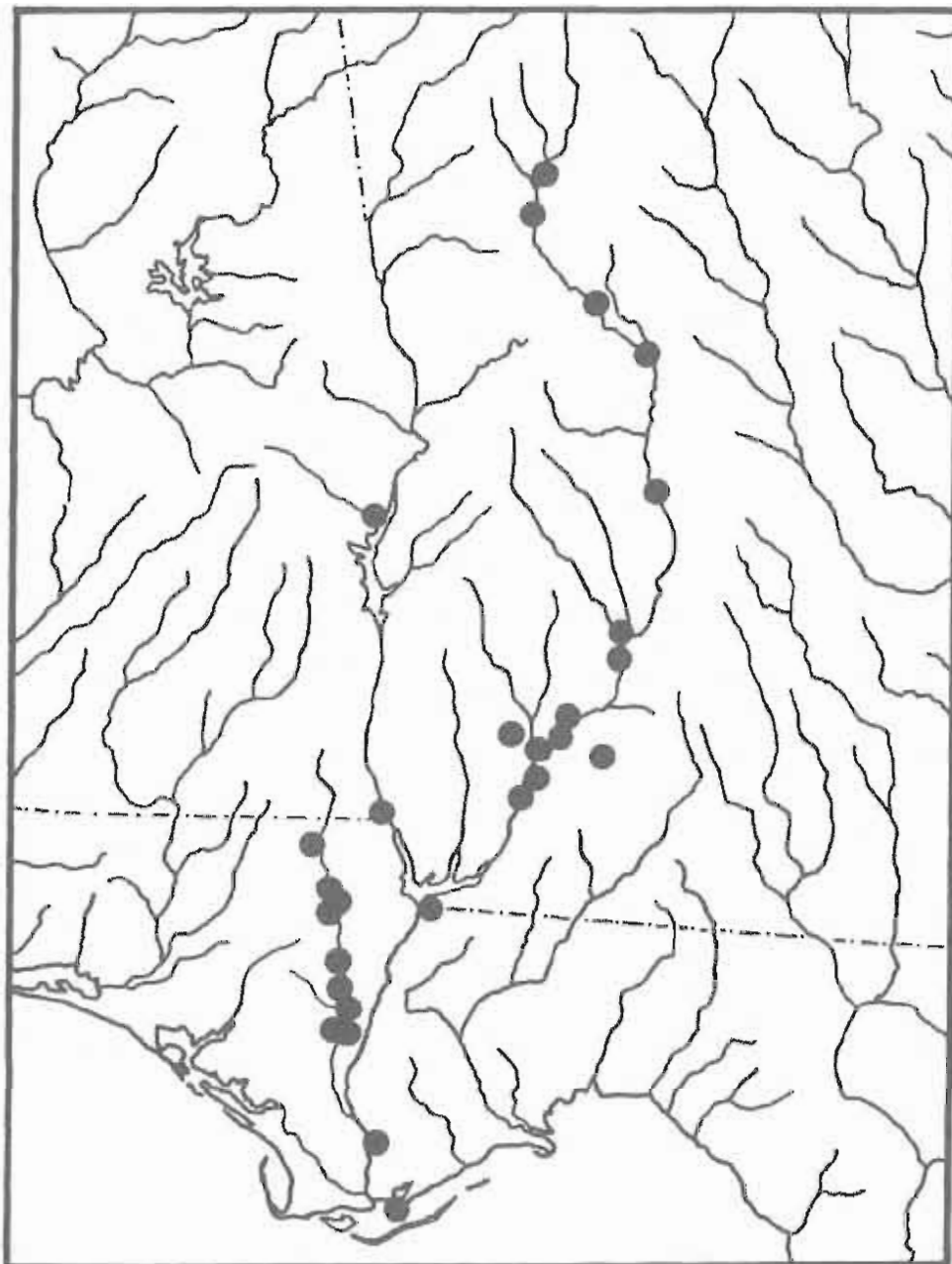
**Holotype:** MCZ 46251

**Type locality:** "Chipola River north of Marianna, Jackson County, Florida" [USA]

**Distribution:** Apalachicola-Chipola river drainage in southeastern Alabama, southwestern Georgia, and western Florida, USA

**Subspecies:** None

**Comment:** Reviewed by Cagle (1952) and Sanderson and Lovich (1988).





## EMYDIDAE; EMYDINAE

*Graptemys caglei* Haynes and McKown, 1974:143  
Cagle's Map Turtle

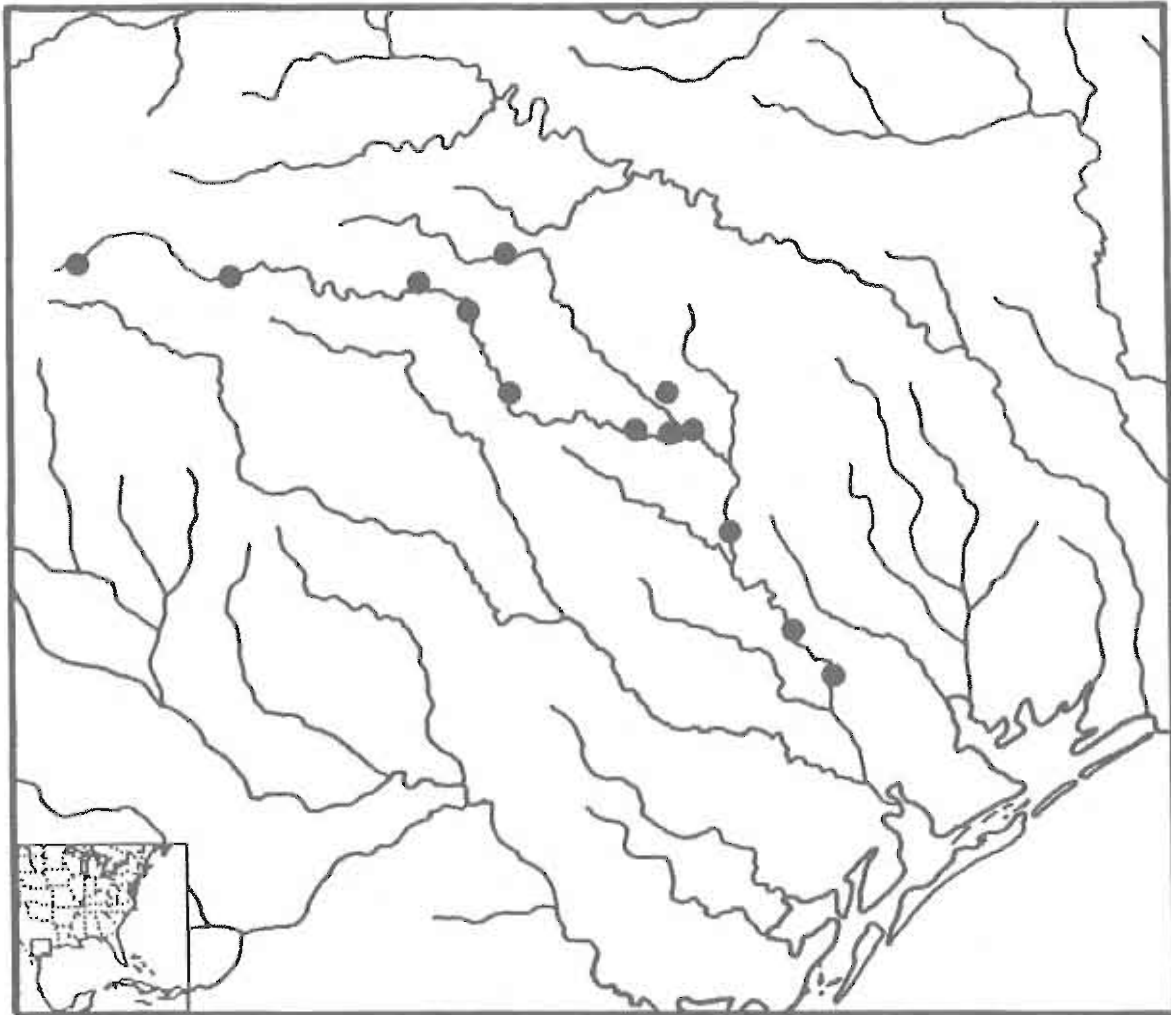
**Holotype:** TNHC 36061

**Type locality:** "The Guadalupe River, 8 km NW Cuero, De Witt Co. Texas" [USA]

**Distribution:** Guadalupe and San Antonio river basins of south-central Texas, USA

**Subspecies:** None

**Comment:** Reviewed by Haynes (1976).



## EMYDIDAE; EMYDINAE

*Gratemys flavimaculata* Cagle, 1954:167  
Yellow-blotched Map Turtle

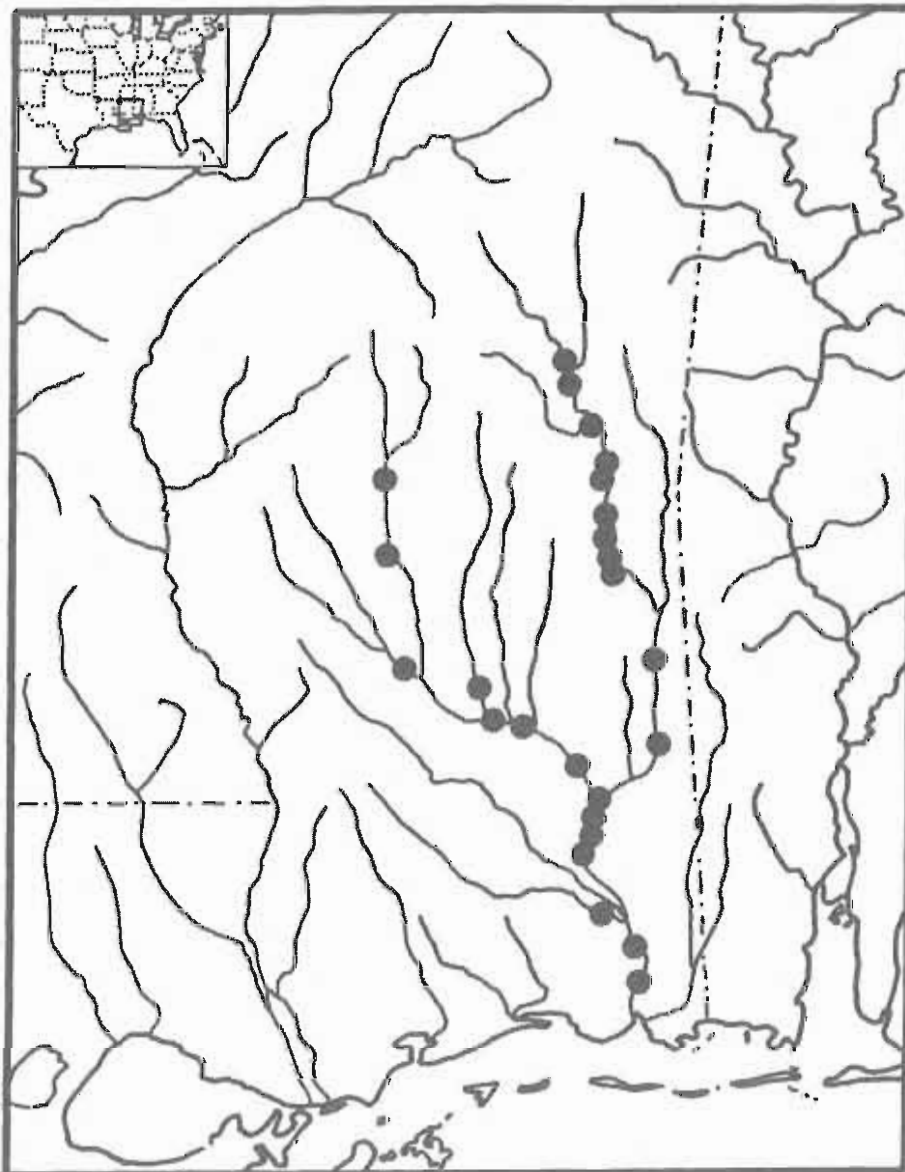
**Holotype:** TU 14798

**Type locality:** "Pascagoula River, 13 miles S. W. of Lucedale, George Co., Mississippi" [USA];  
restricted to "Pascagoula River at Old Benndale Crossing (T35, R8W, Sec. 1)" [Georgia Co.,  
Mississippi, USA] by Cliburn (1971:17).

**Distribution:** Pascagoula River drainage in Mississippi, USA;

**Subspecies:** None

**Comment:** Reviewed by McCoy and Vogt (1987).



## EMYDIDAE; EMYDINAE

*Graptemys geographica* (LeSueur, 1817:86)  
Common Map Turtle

**Original name:** *Testudo geographica*

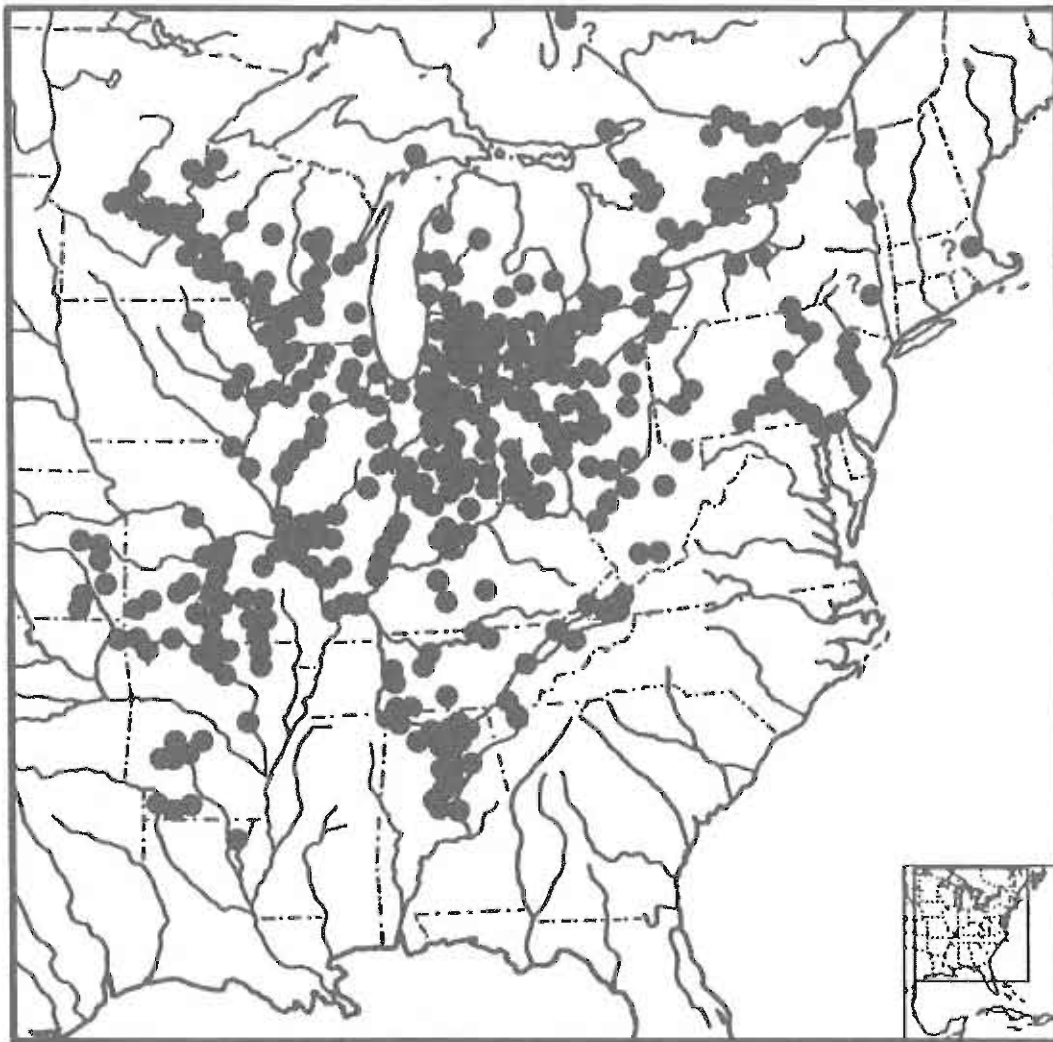
**Holotype:** Not designated

**Type locality:** "marsh, on the borders of Lake Erie" [USA]

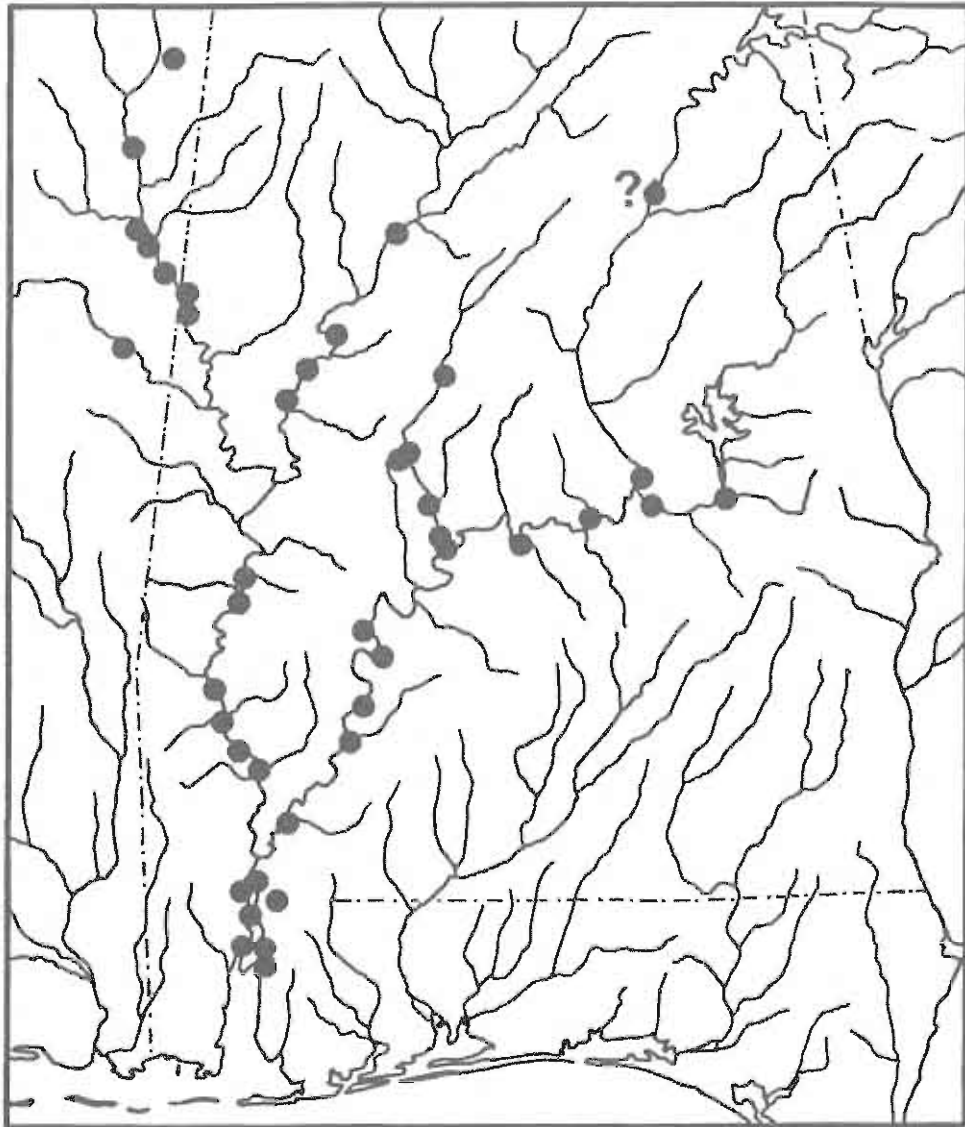
**Distribution:** southwestern Quebec and southeastern Ontario (Canada) west to Minnesota, and south to eastern Kansas, northern Louisiana and central Alabama, USA

**Subspecies:** None

**Comment:** Reviewed by McCoy and Vogt (1990).



## EMYDIDAE; EMYDINAE

*Graptemys nigrinoda* Cagle, 1954:173  
Black-knobbed Map Turtle**Holotype:** TU 14662**Type locality:** "Black Warrior River, above Lock 9, 17.5 miles SSW of Tuscaloosa, Tuscaloosa County, Alabama" [USA]**Distribution:** Tombigbee, Black Warrior and Alabama river basins in Alabama and Mississippi, USA**Subspecies:** Two are recognized:*G. n. nigrinoda* Cagle (1954:173) Northern black-knobbed map turtle [Holotype: see above; type locality: see above; range: northern Alabama and adjacent Mississippi]*G. n. delticola* Folkerts and Mount (1969:677) Southern black-knobbed map turtle [Holotype: UF 26238; type locality: "Hubbard's Landing on Tensaw Lake, 2.6 air miles SW of Latham, Baldwin County, Alabama"; range: southern Alabama]**Comment:** Reviewed by Mount (1975) and Lahanas (1986).

## EMYDIDAE; EMYDINAE

### *Graptemys oculifera* (Baur, 1890:262) Ringed Map Turtle

**Original name:** *Malacoclemmys oculifera*

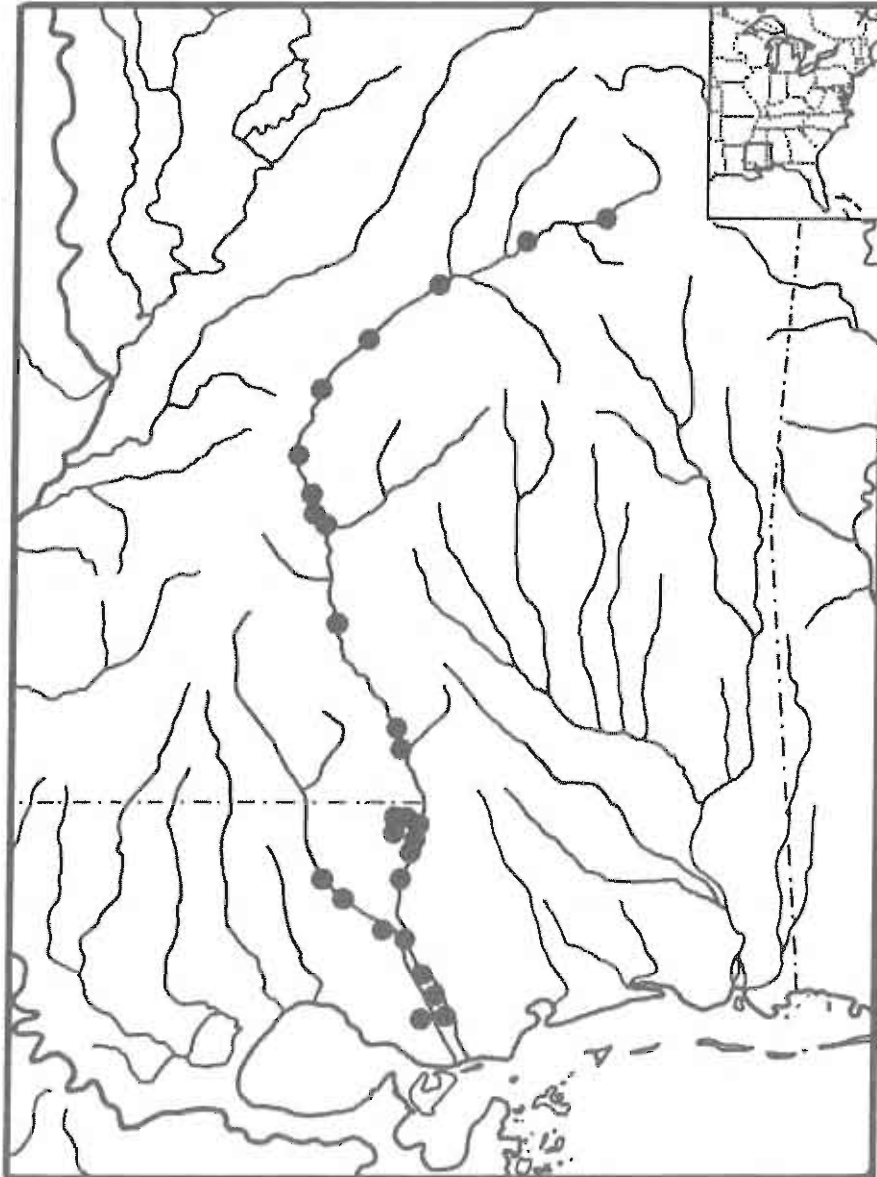
**Syntypes:** (2 specimens) USNM 15511 (cited as "holotype" by Cochran, 1961:233) and MCZ 6430 (cited as "holotype" by Barbour and Loveridge, 1929:303 and as "cotype" by Carr 1952:201); Iverson (1986b:87) and King and Burke (1989:54) erroneously recorded USNM 8808 as syntypical (see syntypes of *Graptemys pulchra*).

**Type locality:** "Mandeville, [St. Tammany Parish] L[ouisian]a" [USA]

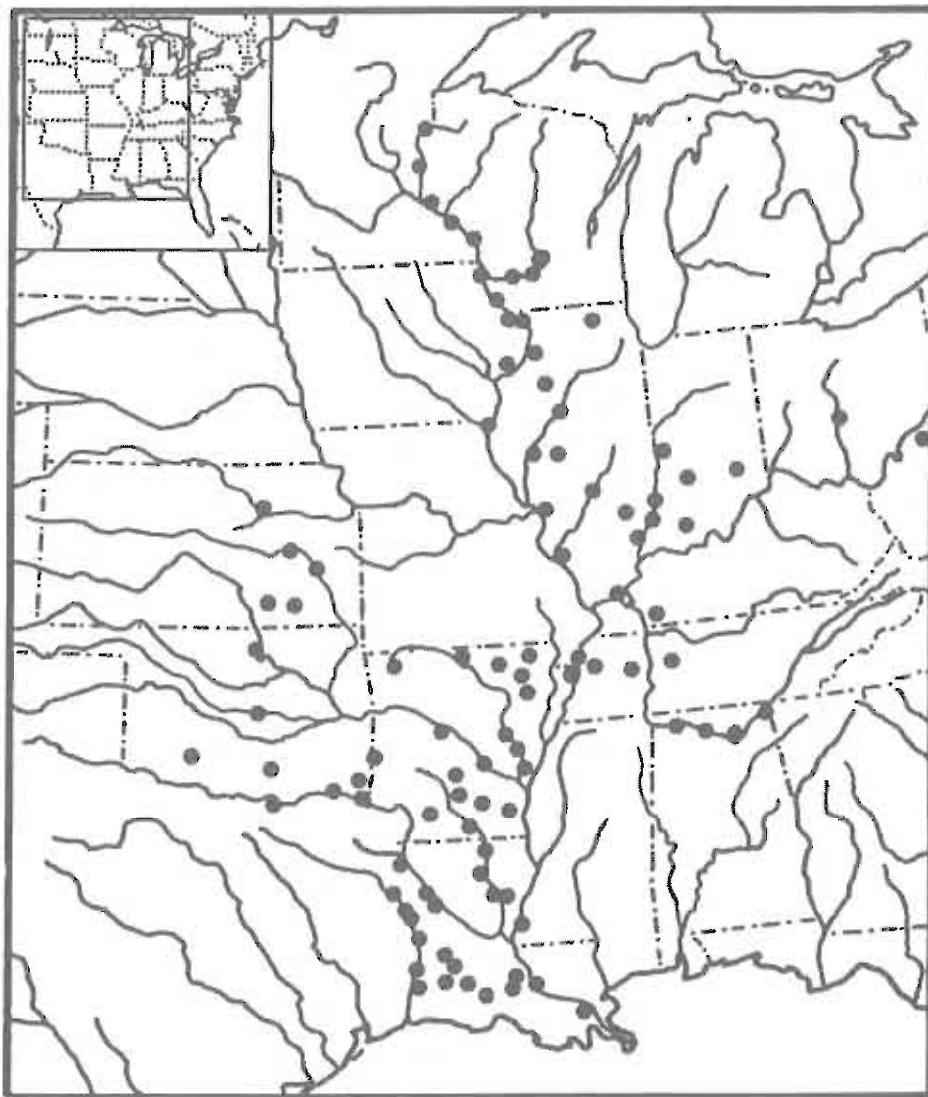
**Distribution:** Pearl River drainage of Louisiana and Mississippi, USA

**Subspecies:** None

**Comment:** Reviewed by Cagle (1953b), McCoy and Vogt (1988), and Kofron (1991).



## EMYDIDAE; EMYDINAE

*Graptemys ouachitensis* Cagle, 1953a:10  
Ouachita Map Turtle**Original name:** *Graptemys pseudogeographica ouachitensis***Holotype:** UMMZ 104345**Type locality:** "Ouachita River, four miles northeast of Harrisonburg [Catahoula County], Louisiana"  
[USA]**Distribution:** Minnesota to West Virginia to Louisiana to central Oklahoma, USA**Subspecies:** Two are recognized:*G. o. ouachitensis* Cagle (1953a:10) Ouachita map turtle [Holotype: see above; type locality: see above; range: as for the species, except eastern Texas and adjacent Louisiana]*G. o. sabinensis* Cagle (1953a:2) Sabine map turtle [Holotype: UMMZ 104351; type locality: "Sabine River, eight miles southwest of Negreet [Sabine County], Louisiana"; range: eastern Texas and western Louisiana]**Comment:** Elevated to species status by Vogt (1978; 1980) and supported by Ward (1980), although considered a subspecies of *G. pseudogeographica* by Conant and Collins (1991). Includes *Graptemys sabinensis* according to Vogt (1978; 1980), although Ward (1980) suggests that this taxon may deserve separate species status. Distribution follows Vogt (1978) until the range and specimen identifications are better clarified.

## EMYDIDAE; EMYDINAE

*Graptemys pseudogeographica* (Gray, 1831b:31)  
False Map Turtle

**Original name:** *Emys pseudogeographica*

**Syntypes:** (4 specimens) MNHN 9136-37 and 9146-47; MNHN 9147 designated lectotype by Bour and Dubois (1983a:42)

**Type locality:** Not stated: Wabash River, New Harmony, Indiana [USA] according to LeSueur (1827:257), but quoted as "Etat-Unis, Indiana, rivière Wabash, entre Mont Vernon et Chaumetown (= Shawnectown), ... près du confluent de la Wabash et de l'Ohio" by Bour and Dubois (1983a:45)

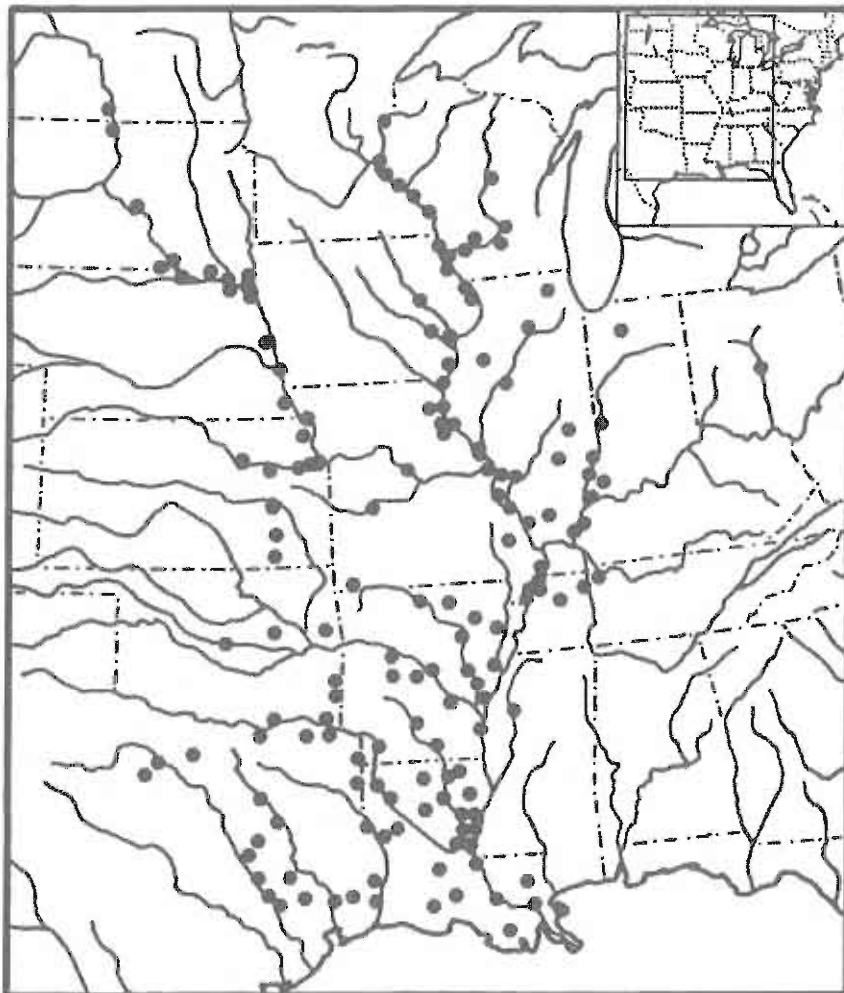
**Distribution:** North Dakota to northwestern Ohio, south to Louisiana and East Texas (USA)

**Subspecies:** Two are recognized:

*G. p. pseudogeographica* (Gray 1831b:31) False map turtle [Holotype: see above; type locality: see above; range: Missouri River and upper Mississippi River basins]

*G. p. kohnii* (Baur 1890a:263) Mississippi map turtle [Syntypes: not located; type locality: "Bayou Lafourche, La. [Lafourche Parish, Louisiana]; Bayou Teche, St. Martinsville [St. Martin Parish], La.; Pensacola, Fla. [Escambia Co., Florida]"; range: east Texas to southeastern Kansas to western Mississippi to southern Illinois and the lower Missouri River in Missouri]

**Comment:** Includes *Graptemys kohnii* (Baur, 1890a) according to Vogt (1978; 1980) and Ward (1980); this arrangement is supported by the molecular studies of Trip Lamb (pers. comm.; see also the phylogeny for the genus on p. 178). However, this synonymy is not universally accepted (e.g., see Conant and Collins, 1991). Distribution follows Vogt (1978) until the range and specimen identifications are better clarified.



## EMYDIDAE; EMYDINAE

*Gratemys pulchra* Baur, 1893a:675  
Alabama Map Turtle

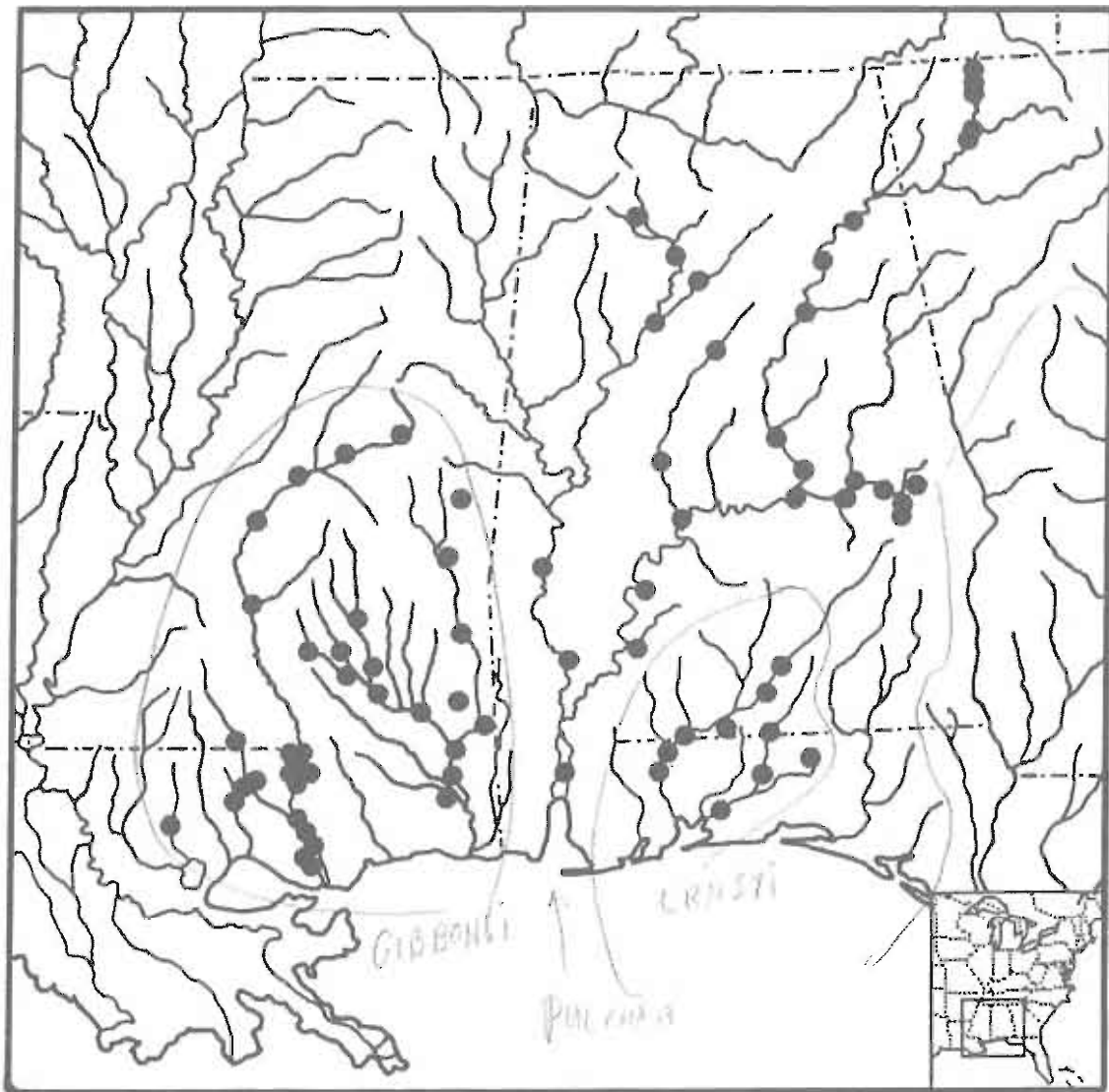
**Syntypes:** (2 specimens) USNM 8808; the skull of one of the syntypes was removed and apparently catalogued as USNM 29526 (e.g., see King and Burke 1989:55); however, a note in the type catalog suggests that Fred Cagle identified that skull as *G. oculifera*; Cochran (1961:231) and Lovich (1985) recorded both USNM 8808 and 29526 as the syntypes; however, the dry skull has now been recatalogued as USNM 252600 and should not be considered syntypical (George Zug, pers. comm.)

**Type locality:** "Montgomery, [Montgomery Co.] Ala[bama]." [USA]

**Distribution:** Pearl river drainage in eastern Louisiana and Mississippi east to the Escambia and Blackwater-Yellow river drainages in western Florida, USA

**Subspecies:** None, but Shealy (1976) believed there is significant geographic variation

**Comment:** Reviewed by Cagle (1952), Shealy (1976), and Lovich (1985).



PULCHRA: ALABAMA - Mobile Bay system  
 GIBBONSII: Pascagoula & Pearl systems  
 LINSII: Escambia - Conecuh system

to Louisiana  
 to Florida, central  
 >



## EMYDIDAE; EMYDINAE

*Gratemys versa* Stejneger, 1925:463  
Texas Map Turtle

**Original name:** *Gratemys pseudogeographica versa*

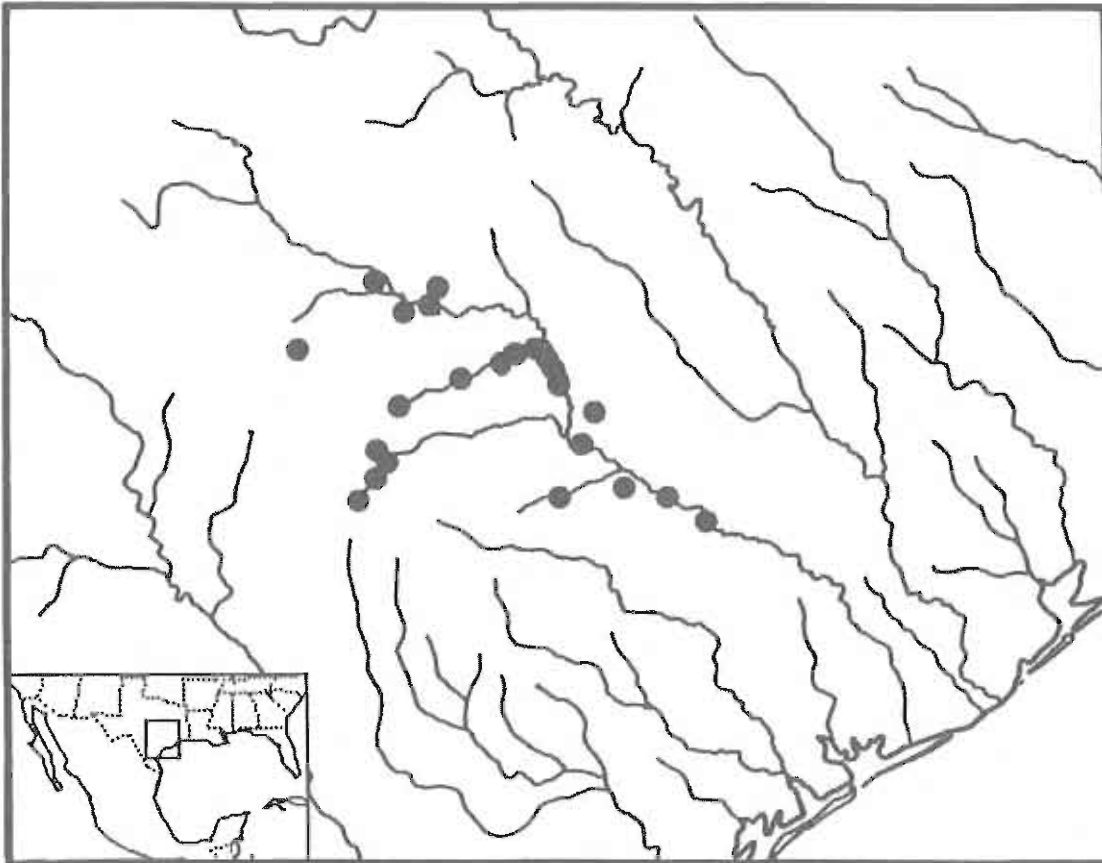
**Holotype:** USNM 27473

**Type locality:** "Austin, [Travis Co.] Texas" [USA]

**Distribution:** Colorado River drainage in central Texas, USA

**Subspecies:** None

**Comment:** Reviewed by Vogt (1981).



## EMYDIDAE; EMYDINAE

*Malaclemys* Gray, 1844:28  
Diamondback Terrapins

**Type species:** *Testudo concentrica* Shaw (1802) [= *Testudo terrapin* Schoepff, 1793], by monotypy

**Distribution:** As for the single species.

**Comment:** Reviewed by Dobie (1981) and Ernst and Bury (1982).

*Malaclemys terrapin* (Schoepff, 1793:64)  
Diamondback Terrapin

**Original name:** *Testudo terrapin*

**Holotype:** Not designated

**Type locality:** "Habitat in America septentrionali...in foris Philadelphiae, ... in aquis subdulcibus Insulae Longae capto, ..."; restricted by Schmidt (1953:95) to "coastal waters of Long Island" [New York, USA]

**Distribution:** Along the coast of the USA from Massachusetts to southern Texas

**Subspecies:** Seven are recognized:

*M. t. terrapin* (Schoepff 1793:64) Northern diamondback terrapin [Holotype: see above; type locality: see above; range: Massachusetts to Cape Hatteras, North Carolina]

*M. t. centrata* (Latreille 1801:145) Carolina diamondback terrapin [Holotype: not designated, but illustrated in the original description and now presumed lost; type locality: "Carolinae", restricted to "vicinity of Charleston [Charleston Co.], South Carolina" by Schmidt (1953:96); range: Cape Hatteras, North Carolina to northeast Florida]

*M. t. littoralis* Hay (1904:18) Texas diamondback terrapin [Holotype: USNM 33913; type locality: "Rockport [Aransas County], Texas"; range: east Texas coast]

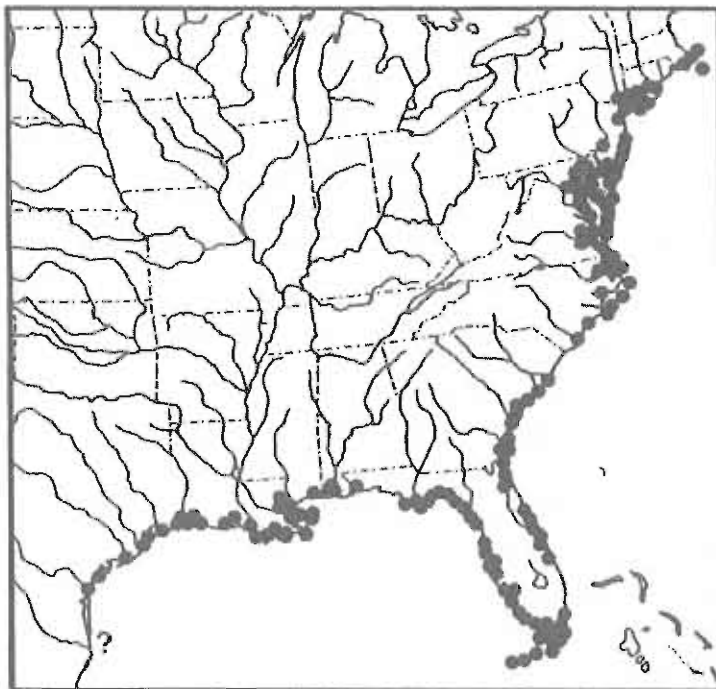
*M. t. macrospilota* Hay (1904:16) Ornate diamondback terrapin [Holotype: USNM 33917; type locality: "Charlotte Harbor [Charlotte County], Florida"; range: west coast of Florida to Florida panhandle]

*M. t. pileata* (Wied 1865:17) Mississippi diamondback terrapin [Holotype: not designated, but speculated to be AMNH 916 by Hay (1904:17); type locality: "Mündung [= mouth] des Mississippi bei New Orleans" [Louisiana]; range: western Florida panhandle to Texas-Louisiana border]

*M. t. rhizophorarum* Fowler (1906:112) Mangrove diamondback terrapin [Holotype: ANSP 16570; type locality: "Boca Grande Key [Lee County], Florida"; range: Florida Keys]

*M. t. tequesia* Schwartz (1955:158) Florida East Coast diamondback terrapin [Holotype: UMMZ 108482; type locality: "Miami Beach, Dade County, Florida"; range: east coast of Florida]

**Comment:** References to this species in Mexico are erroneous, according to Smith and Smith (1979:524). Reviewed by Ernst and Bury (1982).



EMYDIDAE; EMYDINAE

*Pseudemys* Gray, 1855:33  
Cooter Turtles

**Type species:** *Testudo concinna* LeConte (1829), by subsequent designation of Stejneger and Barbour (1917:119).

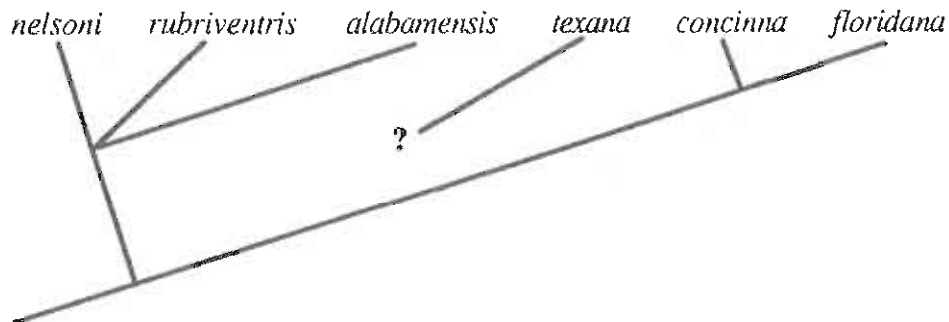
**Distribution:** eastern USA and NE Mexico

**Comment:** See Comment under *Chrysemys*. The arrangement of species and subspecies by Wermuth and Mertens (1977) differs considerably from most recent reviews (e.g., Pritchard, 1979; Iverson, 1986b); but see Fritz and Bienert, 1981). Smith and Smith (1979) discuss the problem. The partitioning of the formerly included species between *Pseudemys* and *Trachemys* is discussed by Seidel and Smith (1986) and Seidel and Jackson (1990). Subgenera under species accounts (i.e., *Pseudemys* and *Ptychemys*) follow Ward (1984).

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Upper jaw with a prominent notch bordered on each side by toothlike cusps.....2
- 1b. Upper jaw unnotched or with a notch unbordered by toothlike cusps.....5
- 2a. Prefrontal arrow on head absent; restricted to central Texas.....*P. texana* (p. 197)
- 2b. Prefrontal arrow present on head.....3
- 3a. Paramedial stripes on head end in back of the eyes.....*P. nelsoni* (p. 195)
- 3b. Paramedial stripes on head continue forward between the eyes and onto the snout.....4
- 4a. Carapace elevated medially; restricted to vicinity of Mobile Bay, Alabama.....  
.....*P. alabamensis* (p. 191)
- 4b. Carapace flattened medially; restricted to Atlantic coastal plain of North America.....  
.....*P. rubriventris* (p. 196)
- 5a. C-shaped mark present on second pleural scute; plastral figure present, though may be faded.....*P. concinna* (p. 192)
- 5b. C-shaped mark absent on second pleural scute; no plastral figure.....*P. floridana* (p. 194)

**Phylogenetic hypothesis:** (after Ward, 1984)



## EMYDIDAE; EMYDINAE

*Pseudemys alabamensis* Baur, 1893b:224  
Alabama Red-bellied Turtle

**Syntypes:** (2 specimens) USNM 20966-67

**Type locality:** "Mobile, Ala[bama]." [USA]

**Distribution:** Mobile Bay, Alabama, USA

**Subspecies:** None

**Comment:** Subgenus *Ptychemys*. Frequently referred to as *Pseudemys rubriventris alabamensis* (e.g., Wermuth and Mertens, 1977; Fritz, 1981a; Obst 1983b). See Comment under *Pseudemys nelsoni*. Reviewed by Groombridge (1982) and McCoy and Vogt (1985).

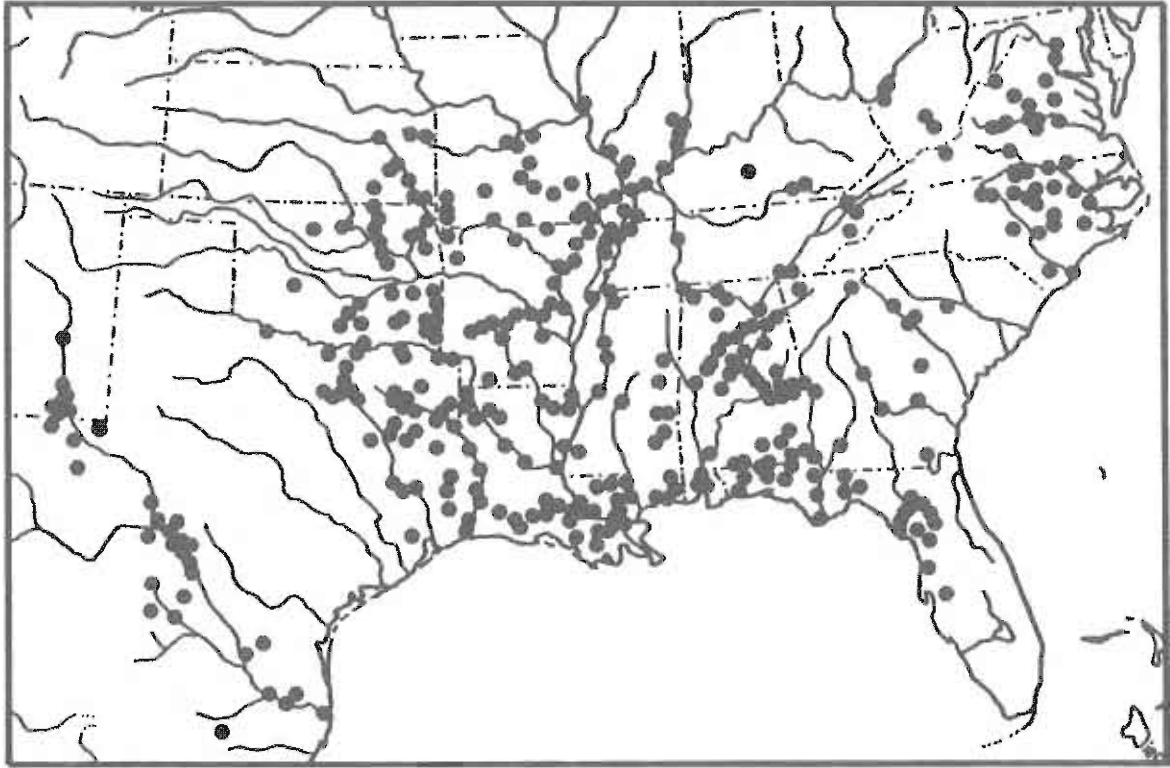


## EMYDIDAE; EMYDINAE

*Pseudemys concinna* (LeConte, 1829:106)  
River Cooter**Original name:** *Testudo concinna***Syntypes:** (number uncertain) a specimen in the MNHN is being designated as lectotype by R. Bour (pers. comm.)**Type locality:** "Inhabits in rivers of Georgia and Carolina, where the beds are rocky. I have never seen them below Augusta on the Savannah, or Columbia on the Congaree"; restricted by Schmidt (1953:101) to the "vicinity of Columbia [Richland Co.], South Carolina" [USA]**Distribution:** Coahuila, Nuevo Leon, and Tamaulipas, Mexico to southeastern New Mexico, southern Illinois, eastern Virginia, and Florida, USA**Subspecies:** Five are recognized:*P. c. concinna* (LeConte 1829:106) River cooter [Holotype: see above; type locality: see above; range: Virginia to Georgia and extreme northern Florida]*P. c. gorzugi* Ward (1984:29) Rio Grande cooter [Holotype: KU 39986; type locality: "3 1/2 mi. W Jimenez, Río San Diego, Coahuila, México, 850 feet altitude"; range: Rio Grande basin in Texas and Mexico and Pecos River basin in southeast New Mexico and adjacent Texas]*P. c. hieroglyphica* (Holbrook 1836:47) Hieroglyphic cooter [Holotype: ANSP 217 according to Baur (1893) and Carr (1938, 1952), but now apparently lost; type locality: "Cumberland river" [probably in Tennessee]; range: western Kentucky and Tennessee to Mississippi, Alabama and western Georgia]*P. c. metteri* Ward (1984:34) Metter's cooter [Holotype: USNM 7173; type locality: "Old Fort Cobb, Caddo County, Oklahoma"; range: east Texas, Oklahoma and southeast Kansas to southern Missouri, Arkansas and Louisiana]*P. c. suwanniensis* Carr (1937a:4) Suwannee cooter [Holotype: UMMZ 81673; type locality: "Suwannee River at Manatee Springs, Levy-Dixie County Line, Florida"; range: west coast of peninsular Florida]**Comment:** Subgenus *Pseudemys*. This is a distinctive species (see Ward, 1984) despite suggestions by some authors (e.g., Fahey, 1980; and Fritz, 1981a) that it is synonymous with *Pseudemys floridana*; however, the distributions of these two forms are unclear, in part because they apparently hybridize in some areas (see Mount, 1975, and Dundee and Rossman, 1989; among others). See reviews in Smith and Smith (1979) and Seidel (1981). No type specimen for *Ptychemys hoyi* (= *Pseudemys concinna*) was designated by Agassiz (1857:433), nor was any locality information provided; however, if it can be determined that the specimens available to Agassiz were from within the range of *P. c. metteri*, then *hoyi* (the older name) would be the valid name for that subspecies. *P. c. hieroglyphica* includes *P. c. mobilensis* (Holbrook 1838:53) according to Ward (1984:39). Ernst (1990a) elevated the subspecies *gorzugi* to full species status without any analysis.

EMYDIDAE; EMYDINAE

*Pseudemys concinna* (continued)



## EMYDIDAE; EMYDINAE

### *Pseudemys floridana* (LeConte, 1829:100) Common Cooter

**Original name:** *Testudo floridana*

**Syntypes:** (number uncertain) A specimen in the MNHN is apparently a syntype (R. Bour, pers. comm.)

**Type locality:** "St. John's river of East Florida" [USA]

**Distribution:** coastal plain from Louisiana to Florida to North Carolina, USA

**Subspecies:** Two are recognized:

*P. f. floridana* (LeConte 1829:100) Common cooter [Holotype: see above; type locality: see above; range: coastal plain from North Carolina to Louisiana]

*P. f. peninsularis* Carr (1938a:105) Peninsula cooter [Holotype: MCZ 43849; type locality: "Crystal Springs, Pasco County, Florida"; range: peninsular Florida]

**Comment:** Subgenus *Pseudemys*. See Comment under *Pseudemys concinna*.



## EMYDIDAE; EMYDINAE

*Pseudemys nelsoni* Carr, 1938c:307  
Florida Red-bellied Turtle

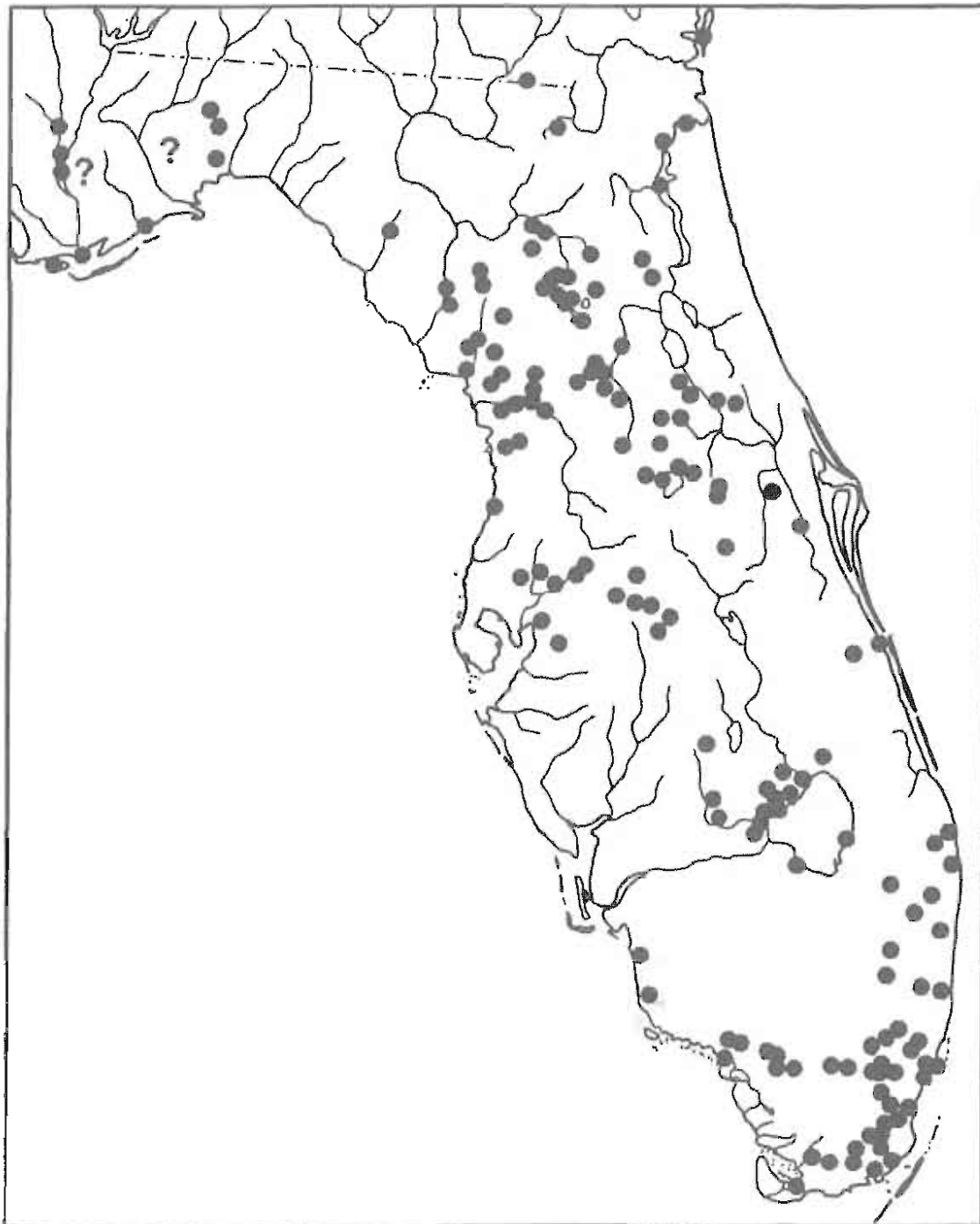
**Holotype:** MCZ 39888

**Type locality:** "Fellsmere, Indian River County, Florida," [USA]

**Distribution:** Florida, and SE Georgia [USA]; the identification of populations in northwest Florida is problematical (see Jackson, 1978a; and Iverson and Eichberger, 1989).

**Subspecies:** None

**Comment:** Subgenus *Ptychemys*. Sometimes referred to as *Pseudemys rubriventris nelsoni* (c.g., Wermuth and Mertens, 1977; Fritz, 1989a; Obst, 1983b). Reviewed by Jackson (1978).





## EMYDIDAE; EMYDINAE

*Pseudemys rubriventris* (LeConte, 1829:101)  
American Red-bellied Turtle

**Original name:** *Testudo rubriventris*

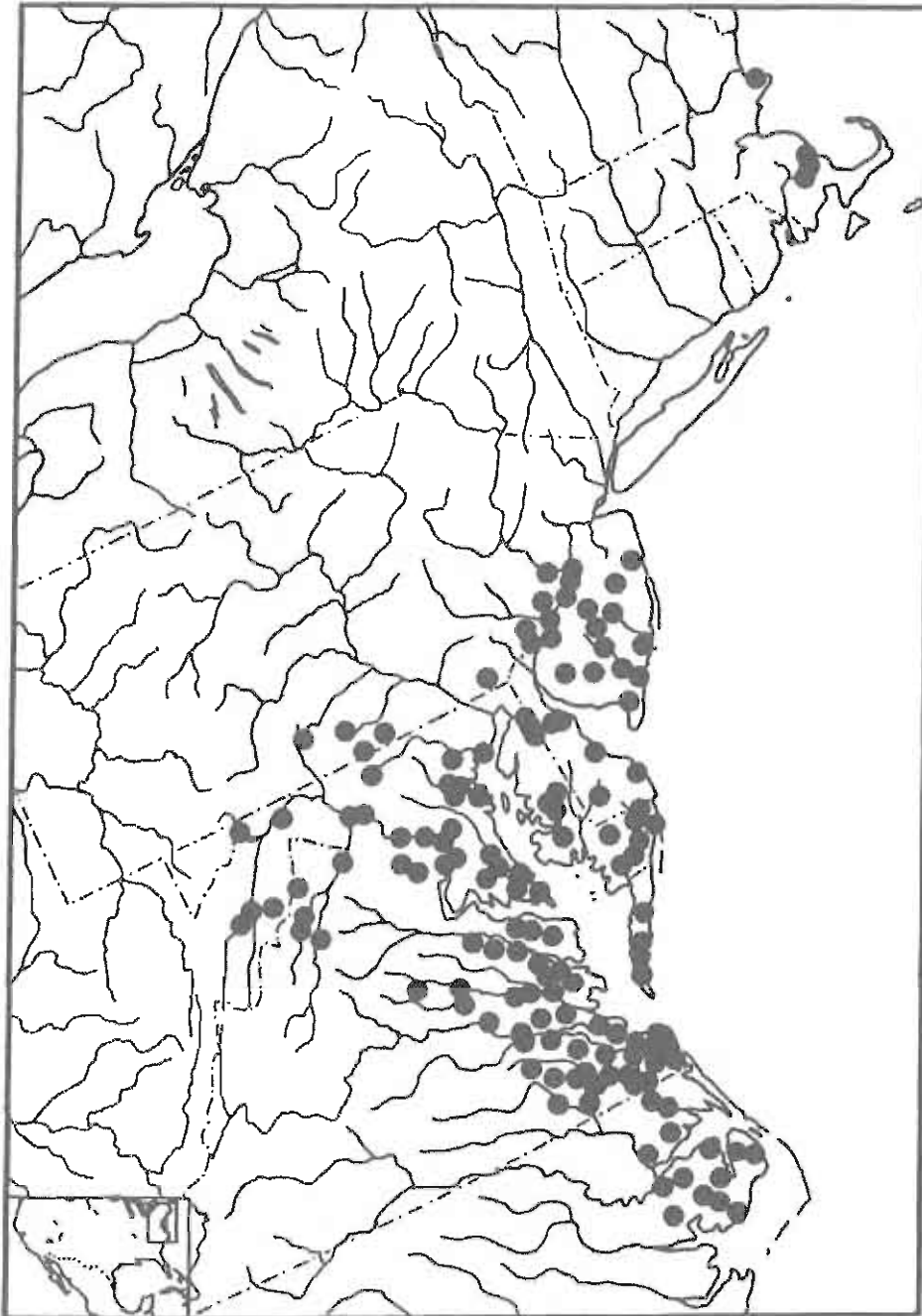
**Holotype:** A specimen in the MNHN is being designated as lectotype by R. Bour (pers. comm.)

**Type locality:** "in rivers from New-Jersey to Virginia, . . . in such as are rocky; in the Delaware, near Trenton" [USA]; stated as "Delaware River, near Trenton, New Jersey" [USA] by Schmidt (1953:103)

**Distribution:** eastern Massachusetts and central New Jersey to northeastern North Carolina, USA

**Subspecies:** None (see Comment)

**Comment:** Subgenus *Ptychenys*. See Comments under *Pseudemys nelsoni* and *P. alabamensis*. The Massachusetts population, named *P. r. bangsi* by Babcock (1937:293), is not taxonomically distinguishable according to Iverson and Graham (1990). Reviewed by Graham (1991).



## EMYDIDAE; EMYDINAE

*Pseudemys texana* Baur, 1893b:223  
Texas Cooter

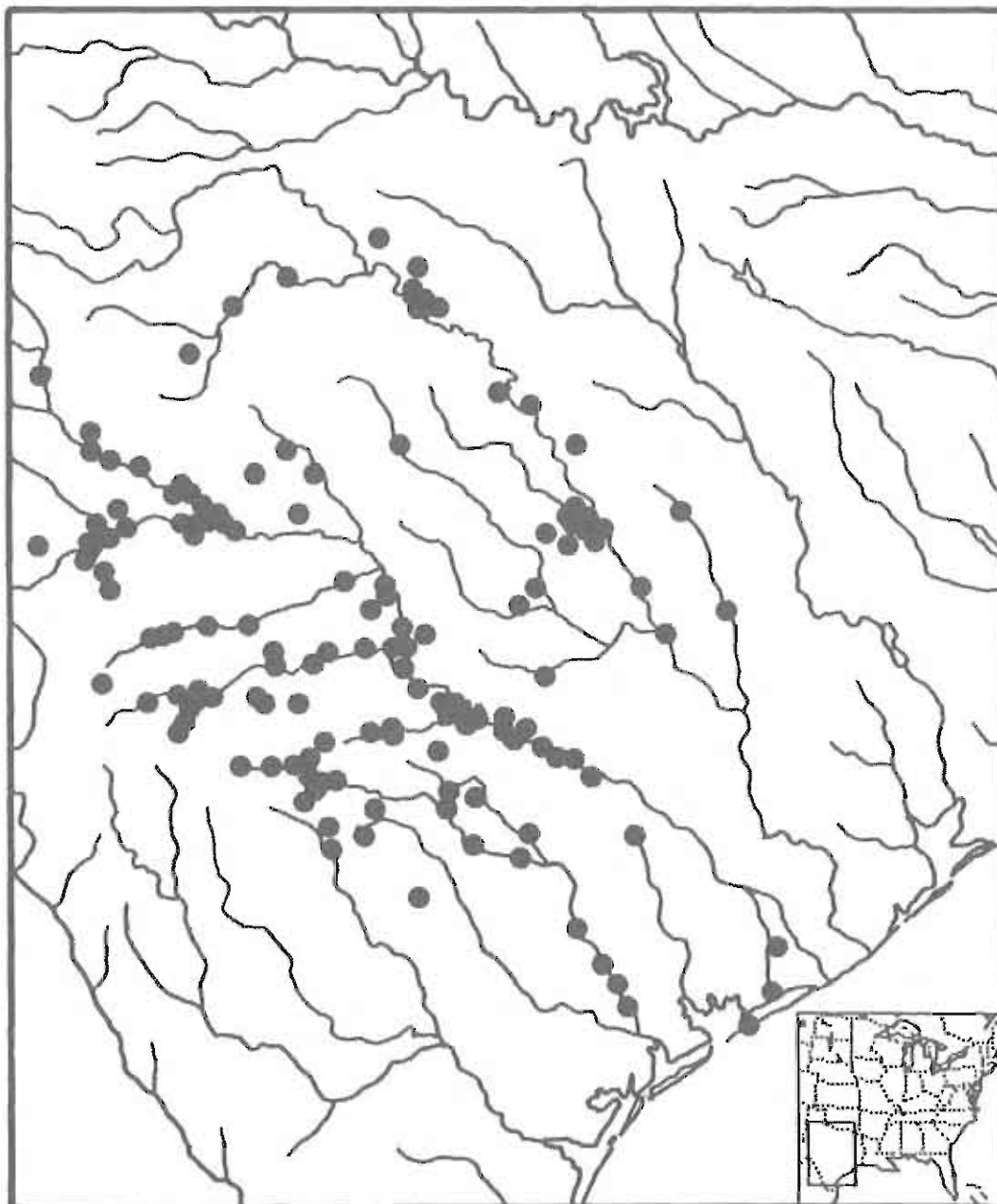
**Holotype:** ANSP 246

**Type locality:** "San Antonio [Bexar County]. Texas" [USA]

**Distribution:** Brazos to Colorado and Guadalupe-San Antonio river basins of central Texas, USA

**Subspecies:** None

**Comment:** Subgenus *Ptychemys*, although its closest relative is apparently *P. concinna* in the subgenus *Pseudemys* according to most authors. Considered a subspecies of *Pseudemys concinna* by many recent authors; but see Ward (1980 and 1984). Reviewed by Etkin and Iverson (1990).



## EMYDIDAE; EMYDINAE

### *Terrapene* Merrern, 1820:27 Box Turtles

**Type species:** *Testudo clausa* Gmelin (1789) [= *Testudo carolina* Linnacus (1758)], by subsequent designation of Bell (1828:514).

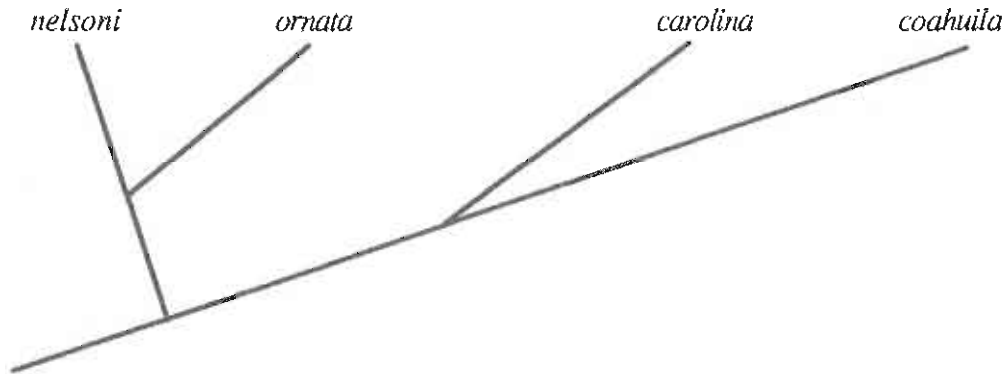
**Distribution:** Temperate and subtropical North America.

**Comment:** Reviewed by Milstead (1969), Smith and Smith (1979), and Ernst and McBreen (1991). Species group names follow Milstead (1969).

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. First vertebral scute elevated at a steep angle ( $50^\circ$  or more); plastral hinge usually opposite fifth marginal scute.....2
- 1b. First vertebral scute elevated at low angle ( $45^\circ$  or less); plastral hinge usually opposite seam between the fifth and sixth marginal scutes or opposite the sixth marginal scute.....3
- 2a. Carapace height more than 42% of carapace length.....*T. carolina* (p. 199)
- 2b. Carapace height less than 40% of carapace length.....*T. coahuila* (p. 201)
- 3a. Interabdominal seam length 38% or more of the plastral hindlobe length; interfemoral seam length 16% or less of the hindlobe length; interanal seam length 46% or less of the hindlobe length.....*T. nelsoni* (p. 202)
- 3b. Interabdominal seam length 32% or less of the plastral hindlobe length; interfemoral seam length 18% or more of the hindlobe length; interanal seam length 47% or more of the hindlobe length.....*T. ornata* (p. 203)

**Phylogenetic hypothesis:** (after Milstead, 1969)



## EMYDIDAE; EMYDINAE

### *Terrapene carolina* (Linnaeus, 1758:198) Common Box Turtle

**Original name:** *Testudo carolina*

**Holotype:** Not located

**Type locality:** "Carolina"; restricted by Schmidt (1953:93) to "vicinity of Charleston [Charleston Co.], South Carolina" [USA]

**Distribution:** (Two maps) eastern USA; Nuevo Leon to Veracruz, Mexico; Yucatan Peninsula, Mexico; only representative records are plotted for the continuous portion of the range in the SE USA

**Subspecies:** Six are recognized:

*T. c. carolina* (Linnaeus 1758:198) Eastern box turtle [Holotype: see above; type locality: see above; range: Georgia to Illinois, southern Michigan, and Massachusetts]

*T. c. bauri* Taylor (1895:576) Florida box turtle [Holotype: USNM 8352; type locality: "Florida"; restricted to "Orlando [Orange Co.], Florida" by Schmidt (1953:94); range: peninsular Florida]

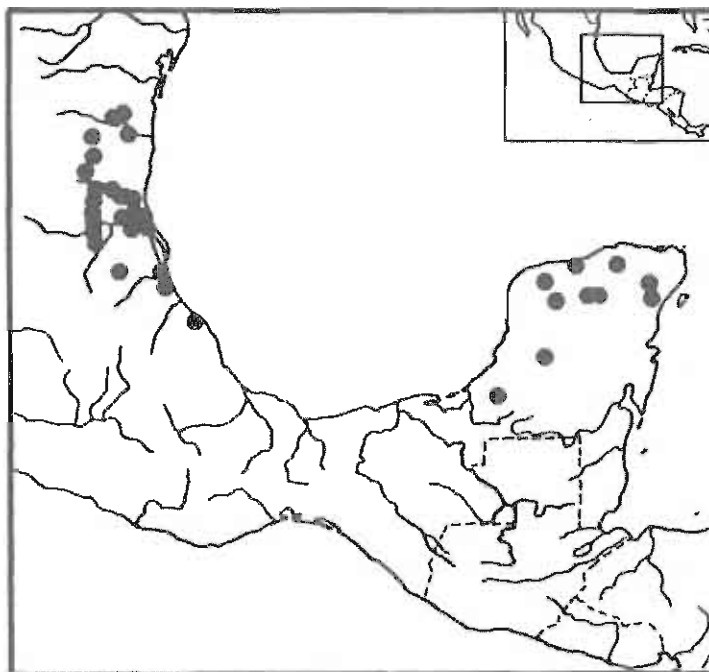
*T. c. major* (Agassiz 1857:445) Gulf Coast box turtle [Syntypes: (6 specimens) MCZ 1505-10; type locality: "Mobile . . . Florida", unnecessarily restricted to "Mobile", Mobile Co., Alabama by Schmidt (1953:94); range: southern Mississippi, southern Alabama, and western Florida]

*T. c. mexicana* (Gray 1849:17) Mexican box turtle [Syntypes: (2 specimens) BMNH 1948.7.28.29-30; listed as 1947.3.5.48 and 1947.3.4.3 by Milstead, 1969:80); type locality: "Mexico", restricted to "Tampico, Tamaulipas", Mexico by Müller (1936:112); range: northeastern Mexico (from Tamaulipas south to Veracruz)]

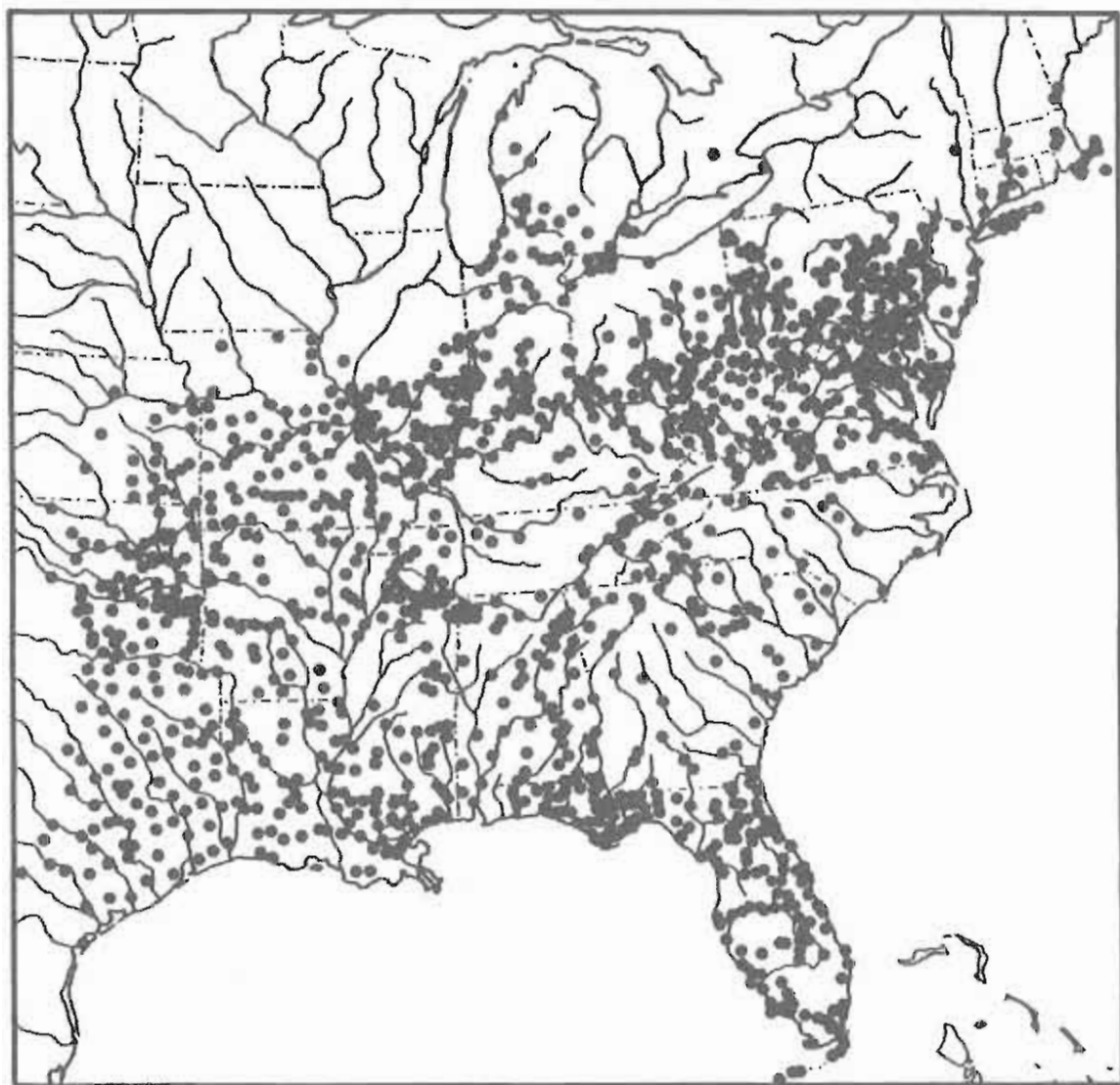
*T. c. triunguis* (Agassiz 1857:445) Three-toed box turtle [Syntypes: (18 specimens according to Ernst and McBreen, 1991, although there is some uncertainty about which are valid syntypes; J.P. Rosado, pers. comm.) MCZ 1519 (8 specimens), 1522, 1523-25, and USNM 86871 and 86872 (both formerly MCZ 1519), 22, 7546, 131838, and 213736); type locality: "New Orleans", Orleans Parish, Louisiana; range: eastern Texas to southeastern Kansas, southern Missouri, and south-central Alabama]

*T. c. yucatanana* (Boulenger 1895:330) Yucatan box turtle [Syntypes: (3 specimens) BMNH 94.3.23.2-4; type locality: "North Yucatan", restricted to "Chichen Itzá", Yucatan, Mexico by Smith and Taylor (1950a:351 and 1950b:35); range: Yucatan peninsula, Mexico]

**Comment:** Includes *Terrapene mexicana* and *Terrapene yucatanana*, according to Milstead (1967); although Ward (1980) suggests that the latter may deserve species status. Reviewed by Milstead (1969) and Ernst and McBreen (1991). Mexican subspecies reviewed by Smith and Smith (1979). In the *Terrapene carolina* group.



## EMYDIDAE; EMYDINAE

*Terrapene carolina* (continued)

## EMYDIDAE; EMYDINAE

*Terrapene coahuila* Schmidt and Owens, 1944:101  
Coahuilan Box Turtle

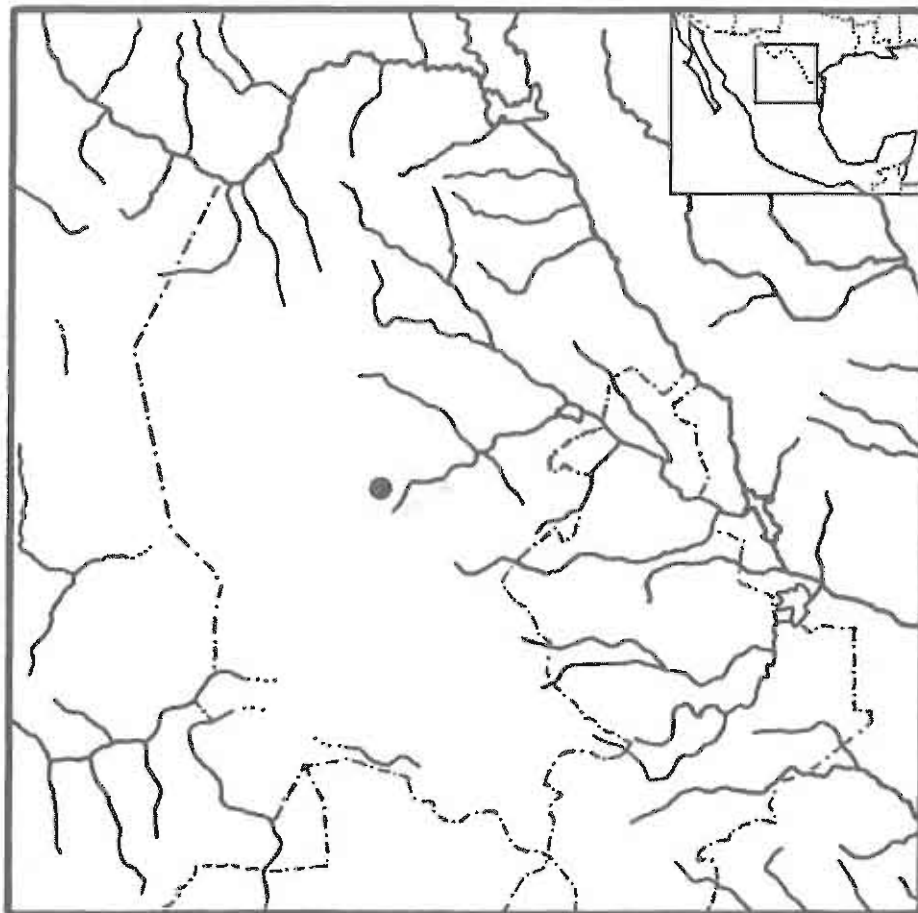
**Holotype:** FMNH 41234 (erroneously cited as FMNH 55656 by Milstead, 1969:81)

**Type locality:** "Cuatro Ciénegas, Coahuila" [Mexico]

**Distribution:** Known only from the vicinity of the type locality in the Cuatro Ciénegas Valley in Coahuila, Mexico

**Subspecies:** None

**Comment:** Reviewed by Brown (1974), Smith and Smith (1979), Groombridge (1982), and Iverson (1982a). In the *Terrapene carolina* group.



EMYDIDAE; EMYDINAE

*Terrapene nelsoni* Stejneger, 1925:463  
Spotted Box Turtle

**Holotype:** USNM 46252

**Type locality:** "Pedro Pablo, Tepic [Nayarit], Mexico; 2500 feet altitude"

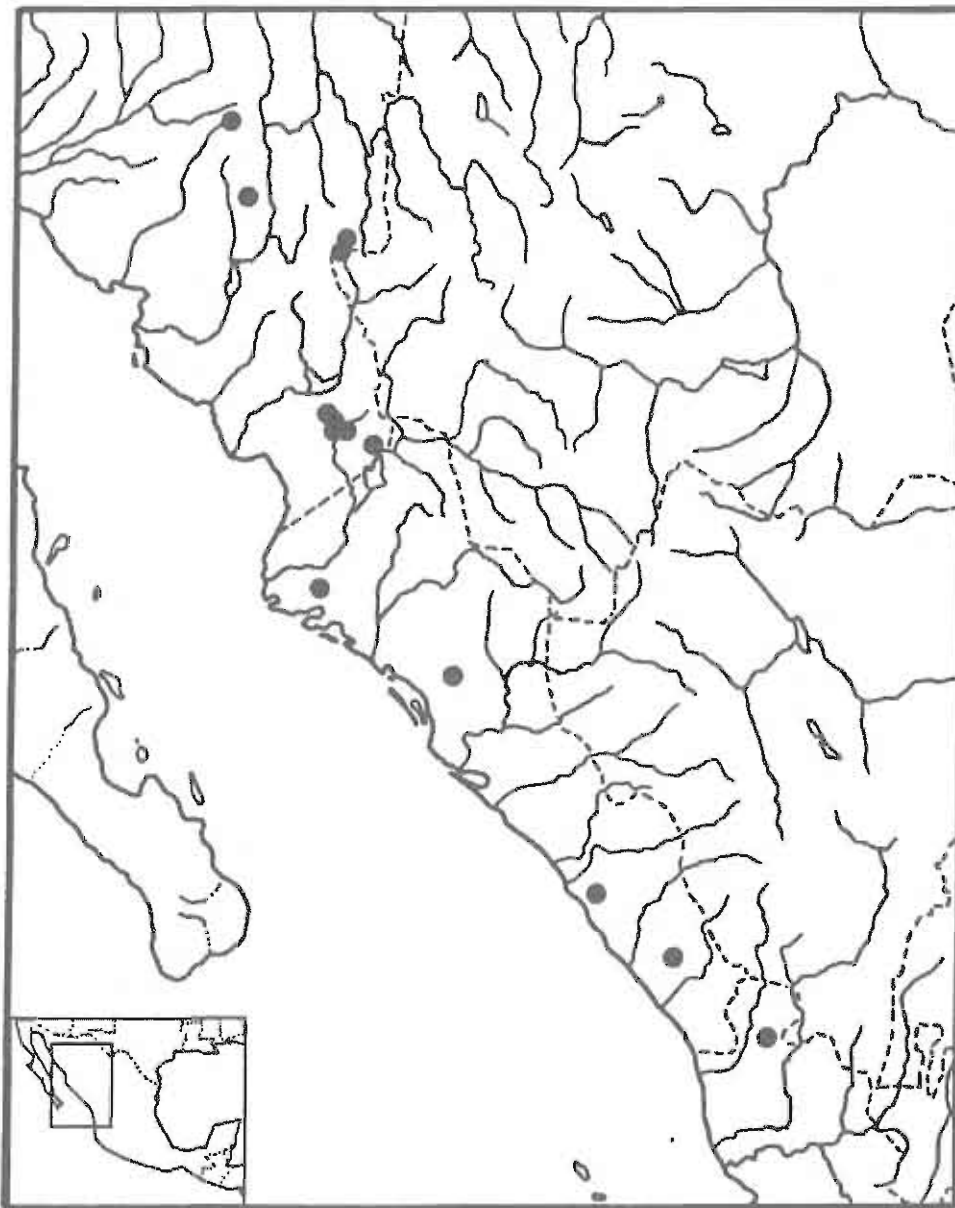
**Distribution:** central Sonora to the vicinity of the type locality in Nayarit, Mexico

**Subspecies:** Two are recognized:

*T. n. nelsoni* Stejneger (1925:463) Southern spotted box turtle [Holotype: see above; type locality: see above; range: western Mexico (Nayarit and possibly Sinaloa)]

*T. n. klauberi* Bogert (1943:2) Northern spotted box turtle [Holotype: AMNH 63751; type-locality: "Rancho Guirocoba, approximately eighteen miles southeast of Alamos, Sonora, Mexico"; range: northwestern Mexico (southern Sonora and possibly Sinaloa)]

**Comment:** Reviewed by Milstead and Tinkle (1967), Smith and Smith (1979), and Iverson (1982b). In the *Terrapene ornata* group.



## EMYDIDAE; EMYDINAE

### *Terrapene ornata* (Agassiz, 1857:445) Ornate Box Turtle

**Original name:** *Cistudo ornata*

**Syntypes:** (6 specimens) USNM 7862 (formerly 57), 7541, 131837 (formerly one of two numbered 7541), 7547, 7692, and MCZ 1536; MCZ 1536 designated lectotype by Smith and Smith (1979:587)

**Type locality:** "from the Upper Missouri ... and from Iowa"; erroneously restricted to "Council Bluffs [Pottawattamie Co.], Iowa" [USA], by Smith and Taylor (1950:36) and to "junction of the Platte and Missouri River" [Nebraska, USA] by Schmidt (1953:95); restriction corrected to "Burlington [Des Moines Co.], Iowa" [USA] by lectotype designation of Smith and Smith (1979:587)

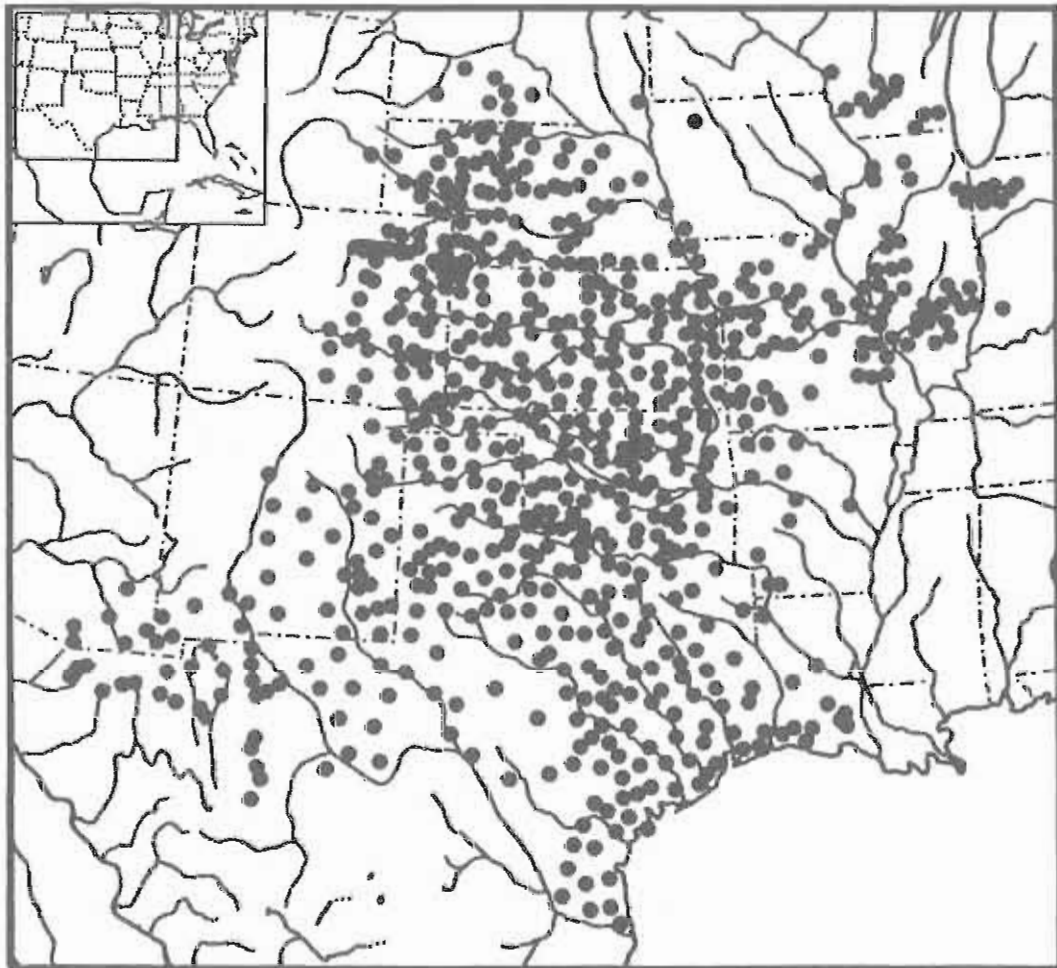
**Distribution:** Northern Mexico; southeastern Arizona to southern Wisconsin, Indiana and Louisiana, USA

**Subspecies:** Two are recognized:

*T. o. ornata* (Agassiz, 1857:445) Ornate box turtle [Syntypes: see above; type-locality: see above; range: Texas and eastern New Mexico to southern South Dakota, southwestern Wisconsin, western Indiana and southwestern Louisiana]

*T. o. luteola* Smith and Ramsay (1952:45) Desert box turtle [Holotype: Texas Christian University Collection 1280; type locality: "17 miles south of Van Horn, Culberson County, Texas"; range: southeastern Arizona, southern New Mexico, and west Texas, USA and northeastern Sonora and northern Chihuahua, Mexico]

**Comment:** Reviewed by Legler (1960a), Milstead and Tinkle (1967), Ward (1978), and Smith and Smith (1979). In the *Terrapene ornata* group.





## EMYDIDAE; EMYDINAE

### *Trachemys* Agassiz, 1857:434 Slider Turtles

**Type species:** *Testudo scabra* Linnaeus (1758) was designated by Agassiz (1857:434; see also Brown 1908:114), but because it is a *nomen dubium*, Smith and Smith (1979:434-438) proposed that the ICZN designate *Emys troosti* Holbrook (1836:55) as the type species.

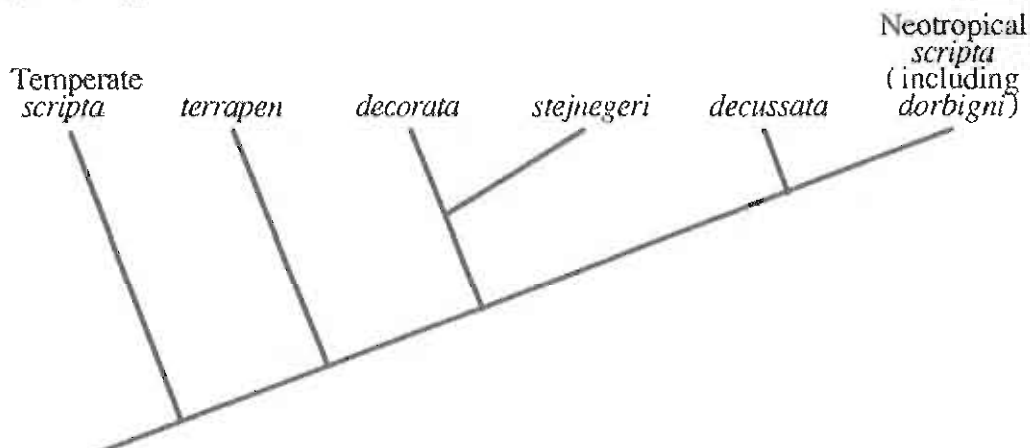
**Distribution:** USA and Mexico south to Argentina; West Indies

**Comment:** See Comment under *Chrysemys*. Removed from the synonymy of *Pseudemys* (and *Chrysemys*) by Seidel and Smith (1986). Taxonomy of the West Indian forms is discussed by Seidel and Adkins (1987) and Seidel (1988).

**Key to the species:** (after Seidel, 1988)

- 1a. Markings on lateral scutes of carapace not distinctly ocellate; native only to the United States and northeastern Mexico or eastern South America .....2
- 1b. Markings on lateral scutes of carapace distinctly ocellate; found in the south-central United States to northern South America, including the West Indies.....3
- 2a. Juvenile (and usually adult) plastron with dark, bilaterally symmetric pairs of ocelli (one per scute); native only to the United States and northeastern Mexico.....temperate *T. scripta* (in part) (p. 208)
- 2b. Juvenile (and sometimes adult) plastron with a continuous or partially interrupted dark, wavy bilaterally symmetrical figure; eastern South America .....*T. dorbignii* (p. 207)
- 3a. Found from the south-central United States to northern South America, but not in the West Indies..... neotropical *T. scripta* (p. 208)
- 3b. Found on West Indian islands.....4
- 4a. Little or no evidence of markings on head, limbs, and plastron; carapace broad and flared posteriorly; broad cervical scute underlap (5.0% of carapace length); broad gular scutes (24% of carapace length).....*T. terrapen* (p. 212)
- 4b. Markings present or absent on head, limbs and plastron; carapace narrow or moderately wide, not prominently flared posteriorly; narrow cervical scute underlap (3.5-3.7% of carapace length); narrow gular scutes (21-22% of carapace length).....5
- 5a. Epiplastron truncate anteriorly, usually not turned upward or constricted at the gular-humeral seam; plastral surface flat or slightly concave; inguinal scutes project laterally to form an angle; shallow median notch at posterior margin of carapace; shallow snout (30% of head width) and cranium.....*T. decussata* (p. 206)
- 5b. Epiplastron rounded anteriorly, turned upward and usually constricted at the gular-humeral seam; plastral surface convex; inguinal scutes rounded, not projecting laterally; deep median notch at posterior margin of carapace; deep snout (37% of head width) and cranium.....6
- 6a. Plastral pattern of unconnected ocellated circles or ovals; supratemporal stripe pale yellow or yellowish-green; orbitocervical and mandibular stripes usually joined below tympanum; interfemoral scute seam long (12% of carapace length).....*T. decorata* (p. 205)
- 6b. Plastral pattern of continuous or partially interrupted symmetrical ocellations, frequently faded posteriorly; supratemporal stripe red (except in melanistic males); orbitocervical and mandibular stripes usually not joined below tympanum; interfemoral scute seam short (9-10% of carapace length).....*T. stejnegeri* (p. 211)

**Phylogenetic hypothesis:** (after Seidel, 1988)



## EMYDIDAE; EMYDINAE

*Trachemys decorata* (Barbour and Carr, 1940:409)  
Hispaniolan Slider

**Original name:** *Pseudemys decorata*

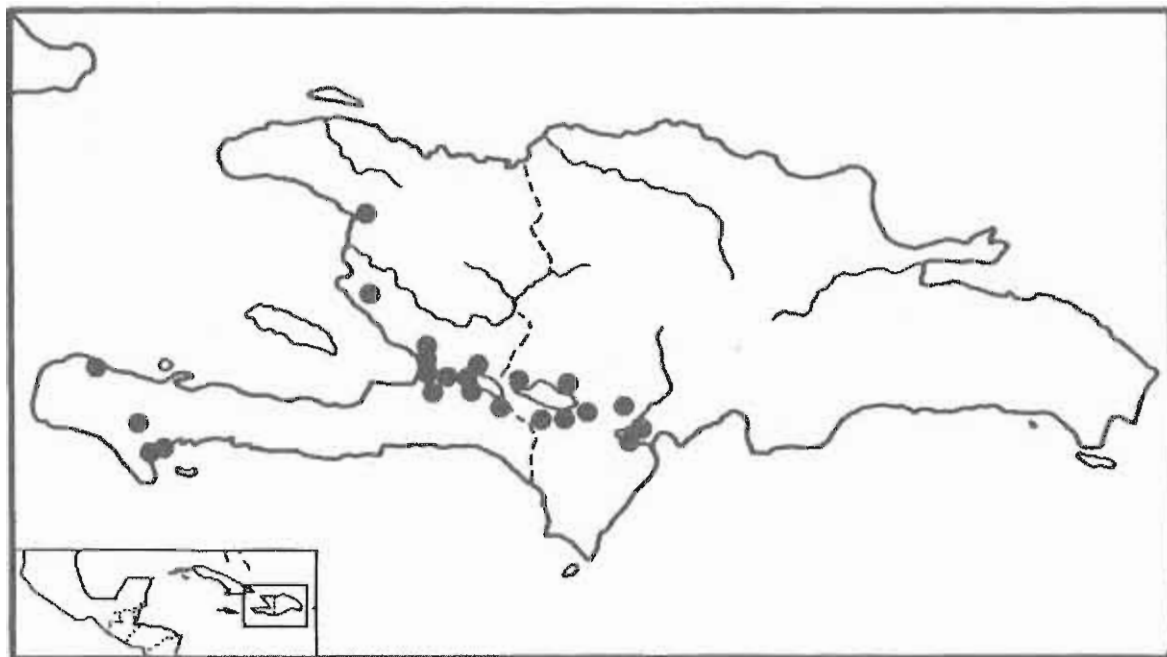
**Holotype:** MCZ 36862

**Type locality:** "Fond Parisien, [Dépt. de l'Ouest] Haiti"

**Distribution:** southern Haiti and the southern Dominican Republic on the island of Hispaniola

**Subspecies:** None

**Comment:** Reviewed by Bickham (1980; as *Pseudemys decorata*), Seidel (1988), and Schwartz and Henderson (1991). Although Seidel and Inchaustegui Miranda (1984) considered this taxon to be a subspecies of *Trachemys stejnegeri*, they now believe it deserves species status (see Seidel and Adkins, 1987; Seidel, 1988).



## EMYDIDAE; EMYDINAE

*Trachemys decussata* (Gray, 1831b:28)  
North Antillean Slider

**Original name:** *Emys decussata*

**Holotype:** BMNH 1947.3.4.79

**Type locality:** "America Boreali"; "West Indies" according to Mertens and Wermuth (1961:160)

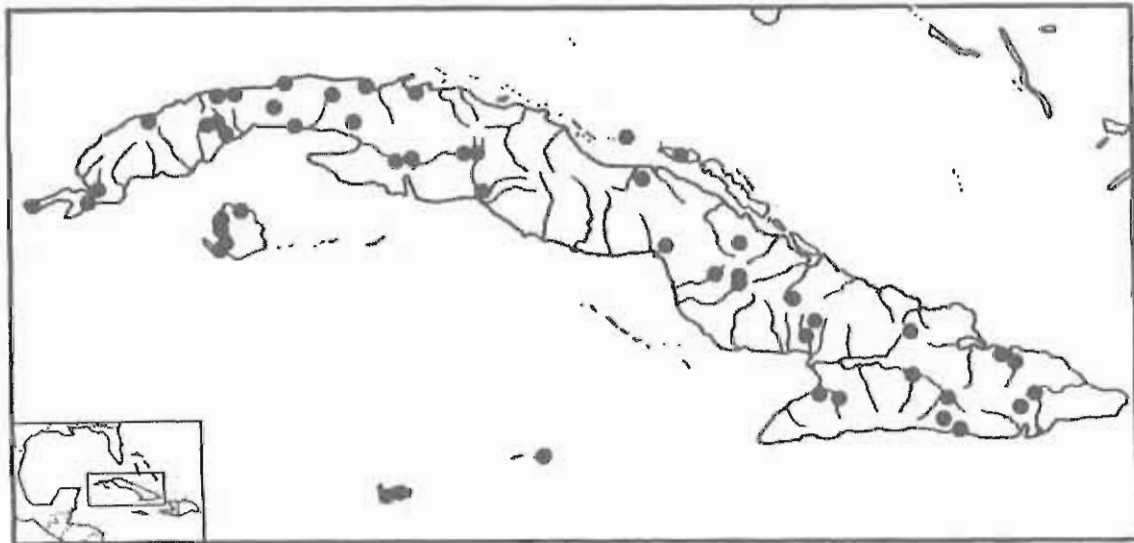
**Distribution:** Cuba and Isla de Pinos (= Juventud); possibly introduced on Grand Cayman and Cayman Brac in the Cayman Islands

**Subspecies:** Two subspecies are recognized:

*T. d. decussata* (Gray 1831b:28) Common Cuban Slider [Holotype: see above; type locality: see above; range: central and eastern Cuba]

*T. d. angusta* (Barbour and Carr 1940:403) Taco River Slider [Holotype: MCZ 34340; type locality: "Taco River, Pinar del Rio, Cuba"; range: western Cuba, Isla de Pinos, and The Cayman Islands]

**Comment:** Reviewed by Seidel (1988) and Schwartz and Henderson (1991). *Pseudemys granti* Barbour and Carr (1941:59) is synonymous with *T. d. angusta* (see Seidel and Adkins, 1987), and *P. d. plana* Barbour and Carr (1940:405) is synonymous with *T. d. decussata* according to Seidel (1988). Also includes *Emys rugosa* Cocteau and Bibron (1843:17) according to Seidel (1988; among others).



## EMYDIDAE; EMYDINAE

*Trachemys dorbigni* (Duméril and Bibron, 1835:272)  
Orbigny's Slider

**Original Name:** *Emys Dorbigni*

**Holotype:** MNHN 9221

**Type locality:** "Buenos-Ayres"

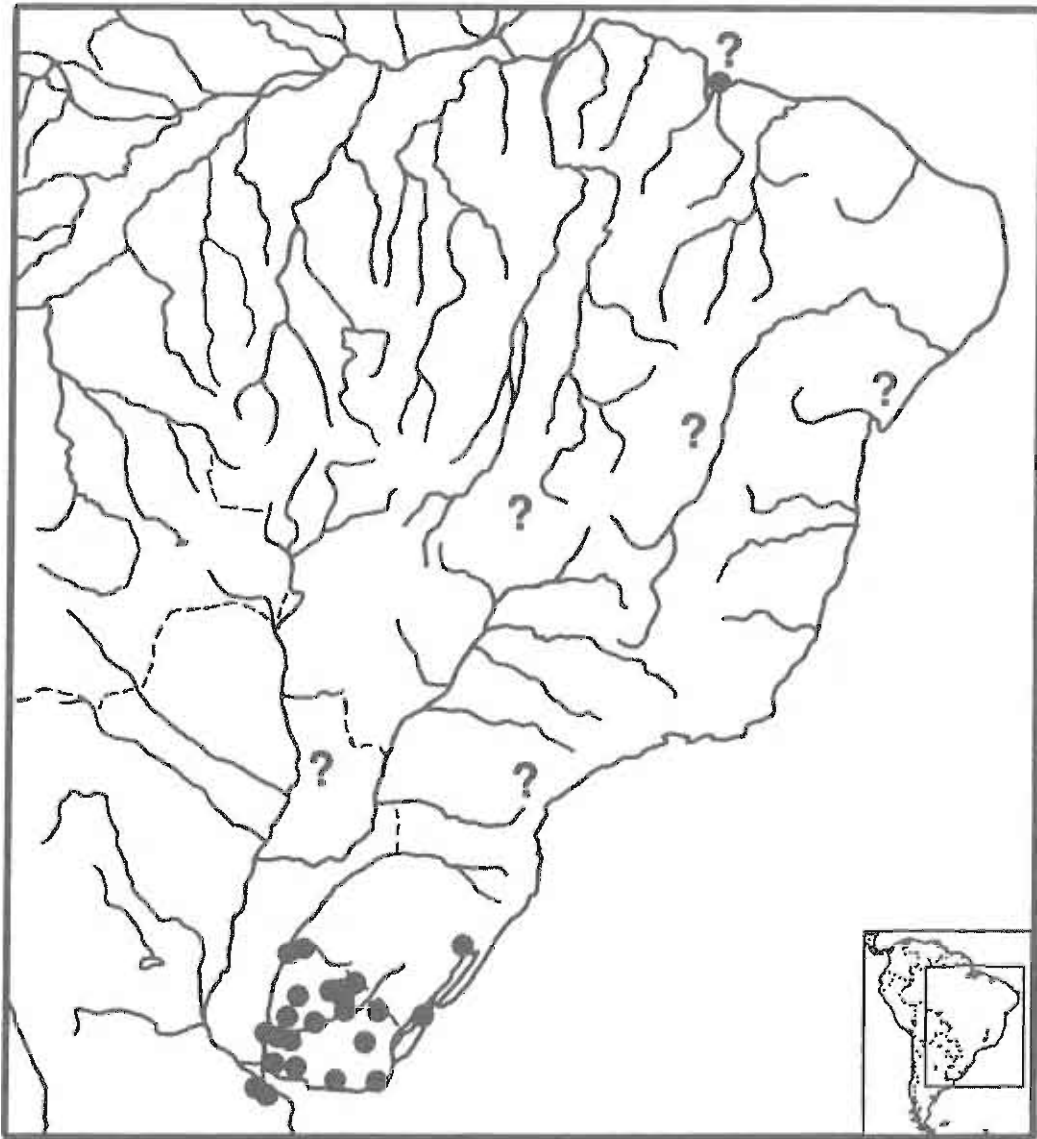
**Distribution:** extreme southern Brazil through Uruguay and into northeastern Argentina

**Subspecies:** Two are recognized:

*T. d. dorbigni* (Duméril and Bibron 1835:272) Southern Orbigny's slider [Holotype: see above; type locality: see above; range: northeastern Argentina to Uruguay]

*T. d. brasiliensis* (Freiberg, 1969:301) Northern Orbigny's slider [Holotype: MACN 23628; type locality: "rio Guafba, Porto Alegre [Rio Grande do Sul], Brasil"; range: Brazil]

**Comment:** Reviewed by Seidel (1989). Considered a subspecies of *T. scripta* by some authors (e.g., Legler, 1990).



## EMYDIDAE; EMYDINAE

*Trachemys scripta* (Schoepff, 1792:16)  
Common Slider**Original name:** *Testudo scripta***Holotype:** Not designated**Type locality:** Unknown; designated as "Charleston, South Carolina" [USA] by Schmidt (1953:102)**Distribution:** (Two maps) Eastern USA from southern Michigan and Maryland to eastern New Mexico, northern Florida, and into Mexico; in Mexico in the Río Grande and Río Nazas drainages and along both coastal plains from Sonora and Tamaulipas south through Central America to Northern Colombia and Venezuela; southern Baja California (Mexico); introduced on Guadeloupe, Lesser Antilles and to various localities in California, Arizona, and peninsular Florida, USA and Israel, France, Germany, the Netherlands, and South Africa (Newbery, 1984; Boycott and Bourquin, 1988); only representative records are plotted for the continuous portion of the range in the south-central USA.**Subspecies:** Sixteen are recognized:

- T. s. scripta* (Schoepff 1792:16) Yellow-bellied slider [Holotype: see above; type locality: see above; range: USA, eastern coastal plain from Virginia to north Florida]
- T. s. callirostris* (Gray 1855:25) Colombian slider [Holotype: BMNH 1947.3.4.87; type locality: "America", restricted to Río Magdalena, Colombia by Müller (1940); range: Río Magdalena, Colombia east to extreme western Venezuela]
- T. s. cataspila* (Günther 1885:4) Huastecan slider [Syntypes: (8 specimens) BMNH 1947.3.5.19 (formerly 55.9.17.4), 1947.3.5.23 (formerly 44.3.20.36), 1946.1.22.39 (formerly perhaps 48.7.28.23), 1947.3.5.20 (formerly 48.7.28.26), 1947.3.5.21 (formerly 48.7.28.27), 1947.3.5.22, 1947.3.5.24, and 1947.3.4.25 (formerly 51.6.2.4); type locality: "Mexico"; erroneously restricted to "Alvarado, Veracruz" by Smith and Taylor (1950a:346; 1950b:32); restricted to "Tampico, Tamaulipas" by Smith and Smith (1979:486); range: Gulf coastal plain of Mexico from northern Tamaulipas to central Veracruz]
- T. s. chichiriviche* (Pritchard and Trebbau 1984:191) Venezuelan slider [Holotype: UF 53333; type locality: "Lago de Tacarigua, Edo. Falcon, Venezuela (68° 15' W, 11° 4' N)"; range: north-central Venezuela]
- T. s. elegans* (Wied 1839:213) Red-eared slider [Holotype: unknown; type locality: not stated, but listed as "Fox Rivers bei New-Harmony" [Posey Co., Indiana, USA] by Wied (1865:41); range: extreme northeastern Mexico to eastern New Mexico to Alabama]
- T. s. emolli* (Legler 1990:91) Nicaraguan slider [Holotype: UU 6728; type locality: "Río Tepetate, 2.5 km northeast of Granada, Granada Province, Nicaragua"; range: Lago de Managua, Lago de Nicaragua, to the upper Río San Juan in Nicaragua and Costa Rica]
- T. s. gaiageae* (Hartweg 1939:1) Big Bend slider [Holotype: UMMZ 66472; type locality: "Boquillas, Río Grande River, Brewster County, Texas"; range: upper Río Grande and Río Conchos basins of Texas and New Mexico, USA, and Chihuahua and Coahuila, Mexico]
- T. s. grayi* (Bocourt 1868:121) Gray's slider [Holotype: MNHN 9220; type locality: "sur la côte occidentale du Guatemala, à l'embouchure du Nagualate"; range: southeastern Oaxaca, Mexico to western El Salvador]
- T. s. hartwegi* (Legler 1990:89) Nazas slider [Holotype: UU 3802; type locality: "Río Nazas, 1.2 km east of Presa Lázaro Cardenas, Durango, Mexico"; range: Río Nazas basin, Mexico]
- T. s. hiltoni* (Carr 1942a:1) Fuerte slider [Holotype: AMNH 63747; type locality: "Guero-coba about 28 miles southeast of Alamos, Sonora, Mexico"; range: Río Fuerte basin of Sonora and Sinaloa, Mexico]
- T. s. nebulosa* (Van Denburgh 1895:84) Baja California slider [Holotype: CAS 2244; type locality: "Mainland abreast of San José Island, Lower California.... Los Dolores, L.C.", Mexico; range: Baja California, south from San Ignacio]
- T. s. ornata* (Gray 1831b:30) Ornate slider [Syntypes: (2 specimens) BMNH 1946.1.22.40-41; type locality: "American Meridionali.... Mazatlan" [= Mazatlán, Sinaloa, Mexico]; range: Sinaloa to Guerrero, Mexico]
- T. s. taylori* (Legler 1960b:75) Cuatrociénegas slider [Holotype: KU 46952; type locality: "16 km. S Cuatro Ciénegas, Coahuila, Mexico"; range: Cuatro Ciénegas basin, Coahuila, Mexico]

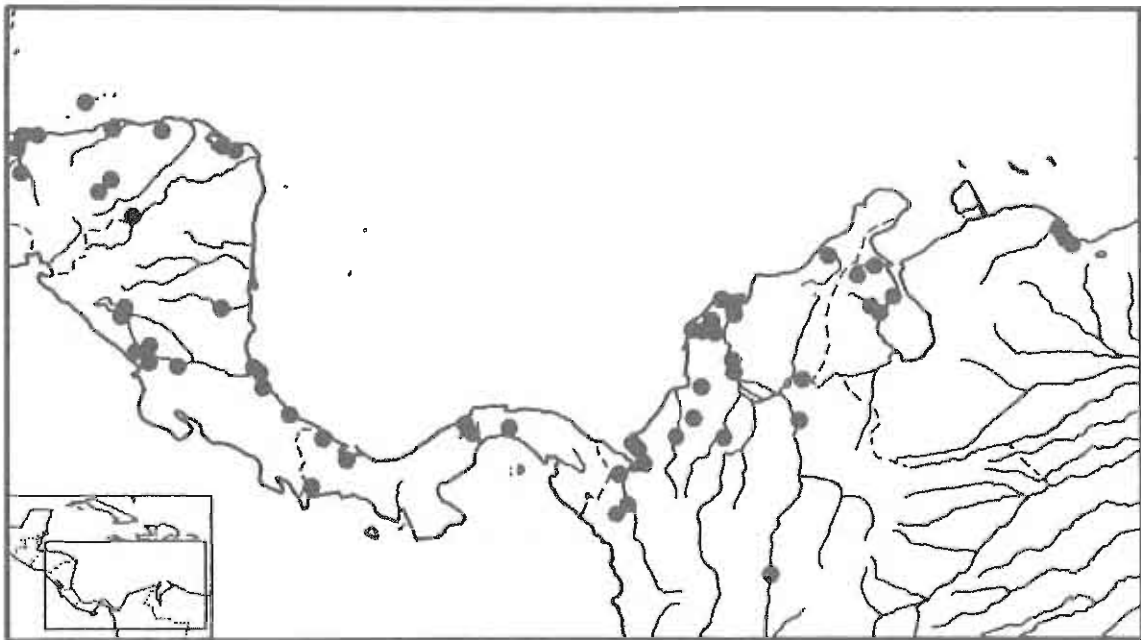
## EMYDIDAE; EMYDINAE

*T. s. troostii* (Holbrook 1836:55) Cumberland slider [Holotype: ANSP 179 (not ANSP 180 as suggested by Carr, 1937b); type locality: "Cumberland river" [probably in Tennessee]; range: southwestern Virginia to northeastern Alabama]

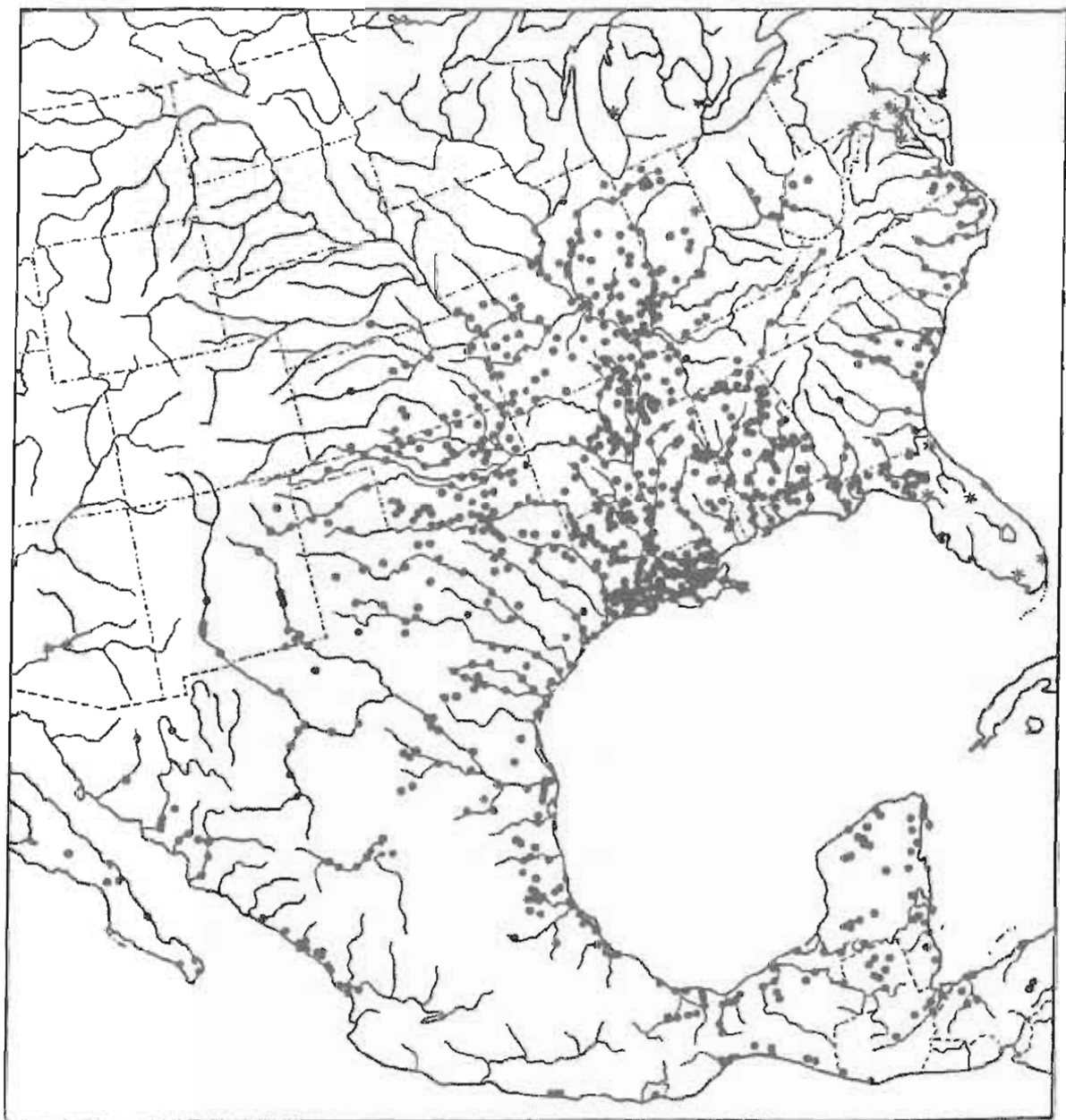
*T. s. venusta* (Gray 1855:24) Meso-American slider [Syntypes: (8 specimens) BMNH 1839.12.26.70, 1844.2.17.3, 1845.8.5.26, 1845.10.20.19, 1848.7.28.25, 1849.12.7.4, and two unnumbered specimens; BMNH 1845.8.5.26 designated lectotype by Smith and Smith (1979:495); type locality: "Southern States of America; Honduras", restricted to "Honduras" by lectotype designation (Smith and Smith, 1979:495); range: northwestern Veracruz to the Yucatan peninsula, Mexico, and along the Atlantic coastal plain to northwestern Colombia]

*T. s. yaquia* (Legler and Webb 1970:158) Yaqui slider [Holotype: UU 6030; type locality: "Rio Mayo, Conicarit, Sonora, México [27° 14'N, 109° 06' W]"; range: "Rio Mayo, Yaqui, and Sonora basins in Sonora, Mexico]

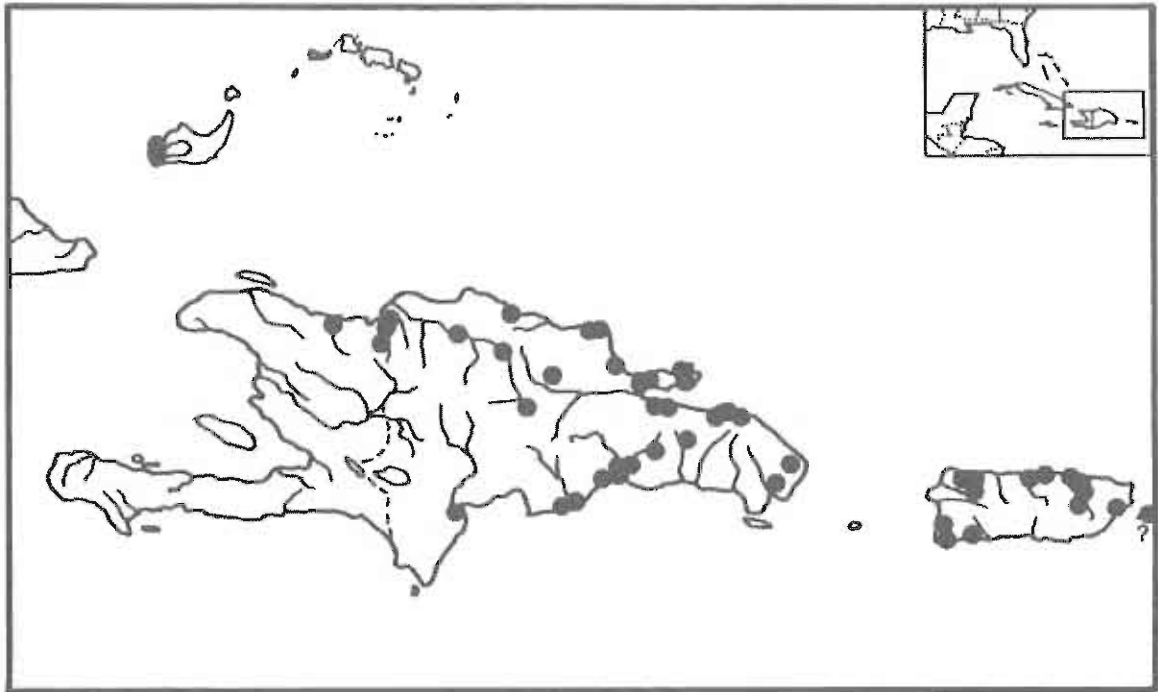
**Comment:** There is some controversy about which of the subspecies deserve species rank (see Ward 1980 and 1984; who considered *gaigeae*, *hartwegi*, *hiltoni*, and *nebulosa* as subspecies of *T. nebulosa*. *T. dorbigni* (formerly a subspecies of *T. scripta*) has only recently been elevated to a full species by most authors (see separate account). Of the forms still included here within *T. scripta*, there appear to be two major evolutionary lineages represented (e.g., Seidel, 1988); the "temperate North American lineage" includes *scripta*, *elegans*, and *troostii*, and the "Neotropical lineage" includes all other currently recognized subspecies. Recognizing this divergence, several authors have considered the form *gaigeae* to be a full species (e.g., Garrett and Barker, 1987; Dixon, 1987; Price and Hillis, 1989; and Conant and Collins, 1991). However, *gaigeae* is not the oldest name available for the "Neotropical" slider complex, and it therefore seems prudent to follow Moll and Legler (1971) and Legler (1990) in retaining *gaigeae* as a subspecies of *T. scripta* until the relationships within the Neotropical complex are better understood. Reviewed by Williams (1956), Moll and Legler (1971), Smith and Smith (1979), Fritz (1981b; Mexican subspecies only), Pritchard and Trebbau (1984; in part), and Ernst (1990) and Legler (1990) in a monograph edited by Gibbons (1990).



## EMYDIDAE; EMYDINAE

*Trachemys scripta* (continued)

## EMYDIDAE; EMYDINAE

*Trachemys stejnegeri* (Schmidt, 1928:147)  
Central Antillean Slider**Original name:** *Pseudemys stejnegeri***Holotype:** USNM 25642**Type locality:** "San Juan, Porto Rico [= Puerto Rico]"**Distribution:** Puerto Rico, Hispaniola, and the Bahamas (Great Inagua Island); introduced on Paradise Island off New Providence in the Bahamas, Marie Galante Island, (25 km SE Guadelupe in the Lesser Antilles), and Culebra and Vieques Islands off of Puerto Rico (Seidel, 1988).**Subspecies:** Three subspecies are recognized:*T. s. stejnegeri* (Schmidt 1928:147) Puerto Rican slider [Holotype: see above; type locality: see above; range: Puerto Rico]*T. s. malonei* (Barbour and Carr 1938:76) Inagua slider [Holotype: MCZ 44338; type locality: "ponds near Northwest Point, Great Inagua Island, B.W.I."; range: Bahamas (Great Inagua Island)]*T. s. vicina* (Barbour and Carr 1940:408) Dominican slider [Holotype: FMNH 5977; type locality: "Sanchez, San Domingo", Dominican Republic; range: Hispaniola]**Comment:** Reviewed by Seidel (1988). Includes *Pseudemys malonei* Barbour and Carr (1938:76) according to Seidel (1984 and 1988) and Seidel and Adkins (1987).



## EMYDIDAE; EMYDINAE

*Trachemys terrapen* (Bonnaterre 1789: 30)  
Jamaican Slider

**Original name:** *Testudo Terrapen*

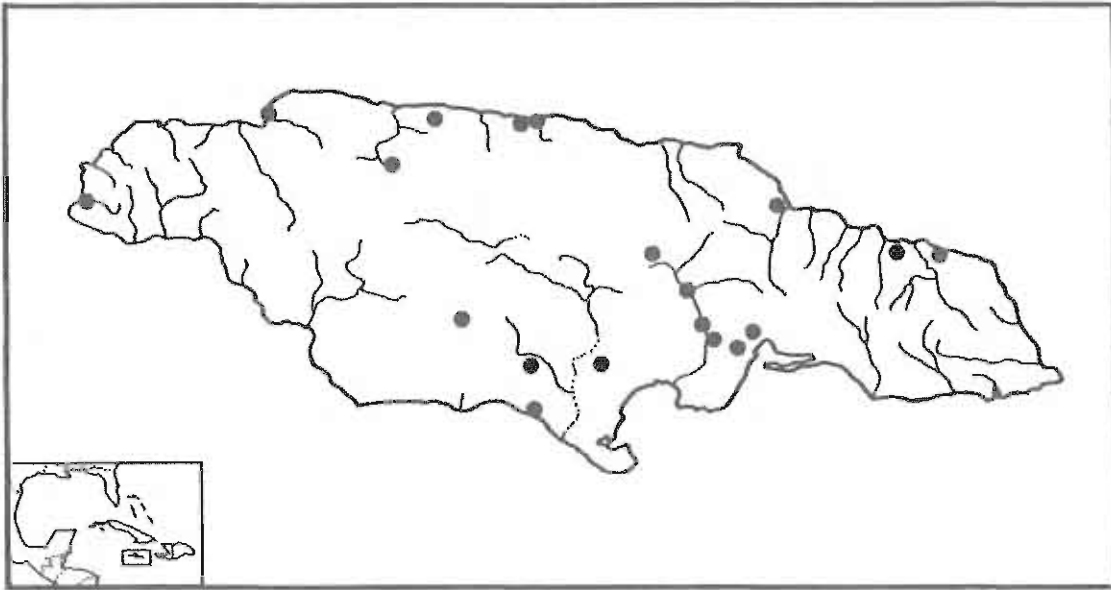
**Holotype:** Not located

**Type locality:** "aux Antilles & particulièrement a la Jamaïque [= Jamaica] . . . tres commune dans les lacs"

**Distribution:** Jamaica; introduced on Cat Island, Eleuthra, Andros and Paradise Island, Bahamas

**Subspecies:** None

**Comment:** Originally described by Lacepède (1788:129), but that work was made unavailable by ICZN Opinion 1463 (1987). Reviewed by Seidel (1988) and Schwartz and Henderson (1991). The Bahaman *Pseudemys felis* Barbour (1935:205) is apparently just an introduced population of *T. terrapen* according to Pritchard (1979), Seidel (1984, 1988), and Seidel and Adkins (1987).



## KINOSTERNIDAE

Family **Kinosternidae** Agassiz, 1857:347  
American Mud and Musk Turtles

**Original name:** Cinosternoidea

**Distribution:** The Americas

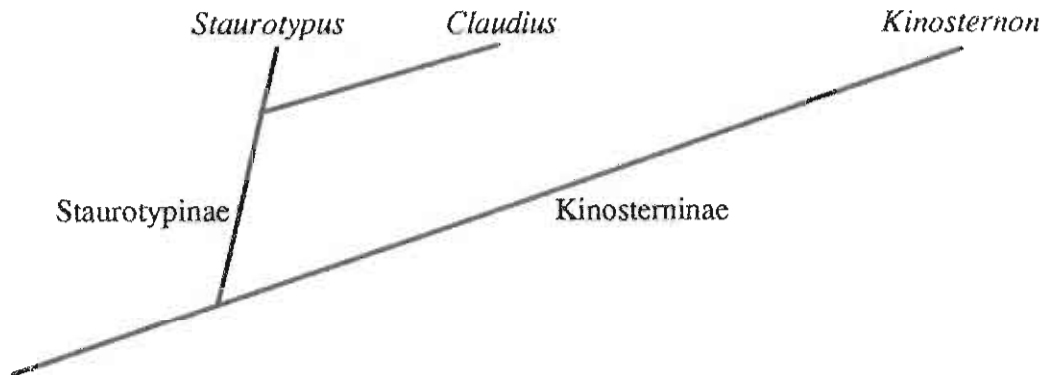
**Comment:** Bour and Dubois (1984c) discuss the history of the family name. All Mexican forms reviewed by Smith and Smith (1979). Phylogenetic relationships based on protein variation are discussed by Seidel et al. (1986); those based on neural bone patterns by Iverson (1988); and those based on morphology by Iverson (1991) and Hutchison (1991). Hutchison and Bramble (1981) and Bramble et al. (1984) discuss plastral morphology. Bickham and Carr (1983) consider the staurotypines a distinct family based on karyotypes (that arrangement followed by King and Burke, 1989:67); however, this arrangement is not supported by the morphological studies mentioned above or by Gaffney and Meylan (1988) and Meylan and Gaffney (1989:56).

**Key to the subfamilies:**

1a. No entoplastral bone present; 10 or 11 plastral scutes present.....Subfamily Kinosterninae (p. 213)

1b. Entoplastron present; seven or eight plastral scutes present.....Subfamily Staurotypinae (p. 237)

**Phylogenetic hypothesis:** (after Hutchison and Bramble, 1981; Iverson, 1991; and Hutchison, 1991).



Subfamily **Kinosterninae** Agassiz, 1857:347  
American Mud and Musk turtles

**Original name:** Cinosternoidea

**Distribution:** As for the family

**Comment:** Only one genus is currently recognized (Seidel et al., 1986; Gaffney and Meylan, 1988; Ernst and Barbour, 1989; Iverson, 1991), although this is not universally accepted (e.g., Conant and Collins, 1991).

## KINOSTERNIDAE

*Kinosternon* Spix, 1824:17  
American Mud and Musk Turtles

**Type species:** *Kinosternon longicaudatum* Spix (1824) [= *Testudo scorpioides* by subsequent designation of Fitzinger (1843:29)]

**Distribution:** central, southern and eastern North America to central South America

**Comment:** See Comment under Kinosternidae. Includes the genus *Sternotherus* (Gray, 1825; not *Sternotherus*, Bell, 1825, which has been suppressed by the ICZN [Opinion 1534]; see also Bour and Dubois, 1984a) according to Seidel et. al. (1986), Gaffney and Meylan (1988), Ernst and Barbour (1989), and Iverson (1991), although *Sternotherus* may deserve subgeneric status (see also Hutchison, 1991, who advocated recognizing *Sternotherus* at the generic level). Tinkle (1958), Seidel and Lucchino (1981), and Seidel et. al. (1981) reviewed the relationships of the previously recognized "*K. carinatum*" complex. Zug (1986) reviewed the genus *Sternotherus*.

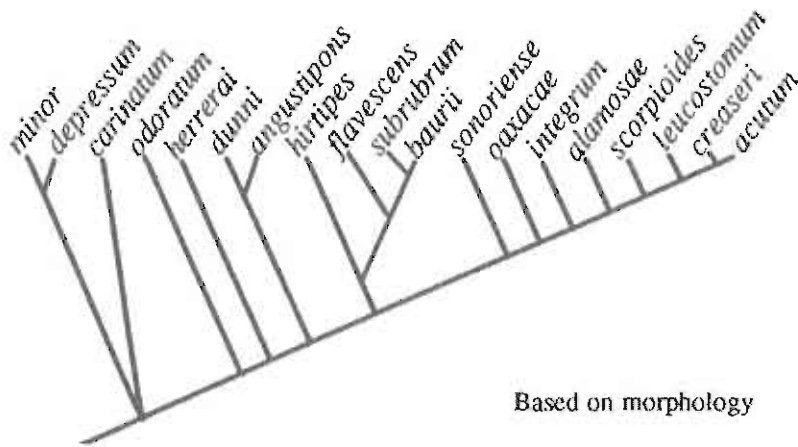
**Key to the species:** (modified from Ernst and Barbour, 1989)

- 1a. Uncornified skin usually present between plastral midline scutes; posteriormost pair of scutes on plastral forelobe four-sided; maximum plastron length less than 78% of maximum carapace length in males and less than 82% in females.....2
- 1b. Uncornified skin almost never present between plastral midline scutes; posteriormost pair of scutes on plastral forelobe usually nearly triangular; maximum plastron length more than 76% of maximum carapace length in males and more than 82% in females.....5
- 2a. Two light stripes on the side of the head; barbels on the chin and throat; nonoverlapping carapacial scutes.....*K. odoratum* (p. 232)
- 2b. Light stripes absent from head; barbels on chin only; overlapping carapacial scutes.....3
- 3a. Intergular scute absent or rudimentary; very prominent single, median vertebral keel present....  
.....*K. carinatum* (p. 220)
- 3b. Intergular scute present and obvious; three vertebral keels present but often disappearing with age.....4
- 4a. Carapace wide and flattened, its sides sloping at an angle greater than 100°; mean angle/carapace height ratio 8:1 or greater.....*K. depressum* (p. 222)
- 4b. Carapace not greatly flattened, its sides slope at an angle less than 100°; mean angle/ carapace height ratio about 5:1 in those with a vertebral keel.....*K. minor* (p. 230)
- 5a. Ninth marginal scute much higher than eighth.....*K. flavescens* (p. 224)
- 5b. Ninth marginal scute about the same height as eighth.....6
- 6a. Carapace with three longitudinal light stripes.....*K. baurii* (p. 219)
- 6b. Carapace lacking three longitudinal light stripes.....7
- 7a. Posterior plastral lobe immovable (akinetic).....*K. herrerae* (p. 225)
- 7b. Posterior plastral lobe hinged and movable.....8
- 8a. Nasal scale furcate posteriorly.....9
- 8b. Nasal scale not furcate posteriorly.....10
- 9a. Plastron reduced in size (much smaller than carapacial opening); carapace with one or three keels, but with medial keels evident at least posteriorly; first vertebral scute broad, usually contacting second marginal scutes.....*K. hirtipes* (p. 226)
- 9b. Plastron not so reduced in size, at least anteriorly; carapace usually smooth (always posteriorly lacking a distinct medial keel); first vertebral scute narrow, usually not contacting the second marginal scutes.....*K. subrubrum* (in part)(p. 236)
- 10a. First vertebral scute narrow, usually not contacting the second marginal scutes; carapace without obvious keels.....*K. subrubrum* (in part)(p. 236)
- 10b. First vertebral scute broad, usually contacting second marginal scutes; carapace with some evidence of one to three keels.....11
- 11a. Anterior pair of chin barbels very long, subequal to orbit diameter.....*K. sonoriense* (p. 235)
- 11b. Anterior pair of chin barbels not long, never approaching orbit diameter in length.....12
- 12a. Plastron with distinct posterior notch.....13
- 12b. Plastron without a distinct posterior notch.....16
- 13a. Plastron length less than 88% of carapace length in females and less than 83% in males.....14
- 13b. Plastron length more than 88% of carapace length in females and more than 82% in males..15
- 14a. Bridge length less than 21% of carapace length.....*K. angustipons* (p. 218)
- 14b. Bridge length more than 21% of carapace length.....*K. dunni* (p. 223)

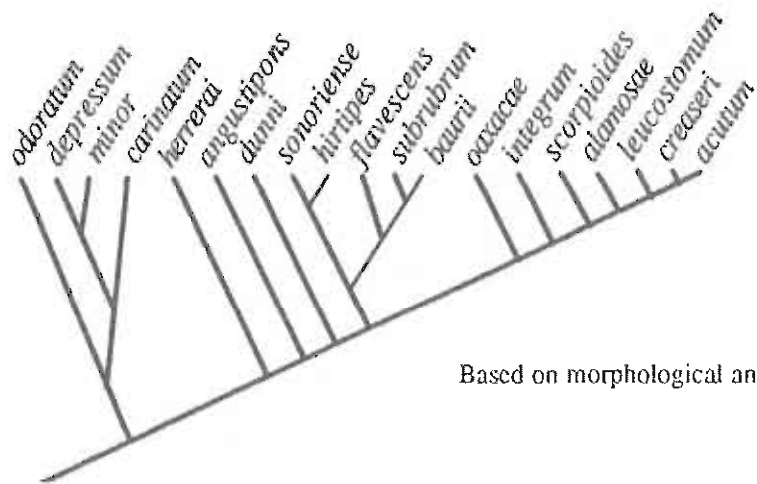
KINOSTERNIDAE

- 15a. Width of plastral forelobe at anterior hinge more than 67% of greatest carapace width; maximal width of plastral hindlobe greater than 59.5% of greatest carapace width in males and greater than 62% in females; interfemoral seam length less than 46% of bridge length, and less than 12% of maximum plastron length.....*K. integrum* (p. 227)
- 15b. Width of plastral forelobe at anterior hinge less than 67% of greater carapace width; maximal width of plastral hindlobe less than 59.5% of greatest carapace width in males and less than 62% in females; interfemoral seam length greater than 38% of bridge length, and more than 9% of maximum plastron length.....*K. oaxacae* (p. 231)
- 16a. Gular scute broader on dorsal surface of plastron than on ventral surface; males with clasping organs (vinculae) present; usually with a single, broad, light postorbital stripe (sometimes vague) on head.....*K. leucostomum* (p. 228)
- 16b. Gular scute not broader on dorsal surface of plastron than on ventral surface; males lack clasping organs; no single, broad, light postorbital stripe on head.....17
- 17a. Carapace lacking keels.....*K. alamosae* (p. 217)
- 17b. Carapace with one to three keels.....18
- 18a. Three obvious longitudinal keels on the carapace.....*K. scorpioides* (p. 237)
- 18b. Only one medial, longitudinal keel obvious on the carapace.....19
- 19a. Anterior margin of posterior plastral lobe straight across.....*K. acutum* (p. 216)
- 19b. Anterior margin of posterior plastral lobe not straight across, but instead angled posteriorly to midline.....*K. creaseri* (p. 221)

Phylogenetic hypotheses: (after Iverson, 1991)



Based on morphology



Based on morphological and protein characters

## KINOSTERNIDAE

*Kinosternon acutum* Gray, 1831b:34  
Tabasco mud turtle

**Original name:** *Kinosternon scorpioides* var. *acuta*

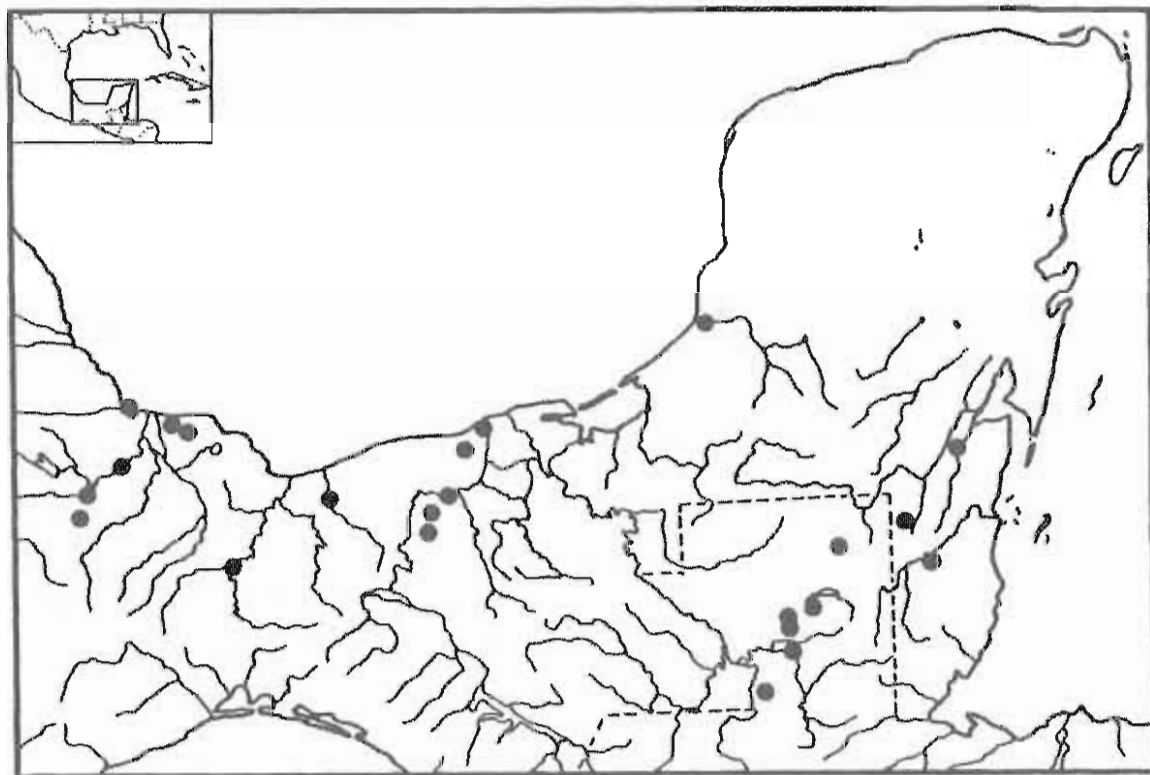
**Holotype:** BMNH 1947.3.4.58

**Type locality:** Not stated; data with holotype are "Central America" according to Gray (1844:33); restricted to "British Honduras" (= Belize) by Schmidt (1941:476); restricted to "Cosamaloapam, Veracruz" [Mexico] by Smith and Taylor (1950a:347; 1950b:23)

**Distribution:** Atlantic versant from southern Veracruz (Mexico) to Belize and Guatemala, excluding the northern Yucatan peninsula

**Subspecies:** None

**Comment:** Reviewed by Smith and Smith (1979) and Iverson (1980a).



## KINOSTERNIDAE

*Kinosternon alamosae* Berry and Legler, 1980:1  
Alamos Mud Turtle

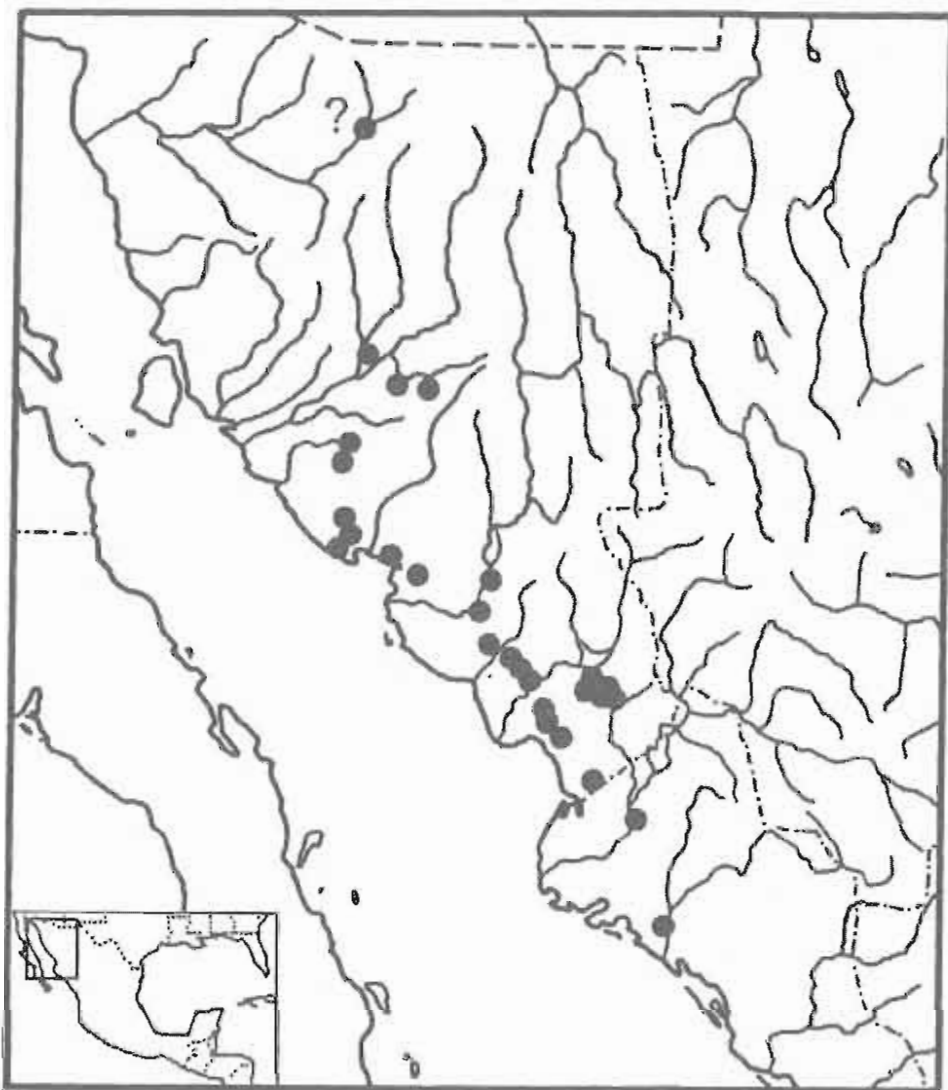
**Holotype:** LACM 127639

**Type locality:** "Rancho Carrizal, 7.2 km north and 11.5 km west of Alamos, Sonora, Mexico [27° 05' N, 109° 03' W]"

**Distribution:** southern Sonora and northern Sinaloa, Mexico

**Subspecies:** None

**Comment:** Pritchard (1979) inadvertently published excerpts from the (in press) description of Berry and Legler (1980); the ICZN (Melville, 1985) has suppressed the name *Kinosternon alamosae* (sic) Pritchard (1979). Reviewed by Smith and Smith (1979) and Iverson (1989a; 1990).



## KINOSTERNIDAE

*Kinosternon angustipons* Legler, 1965:617  
Narrow-bridged Mud Turtle

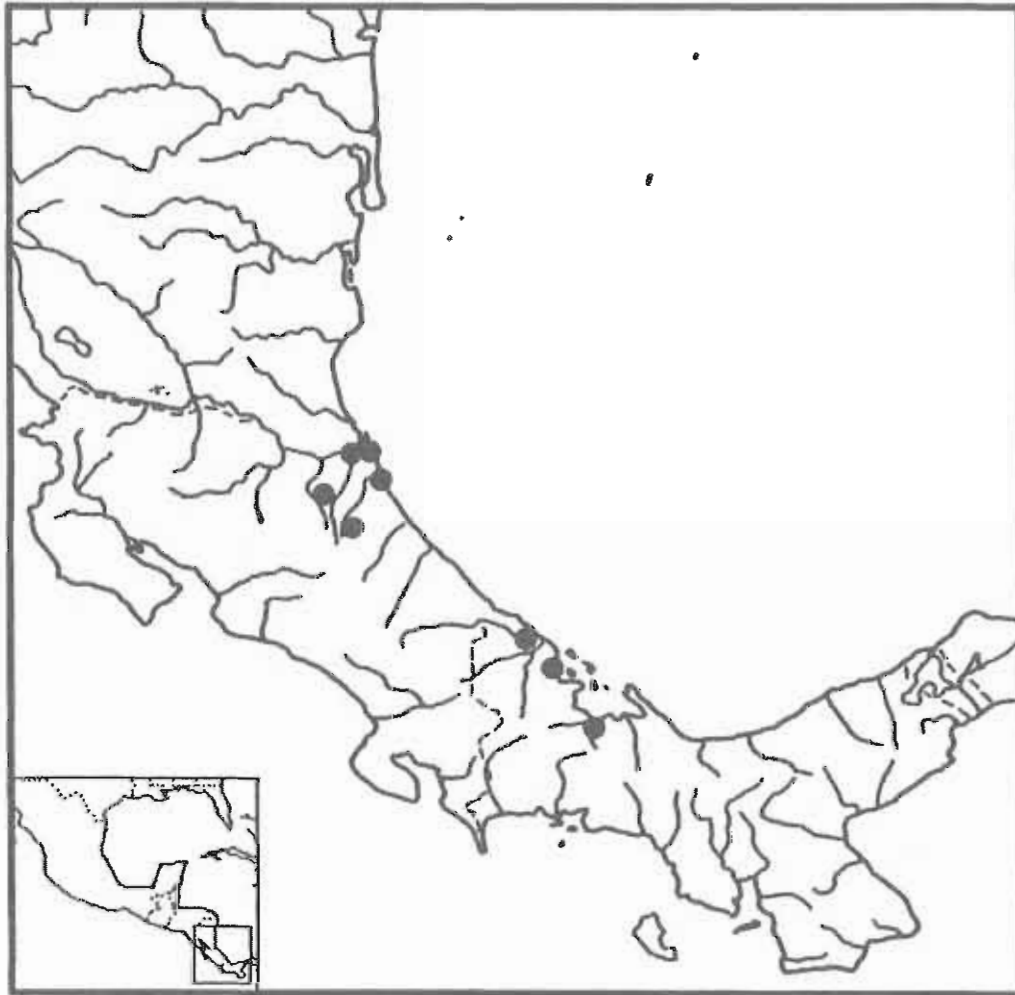
**Holotype:** KU 43631

**Type locality:** "Los Diamantes, Limón Province, Costa Rica"

**Distribution:** Caribbean versant from southeastern Nicaragua to northwestern Panama

**Subspecies:** None

**Comment:** Reviewed by Legler (1966), Iverson (1980b), and Groombridge (1982).



## KINOSTERNIDAE

*Kinosternon baurii* Garman, 1891:141  
Striped Mud Turtle**Original name:** *Cinosternon baurii***Syntypes:** (11 specimens) MCZ 282-87, 1558, 1563, 4380, UMMZ 53038 (formerly MCZ 4718; 4379 according to Kluge, 1984:80), FMNH 73481 (formerly MCZ 4050)**Type locality:** "Key West" [Monroe Co., Florida, USA]**Distribution:** Florida, Georgia, and southeastern South Carolina, and to eastern North Carolina and Virginia according to Lamb and Lovich (1990) [USA]**Subspecies:** None**Comment:** Reviewed by Ernst (1974), Iverson (1978a), and Lamb and Lovich (1990). Variation (morphometric and molecular) in this species needs to be examined in the context of variation across the entire range of its sister taxon, *K. subrubrum*; *K. baurii* is so similar morphometrically to *K. subrubrum hippocrepis* that most specimens of the latter are identified as *K. baurii* using Lamb and Lovich's (1990) discriminant function for eastern United States *Kinosternon*.



## KINOSTERNIDAE

*Kinosternon carinatum* (Gray, 1855:47)  
Razor-backed Musk Turtle

**Original name:** *Aromochelys carinatum*

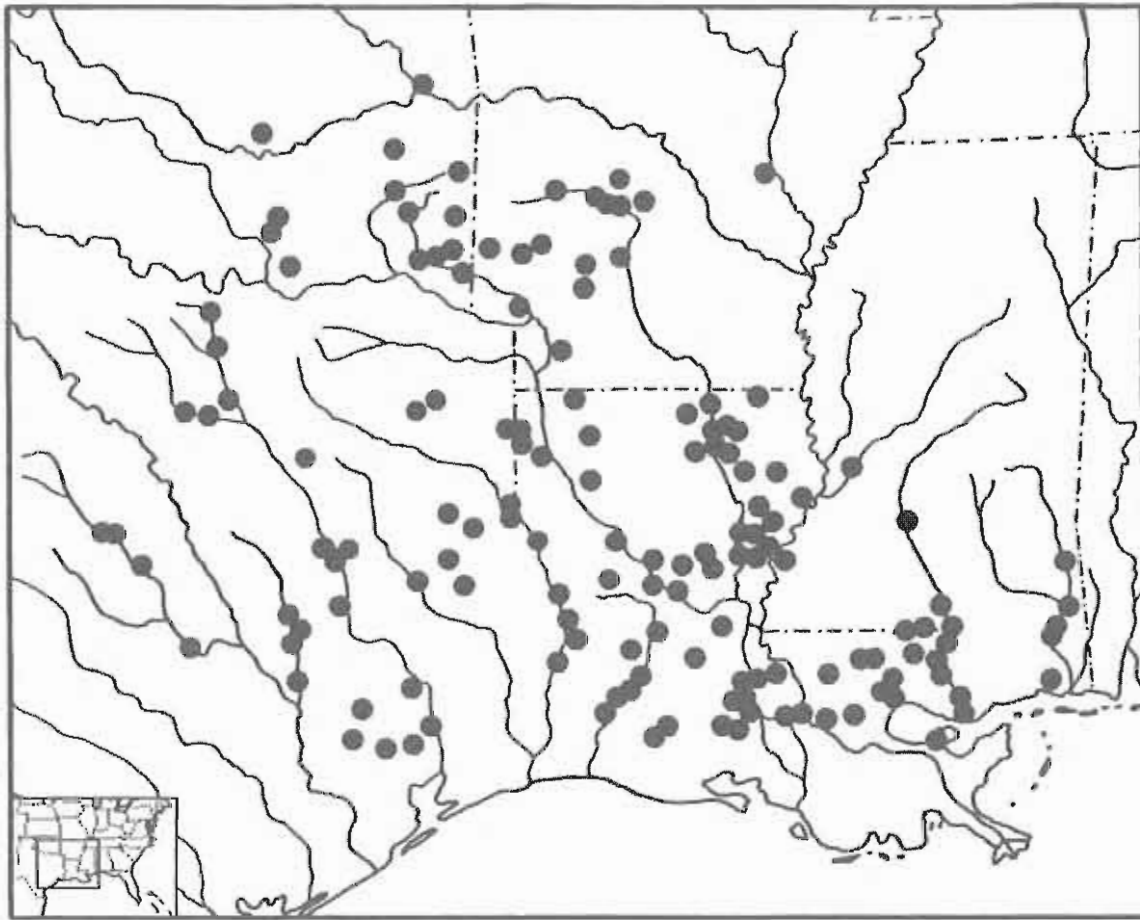
**Syntypes:** (4 specimens) BMNH 1947.3.4.32, 1947.3.4.64, 1947.3.4.83-84

**Type locality:** "Louisiana"; restricted by Schmidt (1953:87) to "vicinity of New Orleans" [Orleans Parish, Louisiana, USA]

**Distribution:** southern USA, from eastern Oklahoma and Texas to eastern Mississippi

**Subspecies:** None

**Comment:** Reviewed by Iverson (1979b; as *Sternotherus carinatus*).



## KINOSTERNIDAE

*Kinosternon creaseri* Hartweg, 1934:1  
Creaser's Mud Turtle

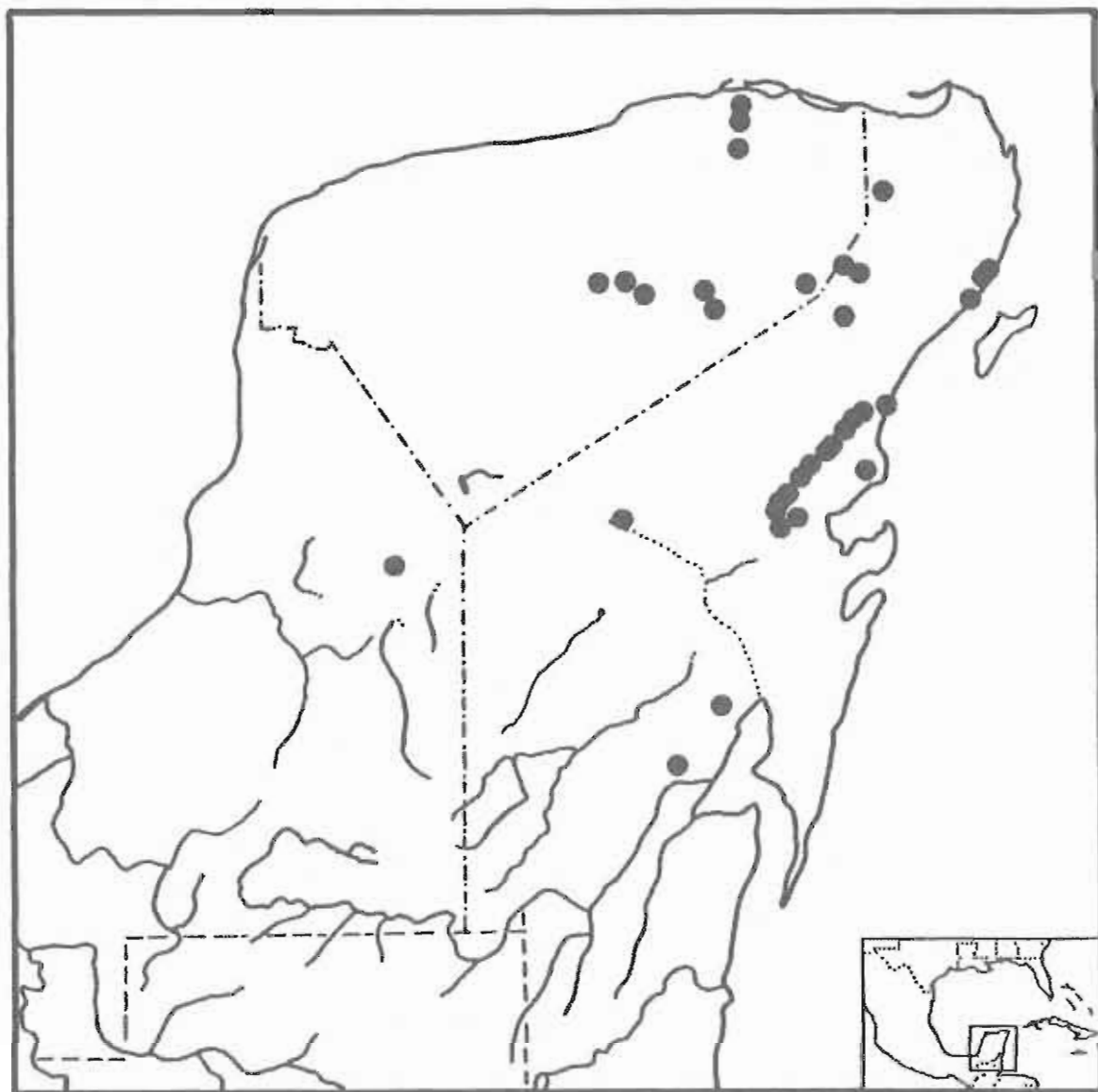
**Holotype:** UMMZ 73090

**Type locality:** "one mile south of the Hacienda, Chichen Itzá, Yucatán" [Mexico]

**Distribution:** Yucatan Peninsula, Mexico

**Subspecies:** None

**Comment:** Reviewed by Smith and Smith (1979), Groombridge (1982), and Iverson (1983a, 1989b).



## KINOSTERNIDAE

*Kinosternon depressum* (Tinkle and Webb, 1955:53)  
Flattened Musk Turtle

**Original name:** *Sternotherus depressus*

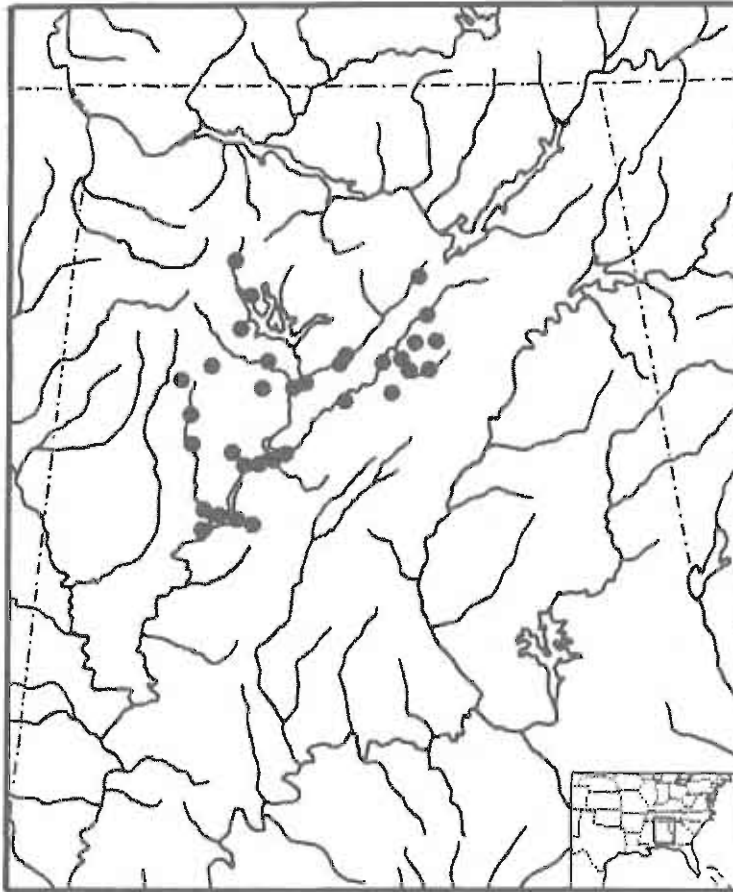
**Holotype:** TU 16171

**Type locality:** "Mulberry Fork of the Black Warrior River, 9 miles east of Jasper, Walker County, Alabama, [USA] near the bridge crossing of U. S. Highway 78"

**Distribution:** Black Warrior River system, above the Fall Line, Alabama, USA

**Subspecies:** None

**Comment:** Reviewed (as *Sternotherus depressus*) by Iverson (1977b), Dodd et al. (1988), and Ernst et al. (1989). Considered by some authors (e.g., Wermuth and Mertens, 1961; Ernst and Barbour, 1972; and Mount, 1975) to be a subspecies of *Sternotherus* (= *Kinosternon*) *minor*, although Seidel and Lucchino (1981) provided additional evidence for specific recognition.



## KINOSTERNIDAE

*Kinosternon dunnii* Schmidt, 1947:109  
Dunn's Mud Turtle

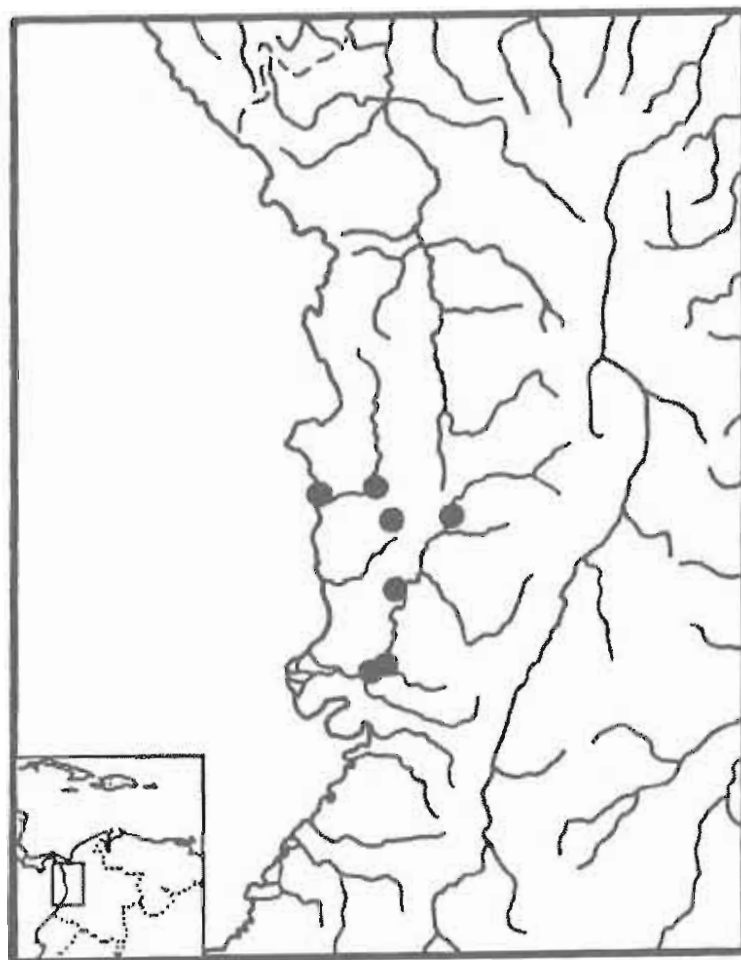
**Holotype:** FMNH 42804

**Type locality:** "Pizarro, Choco, Colombia"

**Distribution:** Río San Juan to Río Baudó basins of Pacific coastal Colombia

**Subspecies:** None

**Comment:** Reviewed by Iverson (1981a) and Groombridge (1982).



## KINOSTERNIDAE

*Kinosternon flavescens* (Agassiz, 1857:430)  
Yellow Mud Turtle

**Original name:** *Platythra flavescens*

**Syntypes:** (5 specimens) USNM 50, 131823 (formerly 7867), and 7892, and MCZ 1918-19; USNM 50 designated lectotype by Iverson (1978b:478)

**Type locality:** "Texas, near San Antonio; ... lower Rio Grande; ... Red River, Arkansas; ... Camp Yuma; ... Gila River" [USA]; incorrectly restricted by Smith and Taylor (1950:24) to "Waco [McLennan Co.], Texas" [USA] according to Maslin (1959:22); restricted to "Rio Blanco, near San Antonio [Bexar Co.], Texas" [USA] by Iverson (1978b:478)

**Distribution:** southern Nebraska to southern Arizona, USA and Sonora, Durango, Tamaulipas and Veracruz, Mexico; disjunct populations in western Illinois, eastern Iowa, northeastern and southwestern Missouri and the Nebraska Sandhills, USA

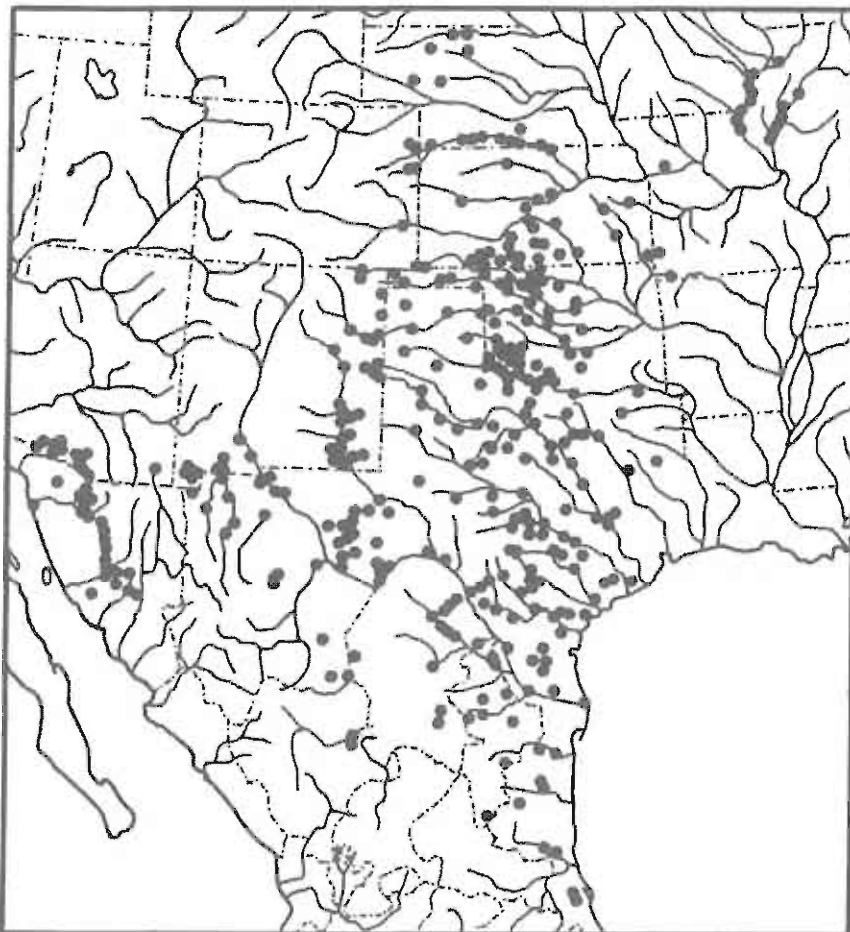
**Subspecies:** Three are recognized:

*K. f. flavescens* (Agassiz 1857:430) Yellow mud turtle [Syntypes: see above; type-locality: see above; range: southeastern Arizona to northwestern Nebraska to western Illinois to southern Texas, USA and northern Chihuahua to Tamaulipas and northern Veracruz, Mexico]

*K. f. arizonense* Gilmore (1922:2) Arizona mud turtle [Holotype: USNM 10463, a fossil; type locality: "Benson Locality Quarry, two miles south of Benson, Cochise County, Arizona" [USA]; range: southwestern Arizona, USA and south to central Sonora, Mexico]

*K. f. durangoense* Iverson (1979a:219) Durango mud turtle [Holotype: UF 16180; type locality: "8 km from Ceballos in Lago de los Palomas, Durango, Mexico"; range: southern Chihuahua, Western Coahuila, and eastern Durango, Mexico]

**Comment:** Reviewed by Seidel (1978), Iverson (1979a; 1989c, *arizonense* only), Smith and Smith (1979), Houseal et al. (1982), and Berry and Berry (1984). A fourth subspecies, *K. f. spooneri* Smith (1951:195), has recently been synonymized with the nominate subspecies (e.g., see Berry and Berry, 1984).



## KINOSTERNIDAE

*Kinosternon herrerae* Stejneger, 1925:462  
Herrera's Mud Turtle

**Holotype:** USNM 61249

**Type locality:** "Xochimilco, Valley of Mexico" (in error); restricted to "La Laja, Veracruz" [Mexico] by Smith and Taylor (1950a:349; 1950b:24); restricted by Smith and Brandon (1968:54) to "vicinity of Tampico" [Tamaulipas, Mexico]

**Distribution:** east-central Mexico: southern Tamaulipas, northern Veracruz, and eastern San Luis Potosí, Hidalgo, and Puebla

**Subspecies:** None

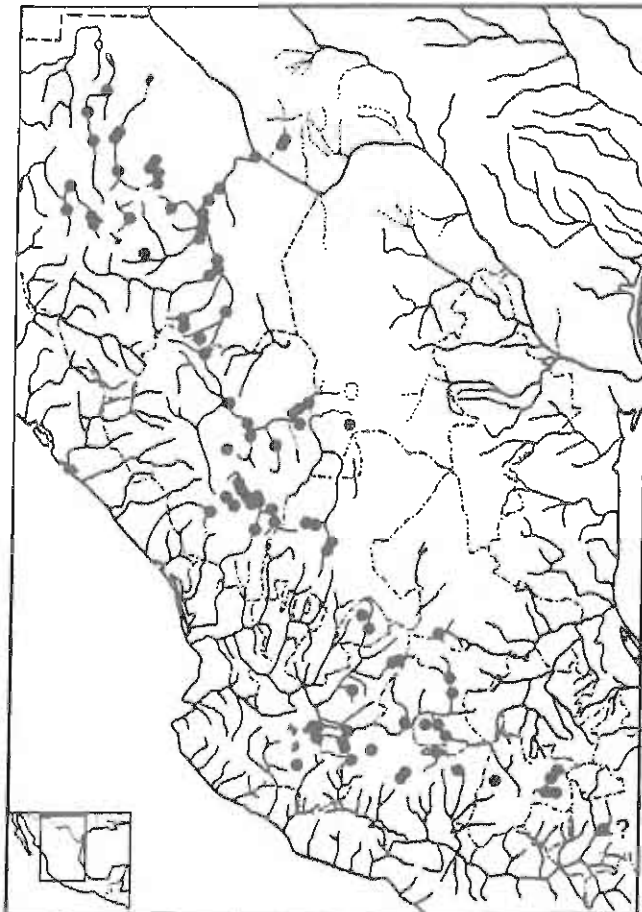
**Comment:** Reviewed by Smith and Smith (1979) and Berry and Iverson (1980a).



## KINOSTERNIDAE

*Kinosternon hirtipes* Wagler, 1830:137  
Mexican Rough-footed Mud Turtle**Original name:** *Cinosternon hirtipes***Holotype:** ZSM 1374/0**Type locality:** "México"; restricted to "lakes near Mexico City" [Mexico] by Schmidt (1953:89)**Distribution:** extreme southwestern Texas, USA and northern Chihuahua to the valley of Mexico, México**Subspecies:** Six are recognized:

- K. h. hirtipes* Wagler (1830:137); Valley of Mexico mud turtle [Holotype: see above; type-locality: see above; range: valley of México]
- K. h. chapalaense* Iverson (1981b:51) Lake Chapala mud turtle [Holotype: UMMZ 97128; type locality: "Lake Chapala, 0.25 mile off Chapala, Jalisco, México [20°18'N, 103°12'W]"; range: Lago de Chapala and Laguna de Zapotlán basins in Jalisco and Michoacán, México]
- K. h. magdalense* Iverson (1981b:53) San Juanico mud turtle [Holotype: UF 45035; type locality: "along the face of the dam at Presa San Juanico, Michoacán [ca. 19°50'N, 102°40'W]", [México]; range: Magdalena Valley of Michoacán, México]
- K. h. megacephalum* Iverson (1981b:52 who believed it extinct) Viesca mud turtle [Holotype: SM(BCB) 11466; type locality: "3.2 km SE Viesca [25°21'N, 102°48'W], Coahuila" [México]; range: only recorded from near the type locality in southwest Coahuila, México.
- K. h. murrayi* Glass and Hartweg (1951:50) Mexican Plateau mud turtle [Holotype: TCWC 650; type-locality: "Harper Ranch, 37 miles south of Marfa, Presidio County, Texas"; range: Chihuahua, México and adjacent Texas, USA across the Mexican plateau to México (state), México.
- K. h. tarascense* Iverson (1981b:52) Pátzcuaro mud turtle [Holotype: UF 43506; type-locality: "Lago de Pátzcuaro, adjacent to city of Pátzcuaro [19°32'N, 101°36'W]", [Michoacán, México]; range: Lago de Pátzcuaro basin, Michoacán, México]

**Comment:** Reviewed by Smith and Smith (1979) and Iverson (1981b and 1985a).

## KINOSTERNIDAE

*Kinosternon integrum* LeConte, 1854:183  
Mexican Mud Turtle

**Original name:** *Kinosternum integrum*

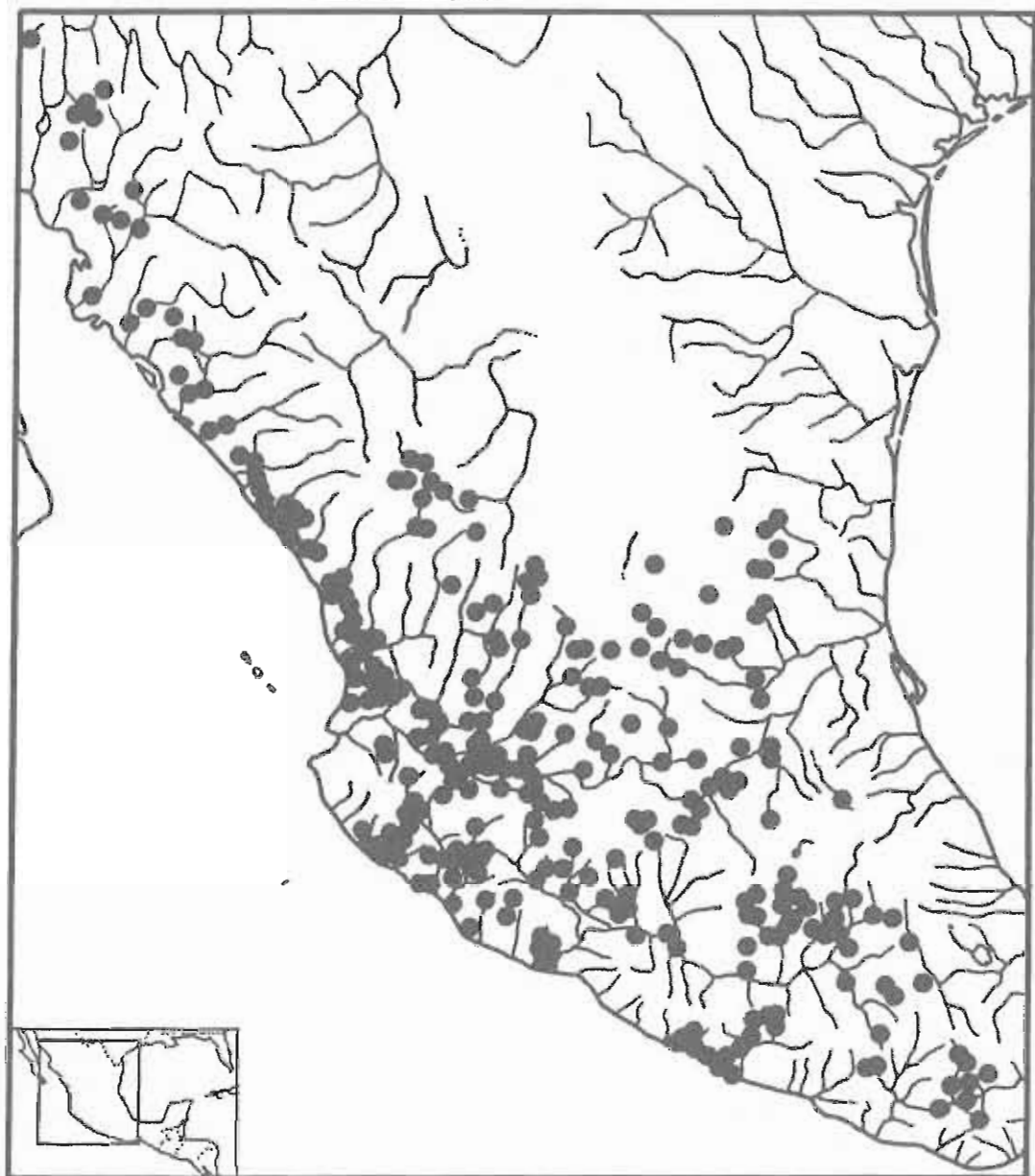
**Holotype:** Unknown, not ANSP

**Type locality:** "Mexico"; restricted to "Acapulco, Guerrero" [Mexico] by Smith and Taylor (1950a:331 and 1950b:25)

**Distribution:** Sonora and western Tamaulipas, south to Oaxaca, Mexico

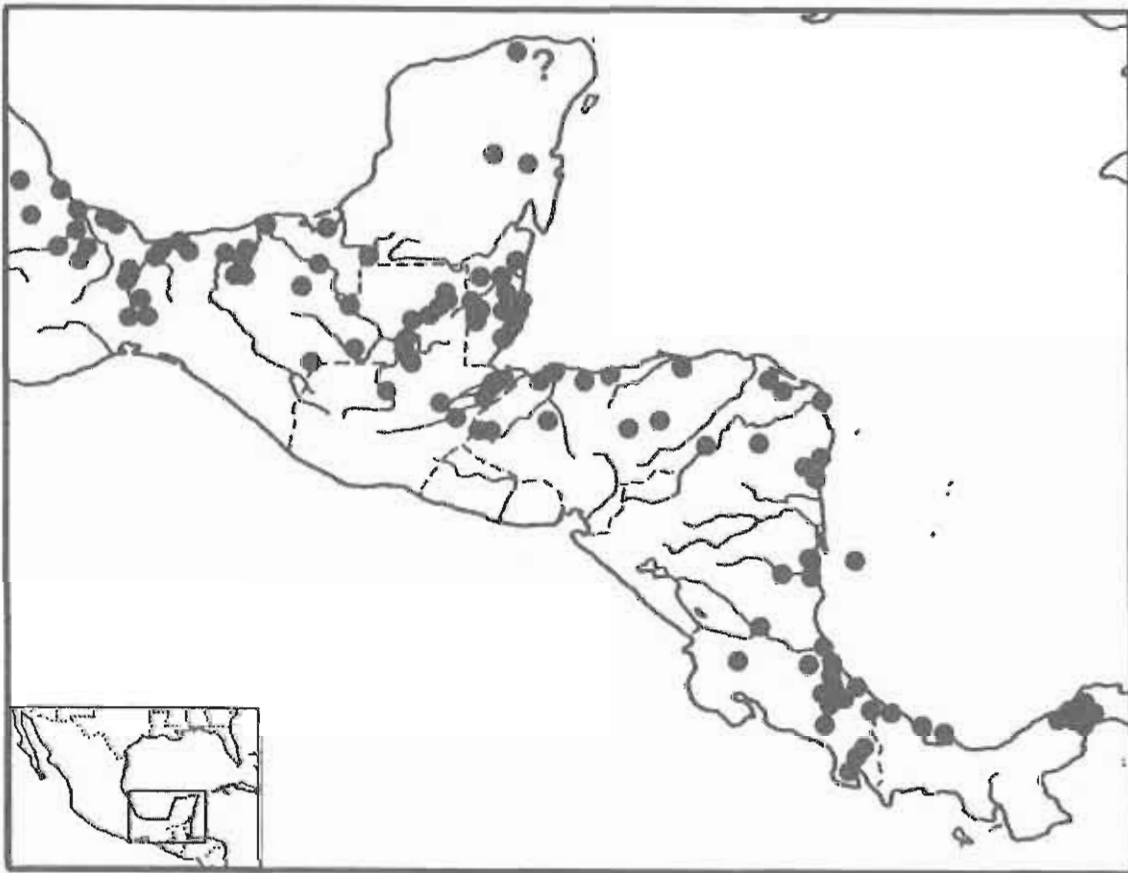
**Subspecies:** None

**Comment:** Confused in early literature with *Kinosternon alamosae* and *Kinosternon hirtipes*; see Iverson (1981b) for literature corrections. Reviewed by Berry (1978) and Smith and Smith (1979). Webb (1984:230, 237) suggested that Mexican Plateau and Pacific Coastal Plain populations were subspecifically distinct; however, the morphometric analysis of Berry (1978) seems to contradict that recommendation. Populations in coastal Jalisco and Colima currently included in this taxon actually represent a distinct species (Berry, 1978; Iverson, 1991; Berry et. al., unpublished).



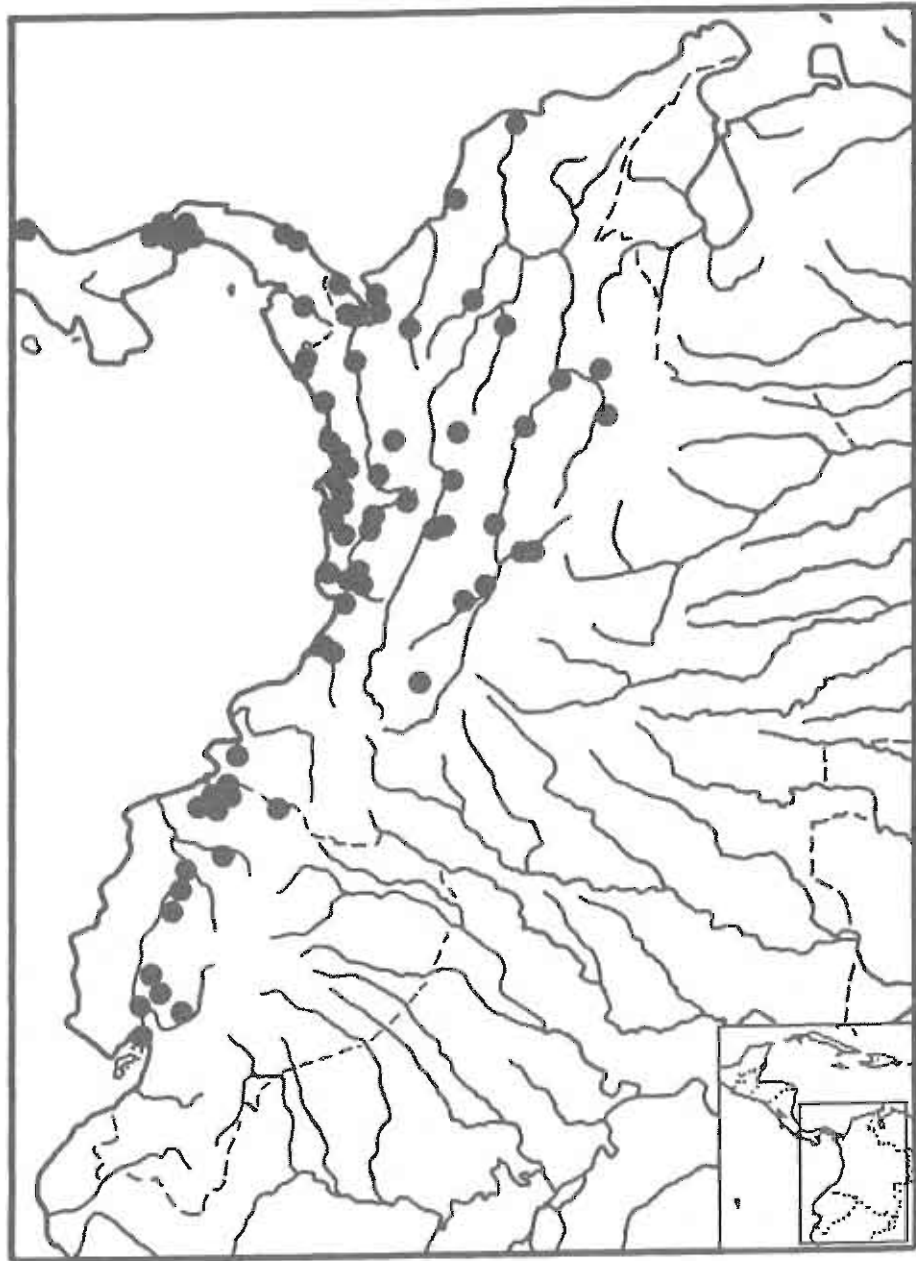


## KINOSTERNIDAE

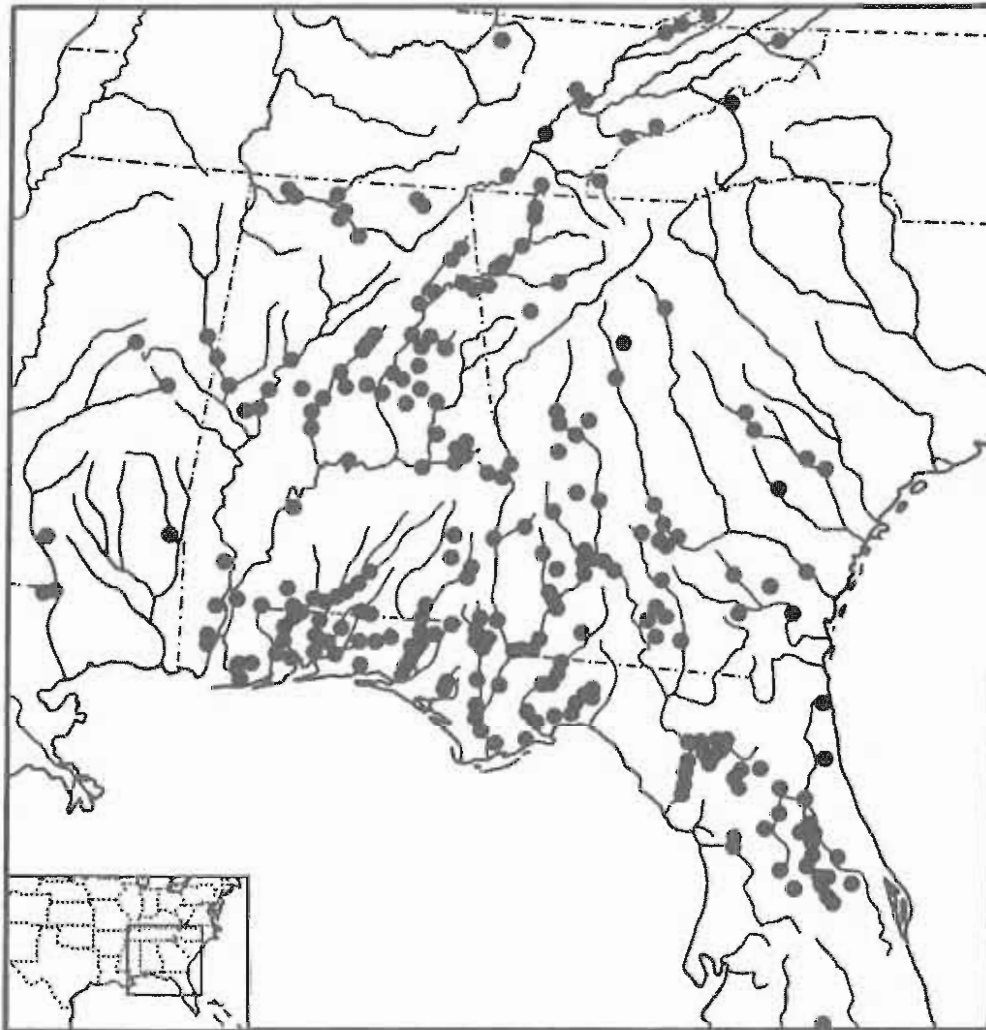
*Kinosternon leucostomum* Duméril and Bibron, in Duméril and Duméril, 1851:17  
White-lipped Mud Turtle**Original name:** *Cinosternum leucostomum***Syntypes:** (3 specimens) MNHN 2114, 9087 (= 8311), 9088: MNHN 8311 designated lectotype by Stuart (1963:49)**Type locality:** "N. Orleans; Mexique; Rio Sumasinta [= Usumacinta] (Amer. centr.); restricted to "Rio Usumacinta, El Peten, Guatemala," by Schmidt (1941:488); erroneously restricted to "Cosamaloapam, Veracruz" [Mexico] by Smith and Taylor (1950a:347 and 1950b:26)**Distribution:** (Two maps) southern Veracruz, Mexico through Central America to western Colombia, western Ecuador, and possibly northwestern Peru**Subspecies:** Two are recognized:*K. l. leucostomum* Duméril and Bibron, in Duméril and Duméril (1851:17) Northern White-lipped mud turtle [Syntypes: see above; type locality: see above; range: Veracruz, Mexico to Nicaragua]*K. l. postinguinale* Cope (1887:23, substitute name for *Cinosternum brevigulare* Cope, 1885:389) Southern White-lipped mud turtle [Syntypes: (2 specimens) USNM 45582 and 51165; type locality: "Tierra Caliente of Costa Rica at Sipurio, on the east coast", according to Cope (1885:389); range: Nicaragua to Ecuador]**Comment:** Reviewed by Berry (1978) and Smith and Smith (1979). Includes *K. spurrelli* Boulenger (1913:1030) according to nearly every author since Berry (1978).

KINOSTERNIDAE

*Kinosternon leucostomum* (continued)



## KINOSTERNIDAE

*Kinosternon minor* (Agassiz, 1857:424)  
Loggerhead Musk Turtle**Original name:** *Goniochelys minor***Syntypes:** (6 specimens) MCZ 1570, 1571 (2 specimens), and 1573 (identified as *Kinosternon odoratum* by Tinkle, 1958:11), USNM 71111 (formerly one of two specimens numbered MCZ 1572; identified as *K. odoratum* by Tinkle, 1958:11), UMMZ 63520 (formerly the other of two specimens numbered MCZ 1572, according to Kluge, 1984:80; identified as *K. odoratum* by Tinkle, 1958:11).**Type locality:** "neighborhood of Mobile," Mobile Co., Alabama, "Columbus [Muscogee Co.] Georgia," and "New Orleans" [Orleans Parish, Louisiana]; restricted to "Columbus, [Muscogee Co.] Georgia" [USA] by Schmidt (1953:88)**Distribution:** southeastern USA from southern Tennessee and southwestern Virginia to eastern Mississippi, Georgia and central Florida**Subspecies:** Two are recognized:*K. m. minor* (Agassiz 1857:424) Loggerhead musk turtle [Syntypes: see above; type locality: see above; range: central Georgia and southeastern Alabama to central Florida]*K. m. peltifer* (Smith and Glass 1947:22) Stripe-necked musk turtle [Holotype: TCWC 1205; type locality: "Bassfield, Jefferson Davis County, 30 miles west of Hattiesburg, Miss[issippi]." [U.S.A.]; range: eastern Tennessee and southwestern Virginia to eastern Mississippi and Alabama]**Comment:** Reviewed by Iverson (1977c and 1977d; as *Sternotherus minor*). See Comment under *K. depressum*.

## KINOSTERNIDAE

*Kinosternon oaxacae* Berry and Iverson, 1980b:313  
Oaxaca Mud Turtle

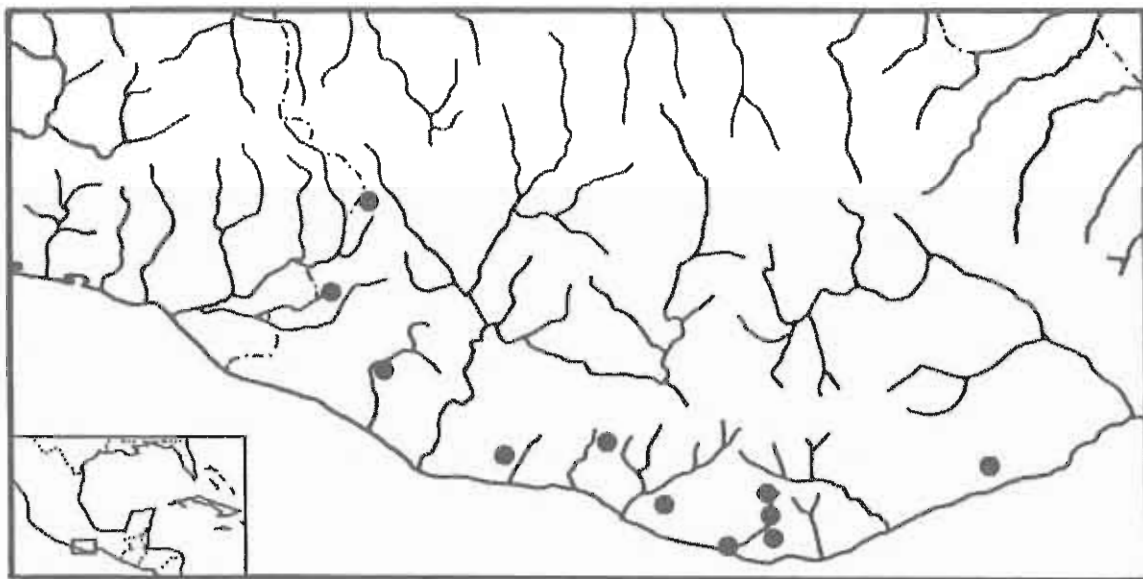
**Holotype:** UCM 48857

**Type locality:** "11.6 km N of Pochutla (San Pedro Pochutla) along Mexican Hwy 175 (ca. 235 m), Oaxaca, Mexico (15° 46' N, 96° 28' W)"

**Distribution:** southern Oaxaca and (presumably) Guerrero, Mexico

**Subspecies:** None

**Comment:** Reviewed by Smith and Smith (1979) and Iverson (1983c and 1986a). Pritchard (1979) inadvertently published excerpts from the (in press) description of Berry and Iverson; the ICZN (Melville, 1985) has suppressed the name *K. oaxacae* Pritchard (1979).



## KINOSTERNIDAE

*Kinosternon odoratum* (Latreille, 1801:122)  
Common Musk Turtle

**Original name:** *Testudo odorata*

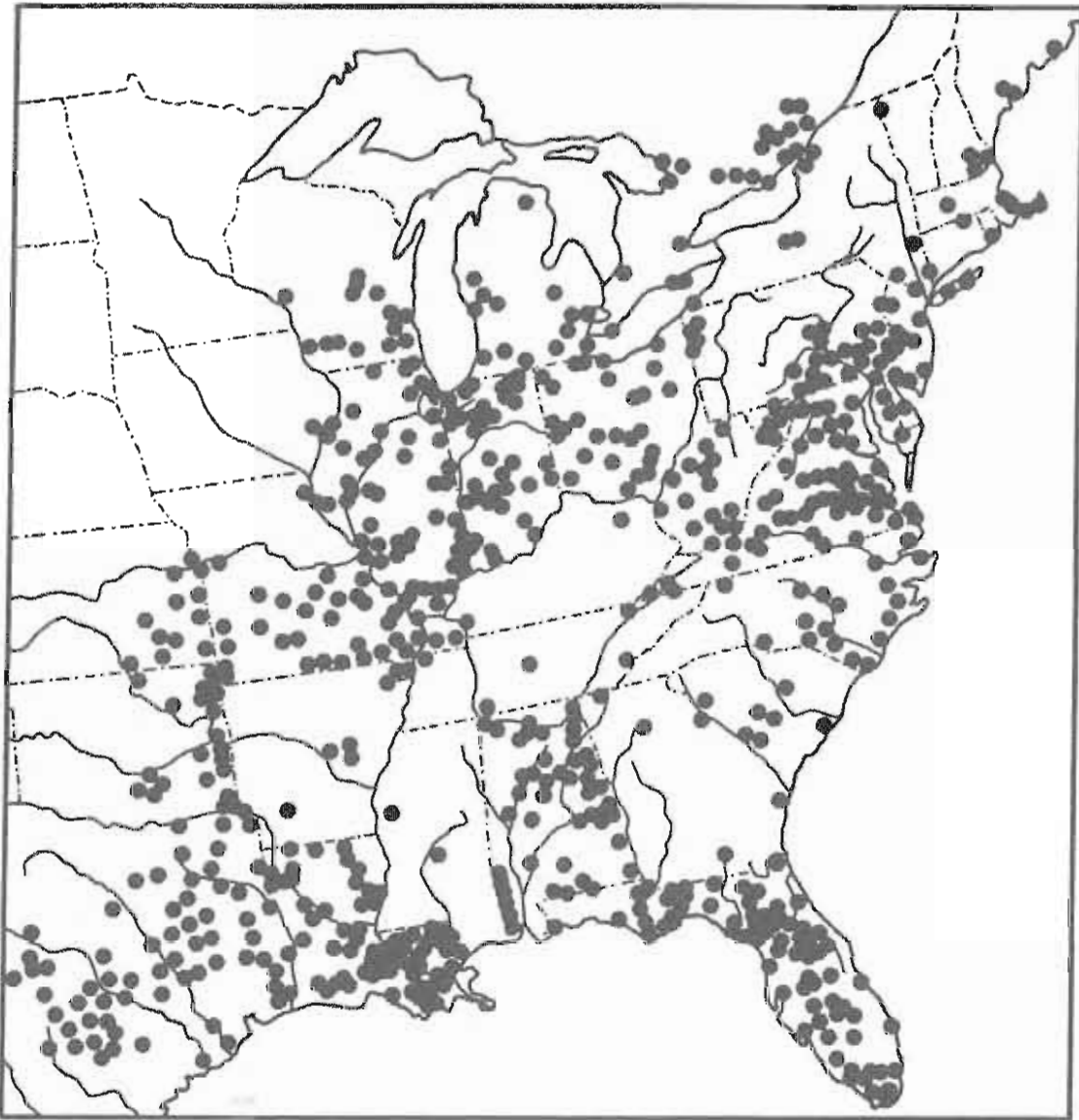
**Holotype:** Not designated; presumed lost; illustrated in the original description

**Type locality:** "les eaux dormantes de la Caroline"; restricted by Schmidt (1953:87) to "vicinity of Charleston [Charlestown Co.], South Carolina" [USA]

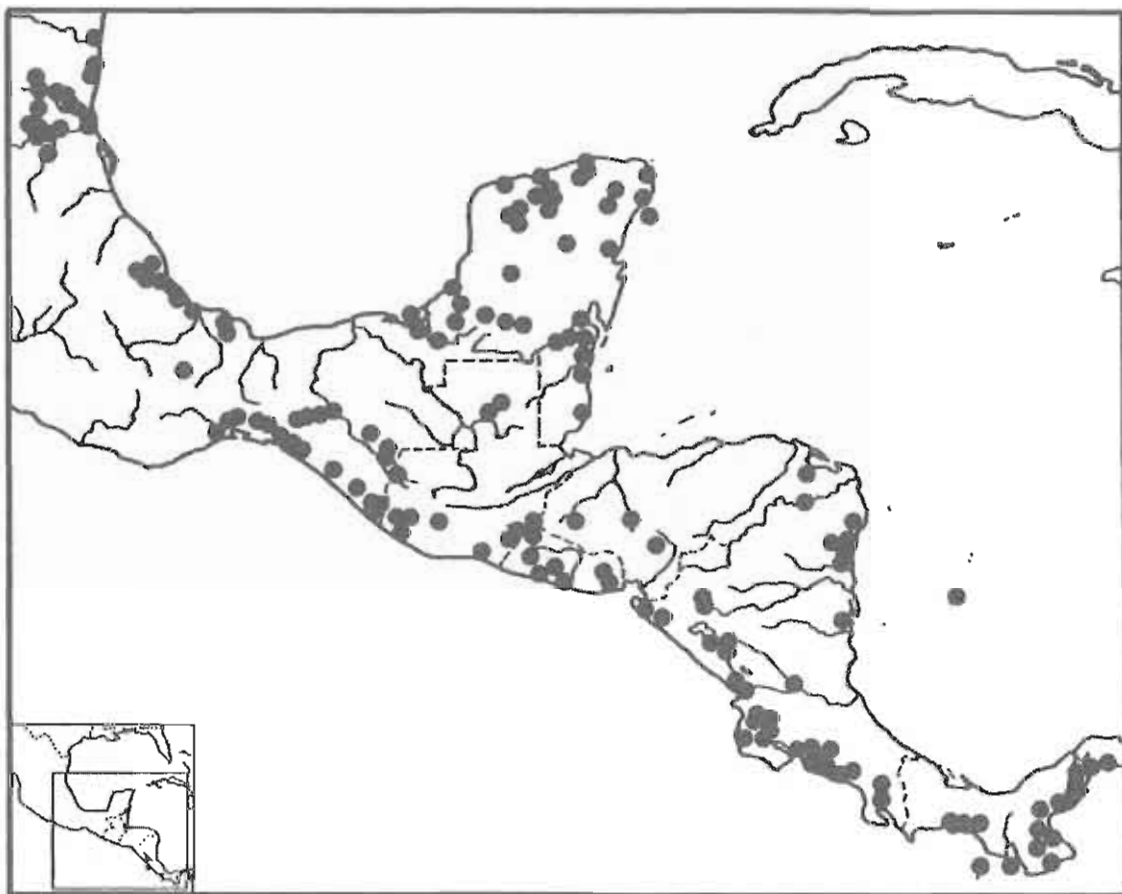
**Distribution:** Southeastern Canada (Ontario and southern Quebec) and the eastern USA (Maine to southern Wisconsin to Texas to Florida); a single record from Chihuahua, Mexico (see Smith and Smith, 1979) is considered invalid; only representative records are plotted for the continuous portion of the range in the southeastern USA

**Subspecies:** None

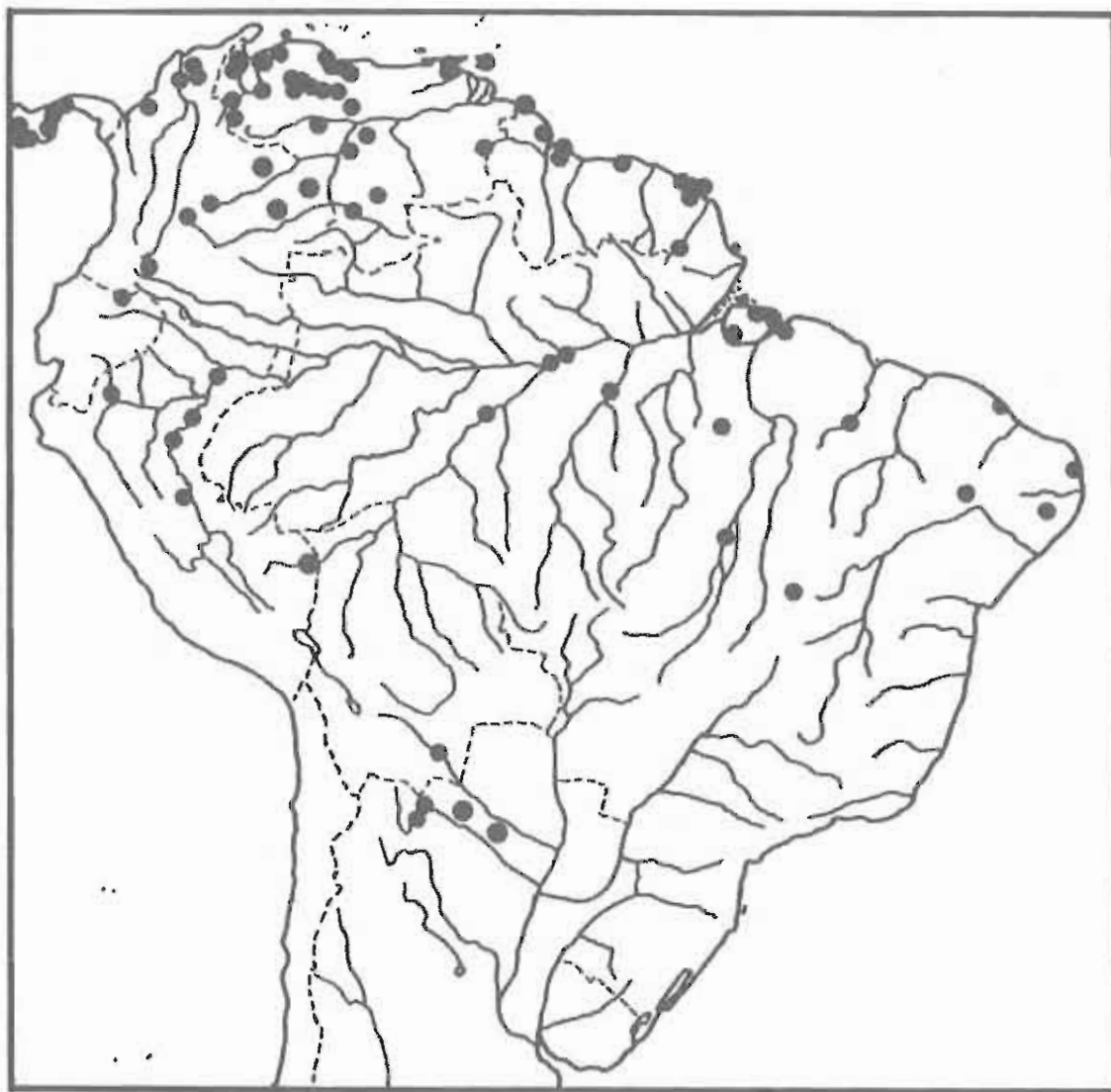
**Comment:** Reviewed by Reynolds and Seidel (1982, 1983).



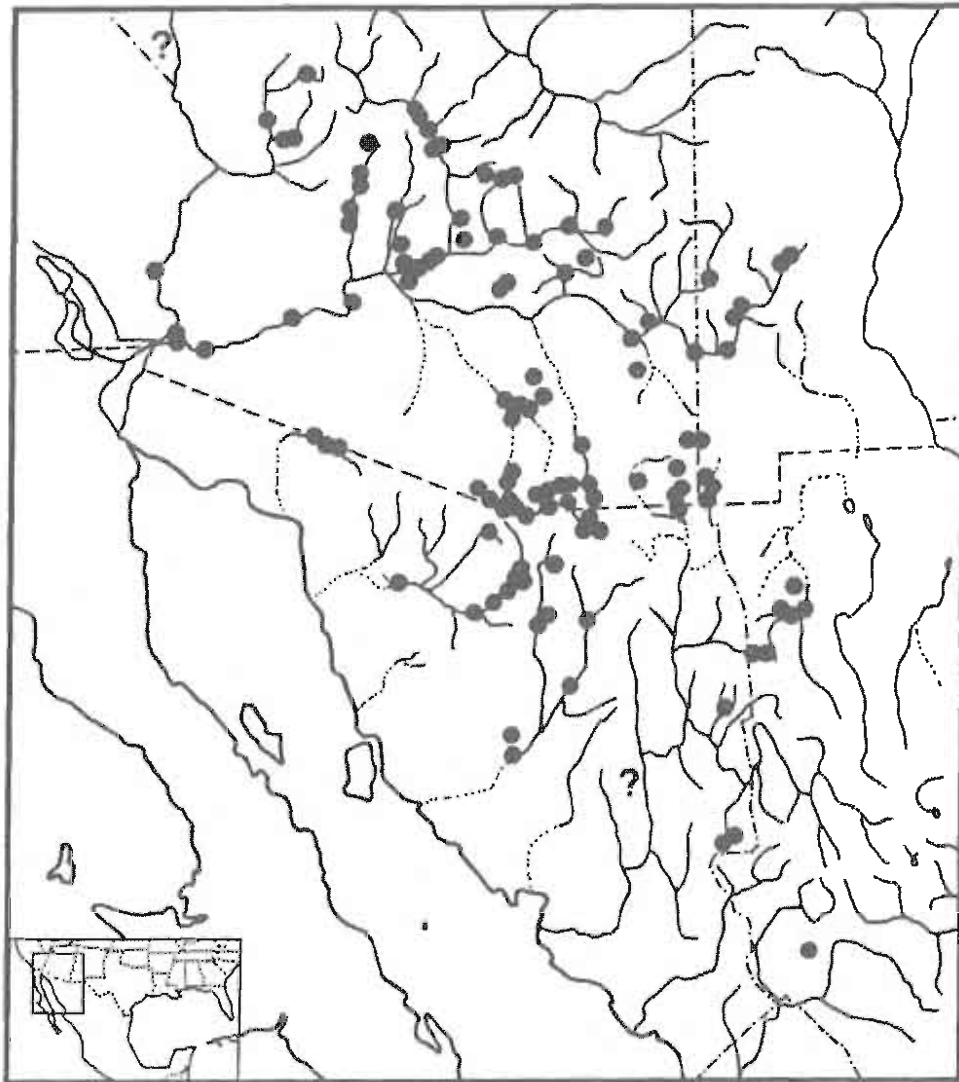
## KINOSTERNIDAE

*Kinosternon scorpioides* (Linnaeus, 1766:352)  
Scorpion Mud Turtle**Original name:** *Testudo scorpioides***Holotype:** Not located**Type locality:** "Surinami" [=Surinam]**Distribution:** (Two maps) From southern Tamaulipas, Mexico to Argentina and Brazil**Subspecies:** Six are recognized:*K. s. scorpioides* (Linnaeus 1766:352); Amazon mud turtle [Holotype: see above; type locality: see above; range: Panama to northern Peru and Brazil]*K. s. abaxillare* Baur in Stejneger (1925:462) Central Chiapas mud turtle [Holotype: USNM 7518; type locality: "Tuxtla [Gutiérrez], Chiapas, Mexico"; range: central valley of Chiapas, Mexico]*K. s. albogulare* Duméril and Bocourt (1870:24) White-throated mud turtle [Holotype: MNHN 1760; type locality: "S.[an] Jose (Costa Rica)"; range: Honduras to Panama]*K. s. carajasensis* da Cunha (1970:4) Carajás mud turtle [Holotype: MPEG 15; type locality: "da Serra dos Carajás (Serra Norte) Pará" [Brazil]; range: central Brazil]*K. s. cruentatum* Duméril and Bibron, in Duméril and Duméril (1851:16) Red-checked mud turtle [Holotype: MNHN 1759; type locality: "Amér[ique] septent[riale]" [= North America], restricted to "San Mateo del Mar" [Oaxaca, Mexico] by Smith and Taylor (1950a:339 and 1950b:23); range: Tamaulipas, Mexico to Honduras]*K. s. seriei* Freiberg (1936:169; includes *K. s. pachyurum* Müller and Hellmich 1936:100, according to Berry, 1978:171) Argentine mud turtle [Holotype: MACN 1247; type locality: "El Tabacal (Salta)" [Argentina]; range: northern Argentina and Bolivia]**Comment:** Reviewed by Berry (1978), Pritchard and Trebbau (1984; northern South American populations), and Smith and Smith (1979; Mexican populations).

## KINOSTERNIDAE

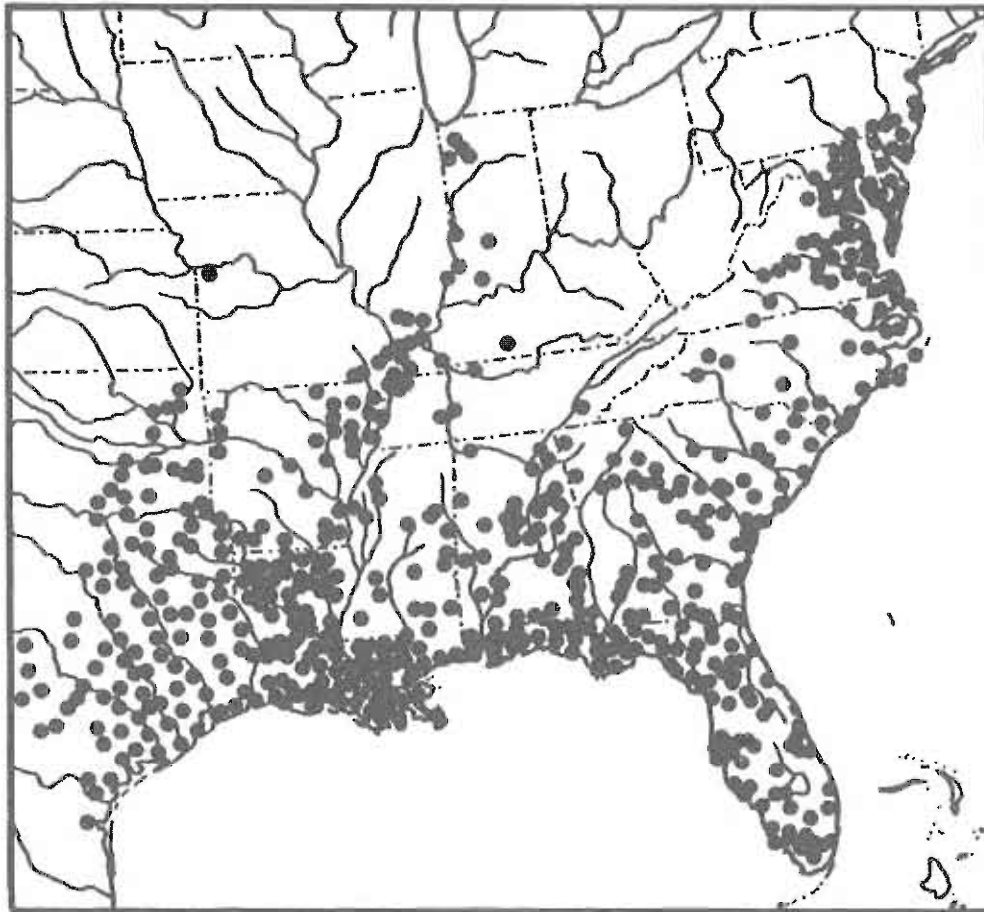
*Kinosternon scorpioides* (continued)

## KINOSTERNIDAE

*Kinosternon sonoriense* LeConte, 1854:184  
Sonora Mud Turtle**Original name:** *Kinosternum sonoriense***Holotype:** ANSP; apparently lost**Type locality:** "Tucson, [formerly] in Sonora" [Pima Co., Arizona, USA]**Distribution:** The lower Colorado River drainage of Arizona, western New Mexico, and southeastern California, USA to the Río Yaqui basin in northern Sonora and to the Río Casa Grandes Basin in western Chihuahua, Mexico**Subspecies:** Two are recognized:*K. s. sonoriense* LeConte (1854:184) Sonora mud turtle [Holotype: see above; type locality: see above; range: as for the species, except the Río Sonoyta basin]*K. s. longifemorale* Iverson (1981b:43) Sonoyta mud turtle [Holotype: USNM 21710; type locality: "Sonoyta, Sonora, Mexico (31° 51'N, 112° 50' W)"; range: Río Sonoyta basin in Arizona (USA) and Sonora (Mexico)]**Comment:** Reviewed by Iverson (1976a and 1981b) and Smith and Smith (1979).



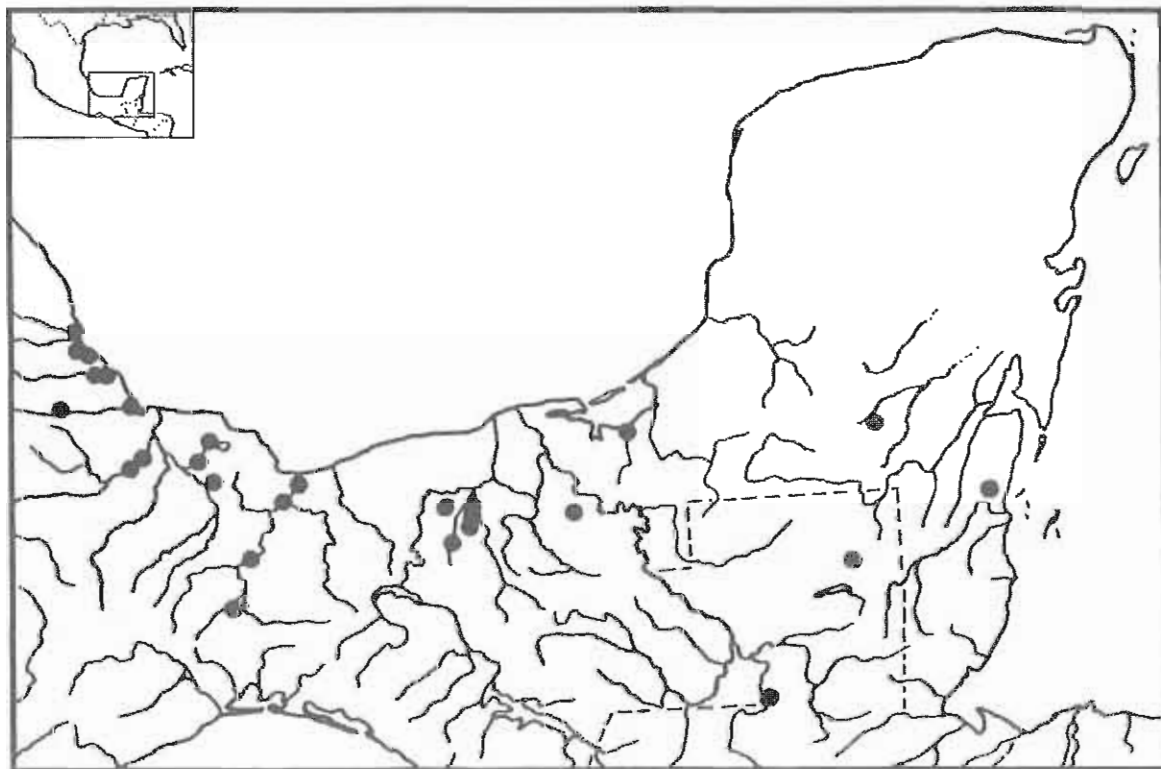
## KINOSTERNIDAE

*Kinosternon subrubrum* (Bonnaterre 1789:27)  
Common Mud Turtle**Original name:** *Testudo Subrubra***Holotype:** Not stated**Type locality:** Not stated; designated as "vicinity of Philadelphia" [Philadelphia Co., Pennsylvania, USA] by Schmidt (1953:90)**Distribution:** eastern USA; Connecticut to Florida to Indiana to east Texas**Subspecies:** Three are recognized:*K. s. subrubrum* (Bonnaterre, 1789:27) Eastern mud turtle [Holotype: see above; type locality: see above; range: eastern USA from southern Illinois and Indiana to southern Alabama to north Florida to extreme southeastern New York]*K. s. hippocrepis* Gray (1855:46) Mississippi mud turtle [Syntypes: (2 specimens) BMNH 1946.1.22.16-17; type locality: "North America; New Orleans" [Orleans Parish, Louisiana, USA]; range: Texas and Oklahoma to Missouri and Mississippi]*K. s. steindachneri* Siebenrock (1906c:727) Florida mud turtle [Syntypes: (2 specimens) BMNH 1946.1.22.23-24; type locality: "Orlando [Orange Co.], Florida" [USA]; range: peninsular Florida]**Comment:** Originally described by Lacepède (1788:618), but that work was made unavailable by ICZN opinion 1463 (1987). Reviewed by Iverson (1977a).

## KINOSTERNIDAE

Subfamily **Staurotypinae** Gray, 1869a:180  
Tropical Musk Turtles**Original name:** Staurotypina**Distribution:** southern Mexico and northern Central America**Comment:** See Comment under Kinosternidae.**Key to genera:**

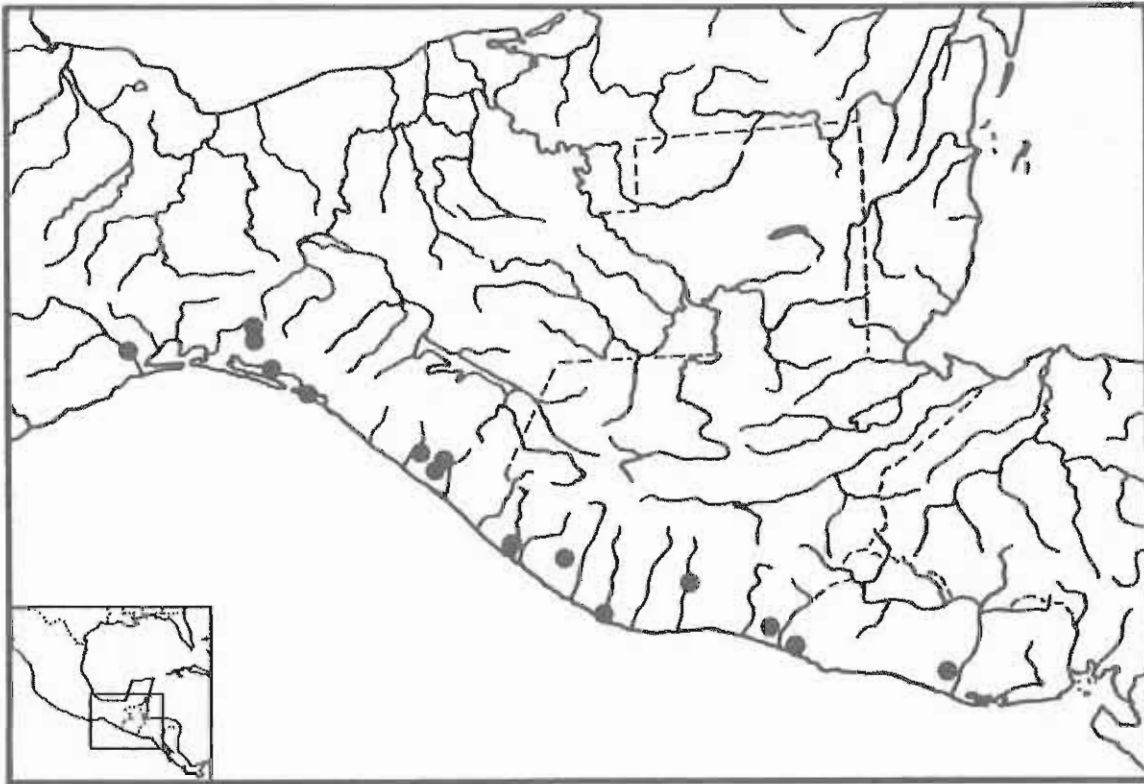
- 1a. Axillary and inguinal scutes usually absent, but if present, small and not well developed; bridge connected to carapace by ligaments; plastron lacking a movable hinge.....*Claudius* (p. 237)
- 1b. Large axillary and inguinal scutes present on the bridge; bridge connected to carapace by an osseous suture; plastron with a movable hinge.....*Staurotypus* (p. 238)

**Phylogenetic hypothesis:** See Kinosternidae account*Claudius* Cope, 1865:187  
Narrow-bridged Musk Turtle**Type species:** *Claudius angustatus* Cope (1865), by monotypy**Distribution:** As for the single species**Comment:** Reviewed by Iverson and Berry (1980)*Claudius angustatus* Cope, 1865:187  
Narrow-bridged Musk Turtle**Holotype:** USNM 6518; parts of same specimen were originally catalogued as USNM 6518 and 6525**Type locality:** "Tabasco, Mexico"**Distribution:** Veracruz, Mexico to Guatemala and Belize, excluding the Yucatan peninsula**Subspecies:** None**Comment:** Reviewed by Smith and Smith (1979) and Iverson and Berry (1980)

## KINOSTERNIDAE

*Staurotypus* Wagler, 1830:137  
Giant Musk Turtles**Type species:** *Terrapene triporcata* Wiegmann (1828), by monotypy**Distribution:** southern Mexico and northern Central America**Comment:** Reviewed by Iverson (1985b).**Key to the species:**

- 1a. Interabdominal seam length 14 to 19% of plastron length; head mottled or unicolor, but never boldly reticulated.....*S. salvinii* (p. 238)
- 1b. Interabdominal seam length 19 to 23% of plastron length; head boldly reticulated above.....*S. triporcatus* (p. 239)

*Staurotypus salvinii* Gray, 1864b:127  
Pacific Coast Giant Musk Turtle**Original name:** *Staurotypus (Stauremys) salvinii***Holotype:** BMNH 1946.1.22.79**Type locality:** "Huamanchal [= Huamuchil], Guatemala"**Distribution:** eastern Oaxaca and southern Chiapas, Mexico through southern Guatemala to El Salvador**Subspecies:** None**Comment:** Reviewed by Smith and Smith (1979) and Dean and Bickham (1983).

## KINOSTERNIDAE

*Staurotypus triporcatus* (Wiegmann, 1828:364)  
Mexican Giant Musk Turtle

**Original name:** *Terrapene triporcata*

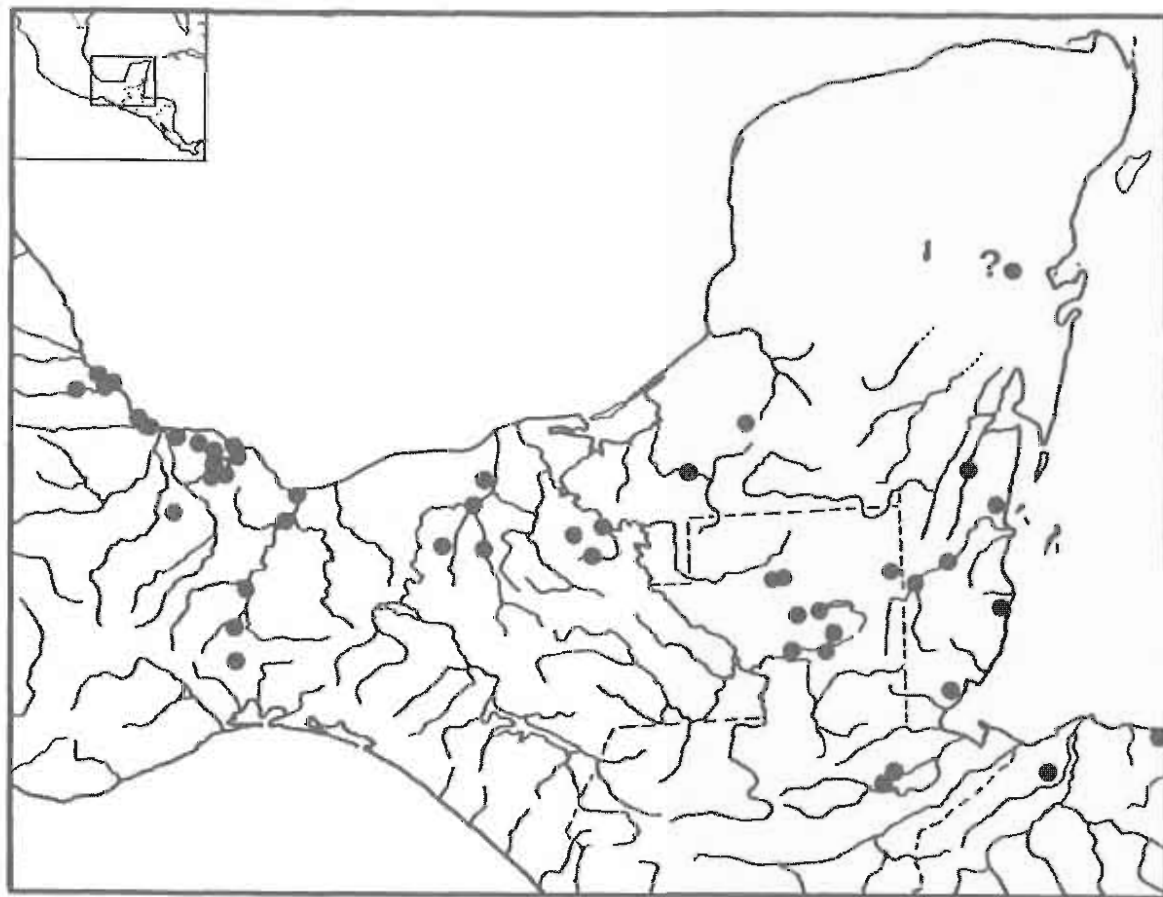
**Holotype:** ZMB 127

**Type locality:** "Rio Alvarado" [Veracruz, Mexico]

**Distribution:** Veracruz, Mexico to Belize, Guatemala, and northwestern Honduras, excluding the northern Yucatan peninsula

**Subspecies:** None

**Comment:** Reviewed by Smith and Smith (1979) and Iverson (1983b).



## PLATYSTERNIDAE

Family **Platysternidae** Gray, 1869a:175  
Big-headed Turtles

**Distribution:** As for the single species

**Comment:** See Comment and phylogeny under Chelydridae. Considered the sister taxon of the Emydidae plus the Testudinidae by Haiduk and Bickham (1982) and Bickham and Carr (1983); but Gaffney (1975) and Gaffney and Meylan (1988) include these turtles within the Chelydridae.

*Platysternon* Gray, 1831c:106  
Big-headed Turtles

**Type species:** *Platysternon megacephalum* Gray (1831c), by monotypy

**Distribution:** As for the single species.

**Comment:** See species account.

*Platysternon megacephalum* Gray, 1831c:107  
Big-headed Turtle

**Holotype:** BMNH 1946.9.7.42

**Type locality:** "China"

**Distribution:** southeastern China (including Hainan Island) [PRC] to Burma and Thailand

**Subspecies:** Five are recognized, but poorly defined:

*P. m. megacephalum* Gray (1831c:107) Chinese big-headed turtle [Holotype: see above; type locality: see above; range: southern China [PRC]]

*P. m. peguense* Gray (1870c:70) Burma big-headed turtle [Syntypes: BMNH 1946.1.22.21-22; type-locality: "Pegu" [Burma]; range: southern Burma and southern Thailand]

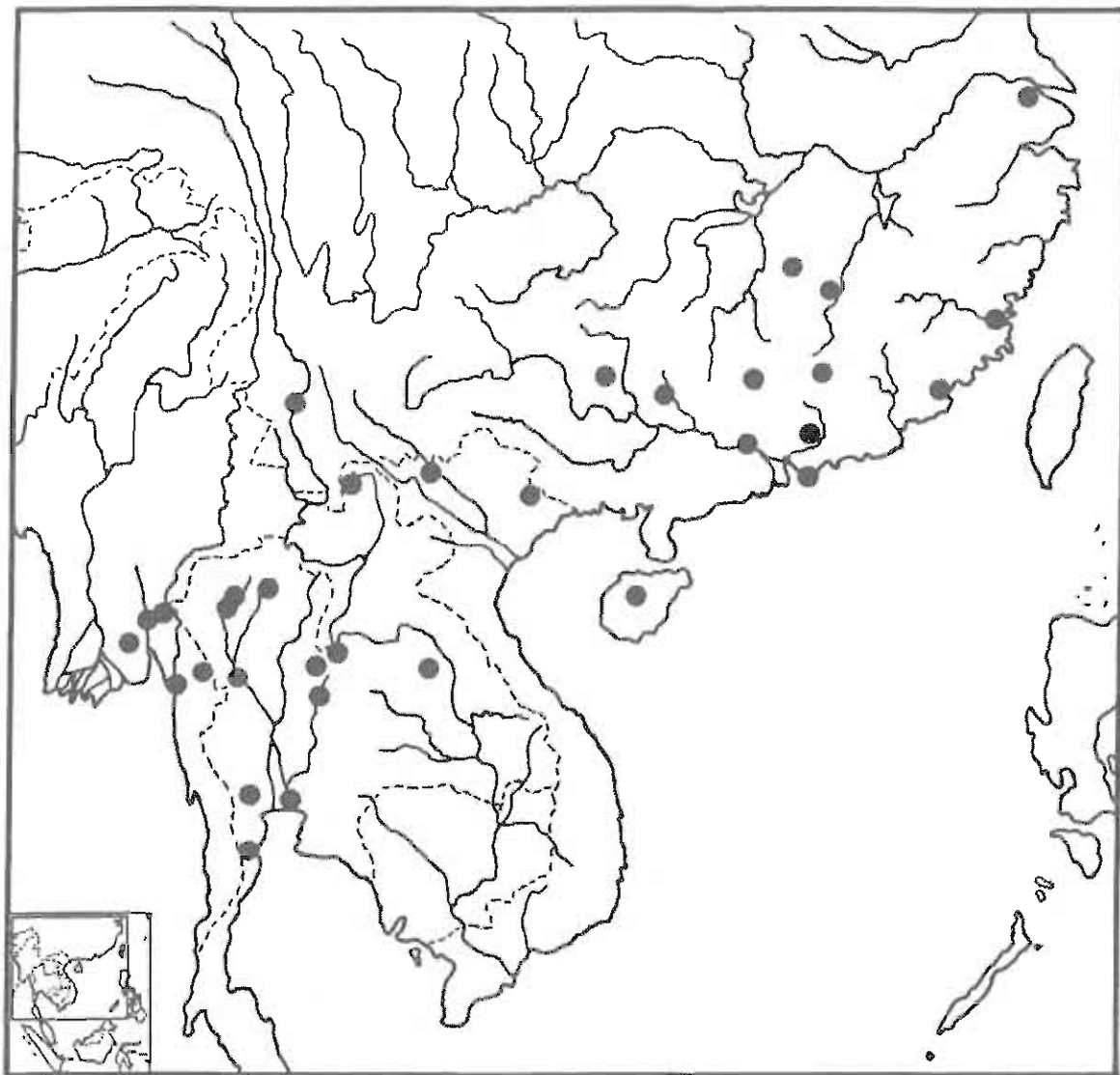
*P. m. shiui* Ernst and McCord (1987:626) Vietnam big-headed turtle [Holotype: USNM 266160; type locality: "vicinity of Langson, Langson Province, Vietnam (26° 50'N, 106° 45'E)"; range: north Vietnam]

*P. m. tristernalis* Schleich and Gruber (1984:68) Yunnan big-headed turtle [Holotype: ZSM 319/1980/1; type locality: "zwischen Mung Lun und Simao, Ostufer des Mekongflusses, südliches Yünnan (VR China)"; range: Yunnan Province, China [PRC] in the Mekong River basin]

*P. m. vogeli* Wermuth (1969:372) Thailand big-headed turtle [Holotype: alive when described, possibly now in the SMNS; type locality: "Provinze Chiang Mai, Nordwest-Thailand"; range: northwest Thailand]

**Comment:** Reviewed by Pope (1935), Bourret (1941), and Taylor (1970). Geographic variation reviewed by Schleich and Gruber (1984) and Ernst and McCord (1987).

## PLATYSTERNIDAE

*Platysternon megacephalum* (continued)

## TESTUDINIDAE

Family Testudinidae Batsch, 1788:437  
Tortoises

**Original name:** Testudines

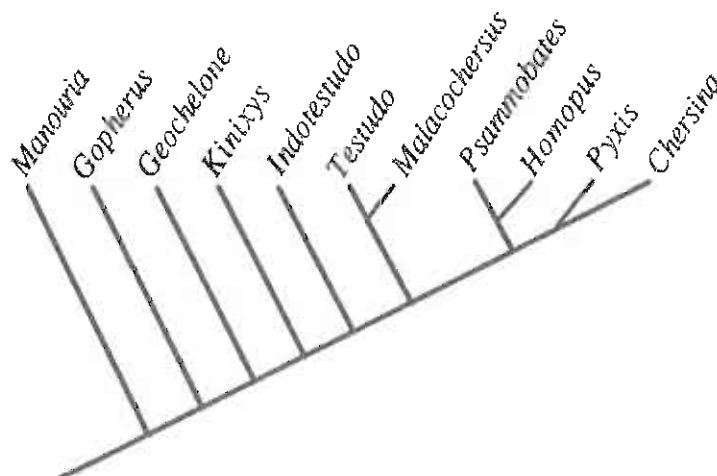
**Distribution:** Almost worldwide in temperate and tropical terrestrial habitats; excluding Australia

**Comment:** Reviewed by Williams (1952), Loveridge and Williams (1957), Pritchard and Trebbau (1984:197-205), Crumly (1984b, c), and Swingland and Klemens (1989). Chromosomal relationships are discussed by Dowler and Bickham (1982). Phylogeny of the American species discussed by Rojas and Acuña (1986). See Comment under *Geochelone*.

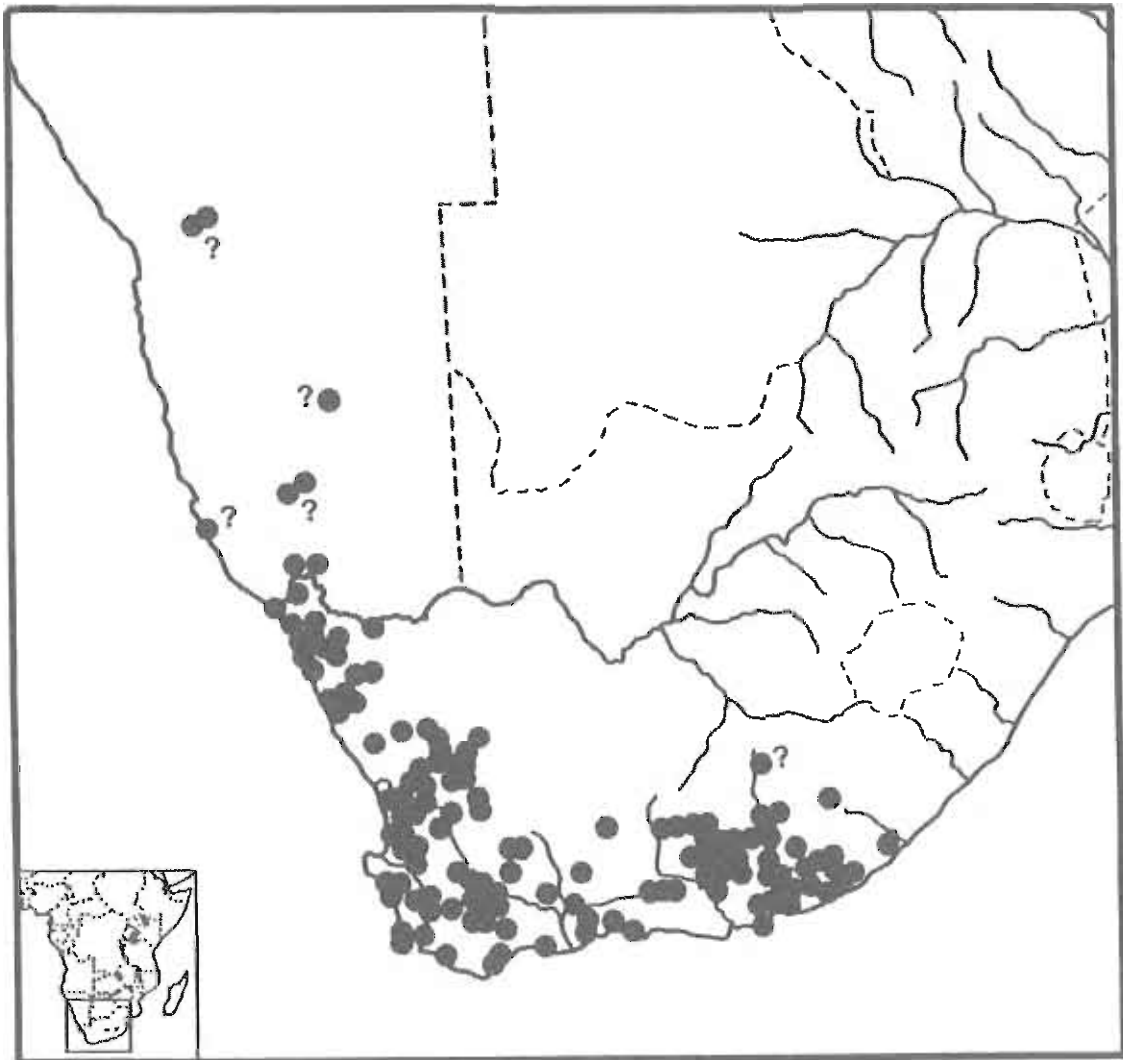
**Key to the genera:** (after Ernst and Barbour, 1989)

- 1a. Carapace with a posterior hinge; submarginal scutes present.....*Kinixys* (p. 270)
- 1b. Carapace lacking a posterior hinge; no submarginals present.....2
- 2a. Plastron with a hinge.....3
- 2b. Plastron rigid, lacking any hinge.....4
- 3a. Plastral hinge lies between the humeral and pectoral scutes.....*Pyxis* (in part) (p. 283)
- 3b. Plastral hinge lies between the femoral and abdominal scutes.....*Testudo* (in part) (p. 285)
- 4a. Carapace extremely flat and flexible due to reduction of bones.....*Malacochersus* (p. 275)
- 4b. Carapace domed and rigid, with little reduction of bones.....5
- 5a. Gular scute single and strongly projected anteriorly.....6
- 5b. Gular scute double, usually not strongly projecting.....7
- 6a. Anal scute small.....*Geochelone yniphora* (p. 256)
- 6b. Anal scute large.....*Chersina* (p. 243)
- 7a. Maxillary bone with medial ridge.....8
- 7b. Maxillary bone lacking any ridge.....13
- 8a. Tail flattened, its dorsal surface covered with enlarged scales.....*Pyxis* (in part) (p. 283)
- 8b. Tail not flattened, but sometimes covered dorsally with an enlarged scale.....9
- 9a. Premaxillary bone with medial ridge; forelimbs flattened and shovel-like.....*Gopherus* (p. 257)
- 9b. Premaxillary bone ridgeless; forelimbs clublike.....10
- 10a. Forefoot with four claws.....*Testudo horsfieldii* (p. 289)
- 10b. Forefoot with five claws.....11
- 11a. The fifth and sixth marginal scutes touch the second pleural scute; the humero-pectoral seam does not cross the entoplastron.....12
- 11b. The fifth, sixth, and seventh marginal scutes touch the second pleural scute; the humero-pectoral seam crosses the entoplastron.....*Indotestudo* (p. 268)
- 12a. Supracaudal scute subdivided in two.....*Manouria* (p. 276)
- 12b. Only a single supracaudal scute present.....*Geochelone* (p. 244)
- 13a. Carapace arched or domed dorsally; gular scutes as long as or longer than broad; areolae of vertebral scutes raised and conical.....*Psammobates* (p. 279)
- 13b. Carapace somewhat dorsally flattened, not arched or domed; gular scutes broader than long; areolae of vertebral scutes flattened, never conical.....*Homopus* (p. 262)

**Phylogenetic hypothesis:** (after Crumly, 1984b, c, and Gaffney and Meylan, 1988)



## TESTUDINIDAE

*Chersina* Gray, 1831b:5  
Bowsprit Tortoises**Type species:** *Testudo angulata* Schweigger (1812), by monotypy**Distribution:** As for the single species**Comment:** Reviewed by Loveridge and Williams (1957). Not the *Chersina* of Humphreys (1797); see ICZN decision number 1956.*Chersina angulata* (Schweigger, 1812:321)  
South African Bowsprit Tortoise**Original name:** *Testudo angulata***Holotype:** Not designated, although in MNHN according to original description; a stuffed specimen received from the MNHN (SMF 7857) is not the specimen measured in Schweigger (1812), but may be a syntype according to Crumly (pers. comm.; see also King and Burke, 1989:71); MNHN 4087 is the syntype measured by Schweigger (1812:360), according to R. Bour (pers. comm.)**Type locality:** "Patria ignota" [= country unknown]**Distribution:** Namibia and Republic of South Africa**Subspecies:** None**Comment:** Reviewed by Loveridge and Williams (1957), Greig and Burdett (1976), Boycott and Bourquin (1988), and Branch (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Geochelone* Fitzinger, 1835:111  
Typical Tortoises

**Type species:** *Testudo stellata* Schweigger (1812) [= *Testudo elegans* Schoepff (1795)], by subsequent designation of Fitzinger (1843:29)

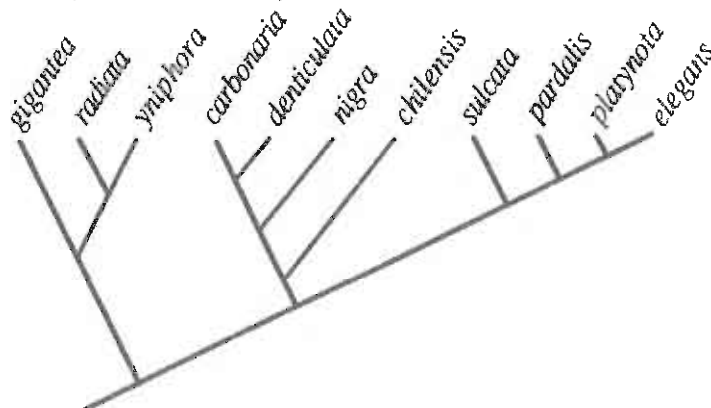
**Distribution:** Tropicopolitan, except absent from Australia

**Comment:** The taxonomy of the genus *Geochelone* is disputed. Bour (1980b) elevated all of the previous subgenera to generic status. Crumly (1982a) rejected the subgenera of *Geochelone* as paraphyletic or premature. He did, however, tentatively retain *Indotestudo* as a distinct genus. Subsequently, Crumly (1983) tentatively accepted *Manouria* as a valid genus. More recently, the recognition of *Manouria* and *Indotestudo* has been supported by Hoogmoed and Crumly (1984) and Crumly (1984c). Bour (1984c) presented a phylogeny for the genus *sensu stricto* and recognized subgenera for each monophyletic clade within the genus (see species accounts). Bour's (1988b) opinion that the Galapagos tortoises represent a distinct genus (*Elephantopus* Gray, 1873) is not followed here, awaiting affirmation by other workers. See Comment under *Geochelone gigantea*.

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Gular scutes fused into one elongated element.....*G. yniphora* (p. 256)
- 1b. Gular scutes paired.....2
- 2a. External narial opening an elongated vertical slit.....*G. gigantea* (p. 249)
- 2b. External narial opening more or less rounded, not higher than wide.....3
- 3a. Cervical scute present.....*G. radiata* (p. 254)
- 3b. Cervical scute absent.....4
- 4a. Carapacial pattern of light radiating lines.....5
- 4b. Carapacial pattern of light blotches or without pattern.....6
- 5a. Plastral pattern of dark blotches.....*G. platynota* (p. 253)
- 5b. Plastral pattern of dark radiating lines.....*G. elegans* (p. 248)
- 6a. Pectoral scutes very narrow.....7
- 6b. Pectoral scutes usually not appreciably narrowed.....8
- 7a. Carapace uniformly tan or brown; frontal scale large.....*G. sulcata* (p. 255)
- 7b. Carapace yellow to olive with black or dark brown markings; frontal scale usually absent or small and broken up.....*G. pardalis* (p. 252)
- 8a. Tail ends in a large terminal scale.....*G. chilensis* (p. 246)
- 8b. Tail lacking a large terminal scale.....9
- 9a. Carapace uniformly black or dark brownish-gray; forelimbs black or gray; carapace very large, often exceeding 80 cm.....*G. nigra* (p. 250)
- 9b. Carapace with yellow, orange or red vertebral and pleural areolae; forelimbs with large yellow or reddish scales; carapace to about 80 cm.....10
- 10a. Lateral sides of carapace usually straight; carapace with yellow or orange vertebral and pleural areolae; large foreleg scales yellow or orange; interfemoral seam shorter than interhumeral seam; gular scutes do not reach the entoplastron.....*G. denticulata* (p. 247)
- 10b. Lateral sides of carapace usually concave; carapace with yellow or red vertebral and pleural areolae; forelimbs with large orange or red scales; interfemoral seam equal to or longer than interhumeral seam; gular scutes overlap the entoplastron.....*G. carbonaria* (p. 245)

**Phylogenetic hypothesis:** (after Bour, 1984c)



## TESTUDINIDAE

*Geochelone carbonaria* (Spix, 1824:22)  
Red-footed Tortoise

**Original name:** *Testudo carbonaria*

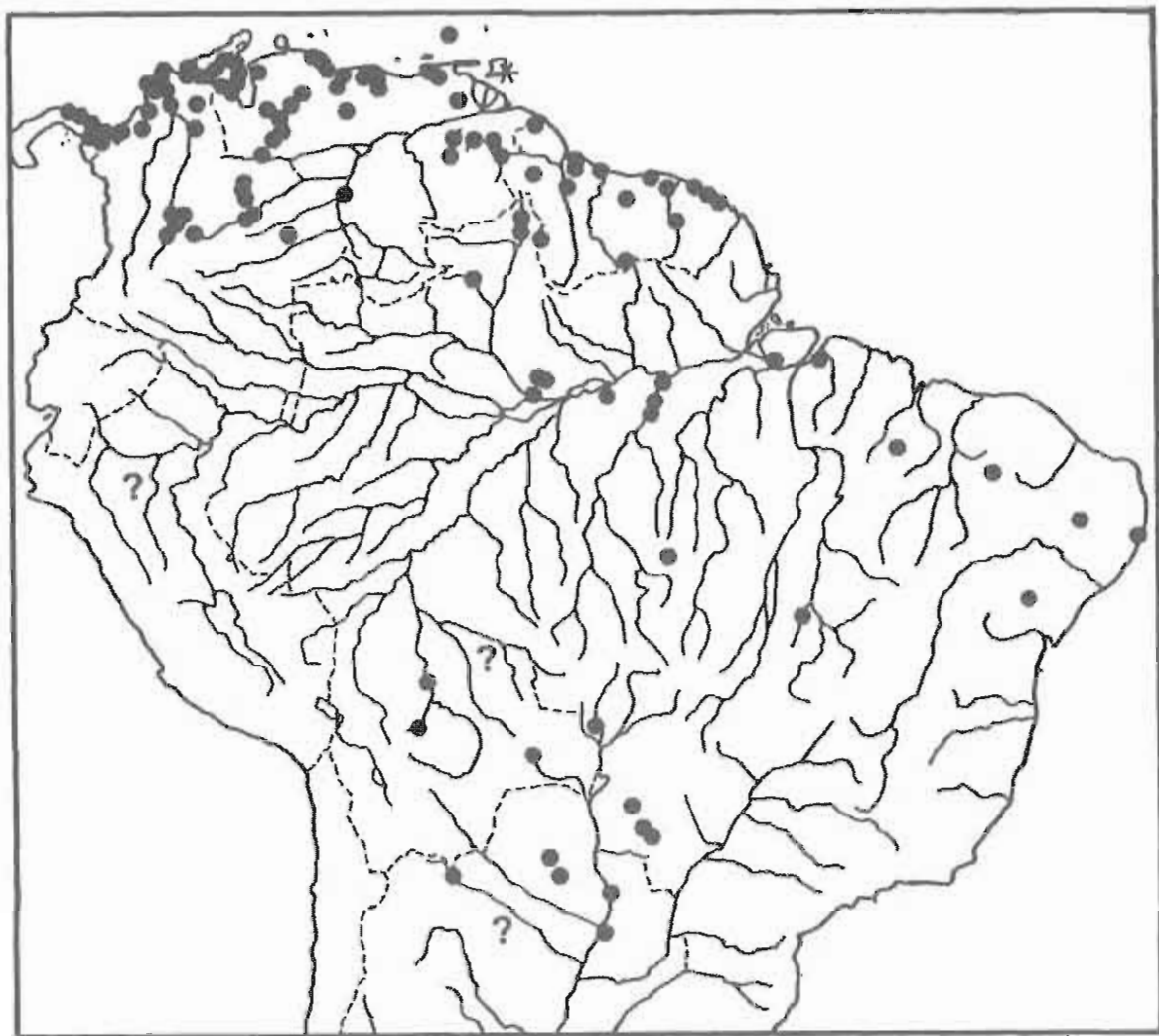
**Holotype:** Originally in ZSM, now lost; Hoogmoed and Gruber (1983:354) selected plate XV! of Spix (1824) as lectotype

**Type locality:** "Habitat sub cognomine 'Capitary' (?) ad flumen Amazonum" [South America]

**Distribution:** Panama and Colombia to Paraguay, Brazil, and Argentina; introduced onto many of the islands in the West Indies (see Schwartz and Thomas, 1975; Censky, 1988; and Schwartz and Henderson, 1991:169)

**Subspecies:** None

**Comment:** Subgenus *Chelonoidis* according to Bour (1984c). Confused with *Geochelone denticulata* prior to Williams (1960). Reviewed by Castaño and Lugo (1981), Groombridge (1982), Pritchard and Trebbau (1984), and Walker (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Geochelone chilensis* (Gray, 1870a:190)  
Chaco Tortoise

**Original name:** *Testudo (Gopher) chilensis*

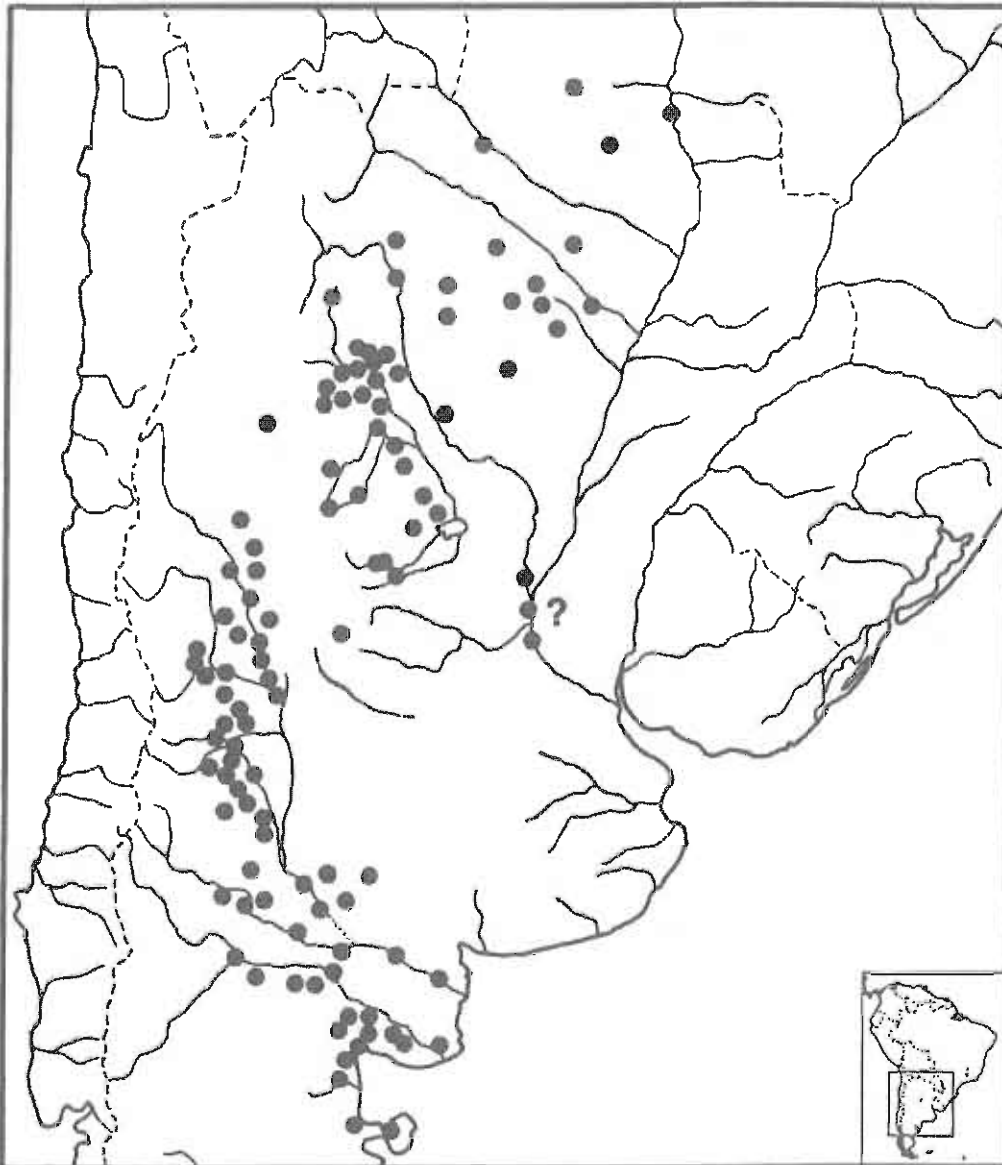
**Syntypes:** (2 specimens) BMNH RR 1947.3.5.8-9 (both formerly BMNH 70.12.18.2)

**Type locality:** "Chili" [= Chile, South America]; "Chili . . . N. Patagonia . . . Mendoza and the Pampas . . . Monte Video and Buenos Ayres . . .", according to Gray (1870b:707).

**Distribution:** Argentina and Paraguay

**Subspecies:** None, but see Comment.

**Comment:** Subgenus *Chelonoidis* according to Williams (1952:555); subgenus *Gopher* according to Bour (1984c). Includes *Geochelone petersi* (Freiberg, 1973), according to most authors, including Wermuth and Mertens (1977), Pritchard (1979), and Richard et al. (1990). In addition, although *G. donosobarrosi* (Freiberg, 1973:83) is considered a full species by many authors (e.g. Cei, 1986; Richard, 1988; Richard and de la Fuente, 1988; and King and Burke, 1989:73-75); and a subspecies of *chilensis* by others (e.g. Walker, in Swingland and Klemens, 1989). Buskirk (1992) was unable to distinguish between them morphometrically or meristically. Reviewed as *G. chilensis* by Groombridge (1982), Waller (1986), and Walker (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Geochelone denticulata* (Linnaeus, 1766:352)  
South American Yellow-footed Tortoise

**Original name:** *Testudo denticulata*

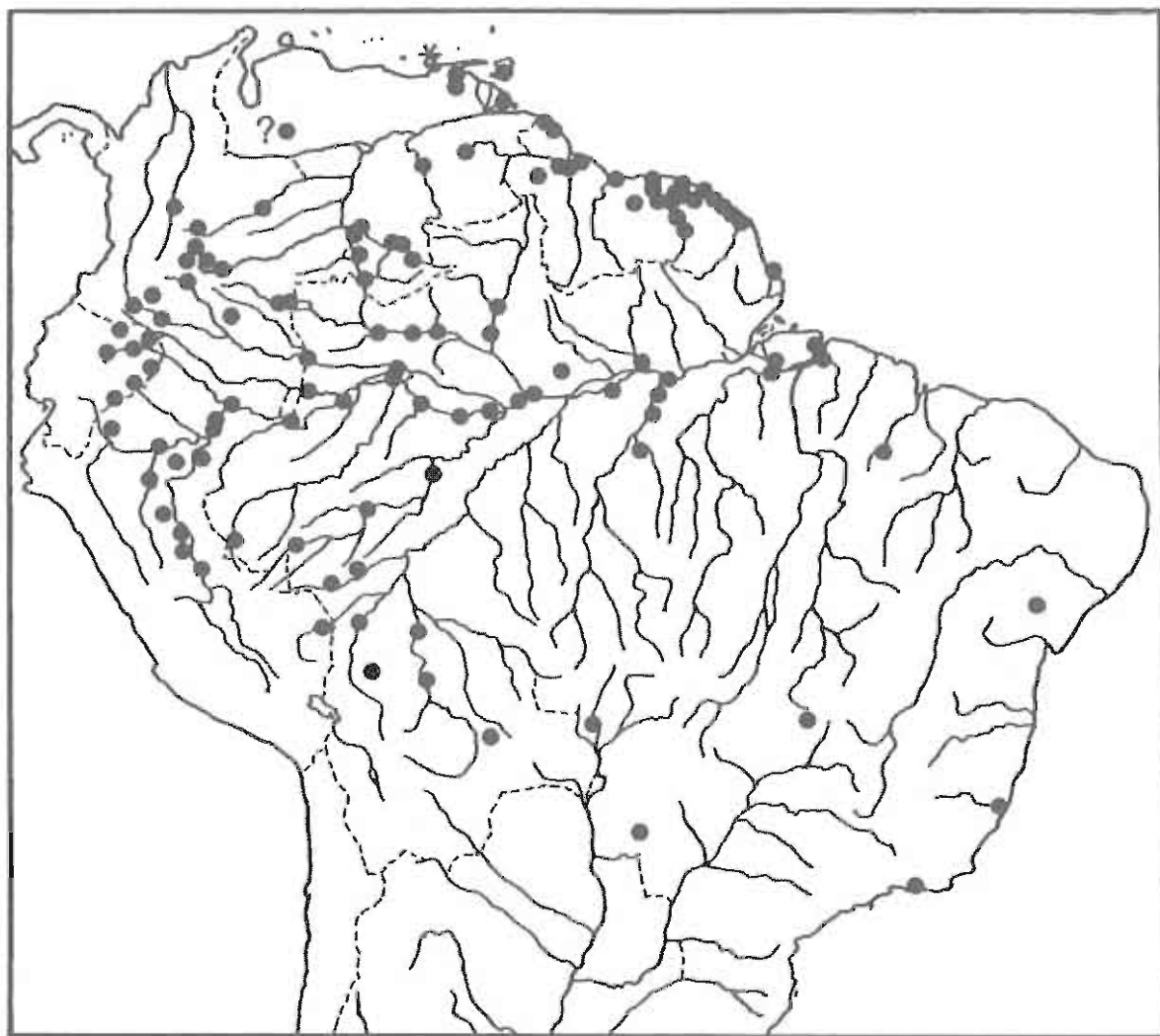
**Holotype:** NRM De Geer collection 21, according to Andersson (1900:25)

**Type locality:** "Virginia" [USA]; in error

**Distribution:** South America, east of the Andes, from Colombia and Venezuela to Bolivia and Brazil; Trinidad

**Subspecies:** None

**Comment:** Subgenus *Chelonoidis* according to Bour (1984c). See Comment under *Geochelone carbonaria* and *Geochelone elephantina*. Reviewed by Castaño and Lugo (1981), Hoogmoed and Gruber (1983), Pritchard and Trebbau (1984), and Walker (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Geochelone elegans* (Schoepff, 1794:111)  
Indian Star Tortoise

**Original name:** *Testudo elegans*

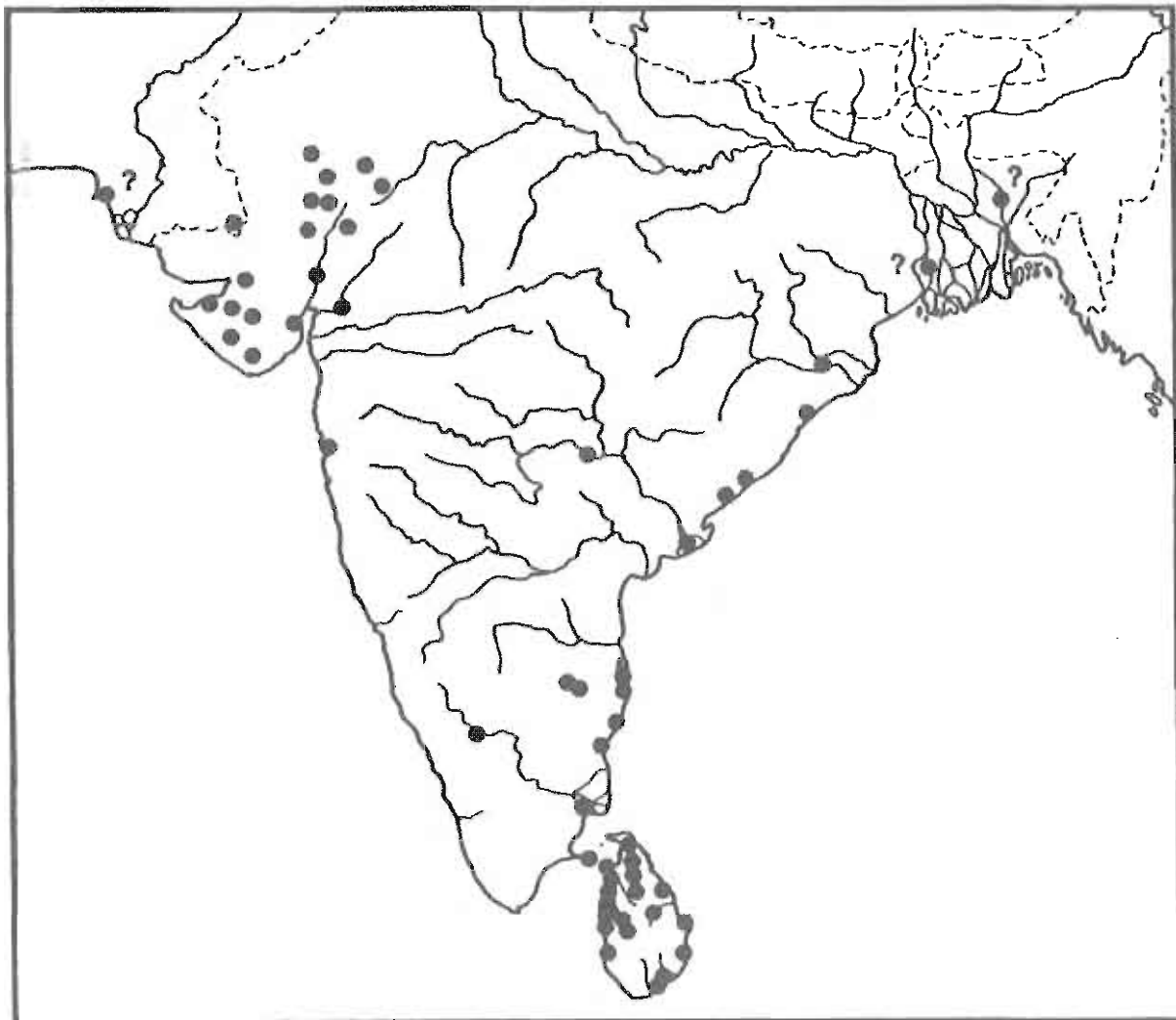
**Holotype:** Not located, but Schoepff (1794) stated that the specimen illustrated was from the "Museum Haggae Comitatus et Harlemi" [possibly in the TSMHN in Haarlem, Netherlands]

**Type locality:** "India orientali"

**Distribution:** India, Pakistan, and Sri Lanka

**Subspecies:** None

**Comment:** Subgenus *Geochelone* according to Bour (1984c). Wallin (1977) showed that a Linnaean type of *Testudo geometrica* is this species rather than *Psammobates geometricus* (see Comment under that species). Reviewed by Smith (1931; as *Testudo elegans*), Tikader and Sharma (1985), Moll (in Swingland and Klemens, 1989), and Das (1991).



## TESTUDINIDAE

*Geochelone gigantea* (Schweigger, 1812:327)  
Aldabra Tortoise

**Original name:** *Testudo gigantea*

**Holotype:** Not designated; but see discussion in Pritchard (1986)

**Type locality:** "in Brasilia"; see discussion in Pritchard (1986)

**Distribution:** Aldabra Island, Seychelles Islands; apparently introduced (snowflakes on map) on Mauritius and Reunion islands (Bour, 1985a) and Curieuse in the Seychelles (Stoddart et al., 1982; Spratt, 1989)

**Subspecies:** None recognized (after Arnold, 1979)

**Comment:** Subgenus *Dipsochelys* according to Bour (1984c). The correct name for this form is still controversial; it has been referred to by most authors as *Geochelone gigantea*; however, Pritchard (1986) demonstrated that the description of that taxon was based on *Geochelone denticulata* and recommended using the next available name, *Testudo elephantina* Duméril and Bibron (1835:110). In contrast, Bour (1982c, 1984b, 1984c) believed the correct genus name should be *Dipsochelys*. Obst (1985:219) believed it should be *Megalochelys*, and Pritchard (1986), Meylan and Aullenberg (1987), and King and Burke (1989:69-70) believed it should be *Aldabrachelys*. Other authors disagree with either use (e.g., Crumly, 1984b, 1984c, 1986, 1988; Hoogmoed and Crumly, 1984), since recognition of the Aldabra tortoise as a separate genus would make the genus *Geochelone* paraphyletic (see *Geochelone* account) and would require elevation of *radiata* and *ymiphora* to a separate genus (i.e., not *Geochelone*, but *Astrochelys*). Reviewed as *Geochelone gigantea* by Arnold (1979), Shaffer and Ernst (1979), Groombridge (1982), and Swingland (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Geochelone nigra* (Quoy and Gaimard, 1824:172)  
Galapagos Tortoise**Original name:** *Testudo nigra***Holotype:** MNHN 9550**Type locality:** "Sandwich-Inseln" [= Hawaiian Islands, USA] (in error)**Distribution:** Galapagos Islands, Ecuador (present range on map according to Pritchard, pers. comm.)**Subspecies:** Approximately twelve living taxa may be recognizable, but see Comment:

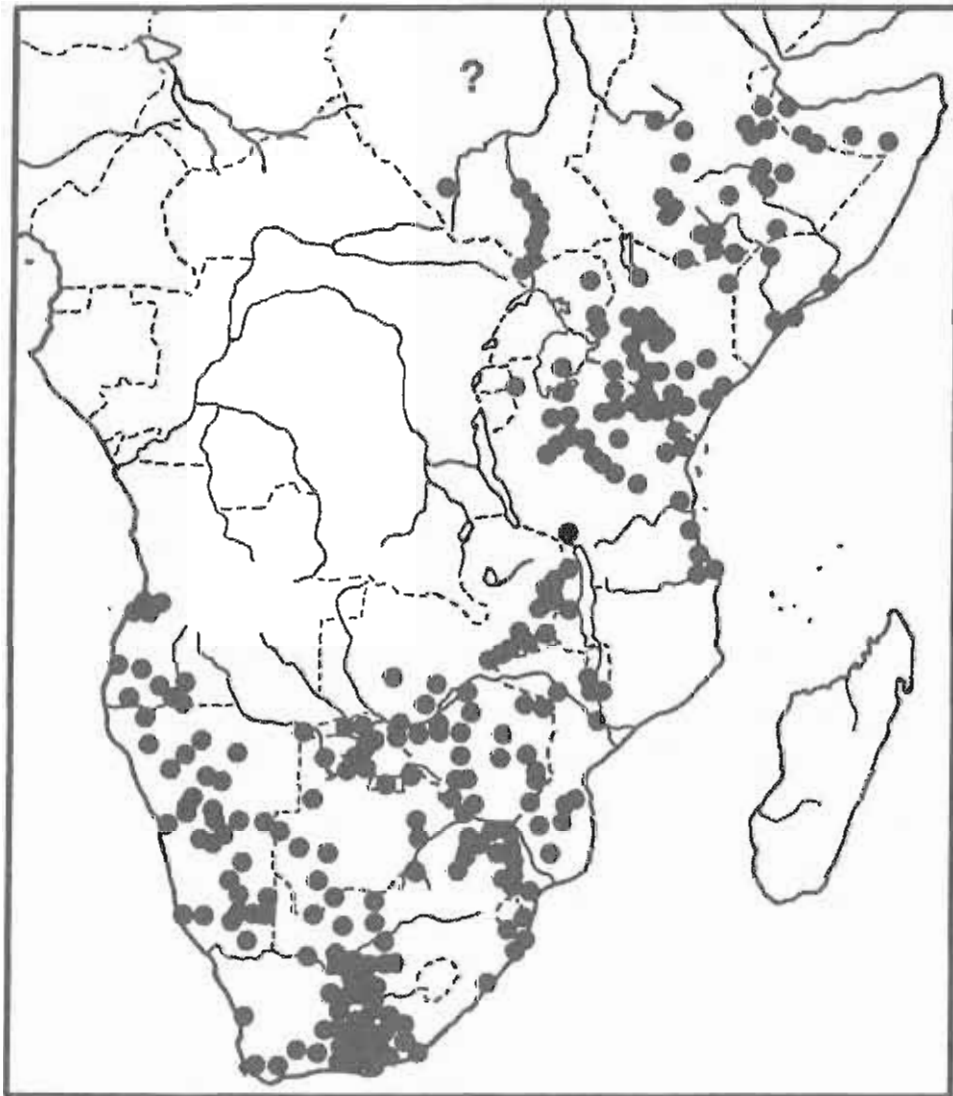
- G. n. abingdonii* Günther (1877:85) Abingdon Island tortoise [Syntypes: (3 specimens) BMNH 1947.3.4.39 and 1947.3.4.95-96; type locality: Abingdon; range: Abingdon (= Pinta) Island]
- G. n. becki* Rothschild (1901:372) Volcán Wolf tortoise [Holotype: BMNH 1949.1.3.87; type locality: "Cape Berkeley, northern point of Albemarle Island, Galapagos Archipelago"; range: Volcán Wolf and vicinity on northern end of Albemarle (= Isabela) Island]
- G. n. chathamensis* Van Denburgh (1907:4) Chatham Island tortoise [Holotype: CAS 8127; type locality: "Chatham Island, Galapagos Archipelago"; range: Chatham (= San Cristóbal) Island]
- G. n. darwini* Van Denburgh (1907:4) James Island tortoise [Holotype: CAS 8108; type locality: "James Island, Galapagos Archipelago"; range: James (= San Salvador) Island]
- G. n. ephippium* Günther (1875:271) Duncan Island tortoise [Holotype: RSM 1932.27.1.12; type locality: "Charles Island" (in error); range: Duncan (= Pinzon) Island]
- G. n. guntheri* Baur (1889b:1044) Sierra Negra tortoise [Holotype: OUM mounted specimen; type locality: Not designated since unknown; range: Vilamil Mountain (Sierra Negra) area of southeastern Albemarle (= Isabela) Island]
- G. n. hoodensis* Van Denburgh (1907:3) Hood Island tortoise [Holotype: CAS 8121; type locality: "Hood Island, Galapagos Archipelago"; range: Hood (= Española) Island]
- G. n. microphyes* Günther (1875:275) Volcan Darwin tortoise [Holotype: BMNH 1947.3.4.88; type locality: "Hood's Island" (in error); range: Volcán Darwin and vicinity on north-central Albemarle (= Isabela) Island]
- G. n. nigrita* Duméril and Bibron (1835:80; includes *G. n. porteri*) Indefatigable Island tortoise [Syntypes: MNHN 9313 and BMNH 1949.1.4.37 (latter called type by Günther 1875:268); type locality: not stated; range: Indefatigable (= Santa Cruz) Island]
- G. n. phantastica* Van Denburgh (1907:4) Narborough Island tortoise [Holotype: CAS 8101; type locality: "Narborough Island, Galapagos Archipelago"; range: Narborough (= Fernandina) Island]
- G. n. vandenburghi* DeSola (1930:80) Volcán Alcedo tortoise [Holotype: CAS 8141; type locality: "Cowley Mountain . . . the first mountain north of Villamil Mountain", Albemarle Island; range: Volcán Alcedo and vicinity, central Albemarle (= Isabela) Island]
- G. n. vicina* Günther (1875:277) Iguana Cove tortoise [Holotype: BMNH 1947.3.4.90; type locality: "Galapagos"; range: Cerro Azul and vicinity, on southern Albemarle (= Isabela) Island]

**Comment:** Subgenus *Chelonoidis* according to Bour (1984c). The more commonly used name *Geochelone elephantopus* (Harlan, 1827:284) was shown by Pritchard (1984, 1986) and Bour (1984c:62) to be a junior synonym of *Geochelone nigra* (but see Crumly, 1986). The taxonomy within this species is controversial; most authors regarded the various island populations as subspecies (MacFarland et al., 1974a, 1974b; Wermuth and Mertens, 1977; Marlow and Patton, 1981; Crumly, 1982a; Pritchard, 1984; Bour 1984c; Iverson 1986b; King and Burke 1989); others (e.g., Bour, 1980b; Ernst and Barbour, 1989) regarded each allopatric island population as a distinct species. In fact, in a footnote, Bour (1988:403) even resurrected the genus *Elephantopus* Gray (1873) for the Galapagos tortoise, but this change has not been followed by subsequent authors. Furthermore, there is also controversy concerning the valid names for the individual island populations. Reviewed by Pritchard (1979; as *G. elephantopus*), Groombridge (1982; as *G. elephantopus*), Fritts (1984; as *G. elephantopus*), de Vries (1984; as *G. elephantopus*) and Swingland (in Swingland and Klemens, 1989; as *G. elephantopus*).





## TESTUDINIDAE

*Geochelone pardalis* (Bell, 1828a:420)  
Leopard Tortoise**Original name:** *Testudo Pardalis***Holotype:** Not located, although possibly in the OUM**Type locality:** "Promont. Bonae Spei" [= Cape of Good Hope, Cape Province, Republic of South Africa]**Distribution:** Sudan to Angola and Republic of South Africa**Subspecies:** Two subspecies are questionably recognized (see Comment):*G. p. pardalis* (Bell 1828a:420) Western leopard tortoise [Holotype: see above; type locality: see above; range: western Republic of South Africa and southern Namibia]*G. p. babcocki* Loveridge (1935:4) Eastern leopard tortoise [Holotype: MCZ 40003; type locality: "from the western slopes of Mount Debasien, Karamoja, Uganda at 5000 feet"; range: as for the species, except western Republic of South Africa and southern Namibia]**Comment:** Subgenus *Stigmochelys* according to Bour (1984c). Reviewed by Loveridge and Williams (1957), Boycott and Bourquin (1985), and Broadley (in Swingland and Klemens, 1989); Greig and Burdett (1976) suggested that the subspecies may not be valid.

## TESTUDINIDAE

*Geochelone platynota* (Blyth, 1863:83)  
Burmese Star Tortoise

**Original name:** *Testudo platynota*

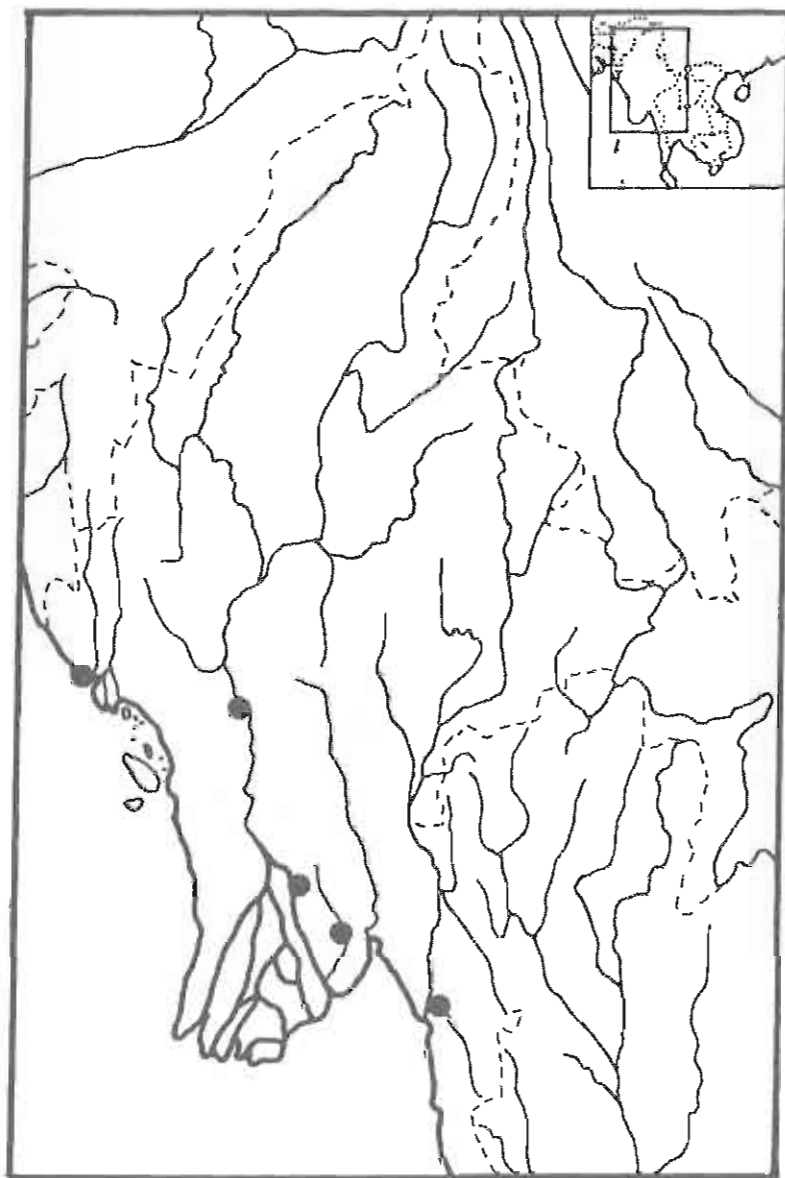
**Syntypes:** (3 specimens) unlocated; supposedly in the BMNH and ZSI according to Smith (1931:140); ZSI 787, 788, and 789 according to Das (pers. comm.)

**Type locality:** "Lower Pegu" [Burma]; stated as "Irrawaddy Valley" by Smith (1931:140)

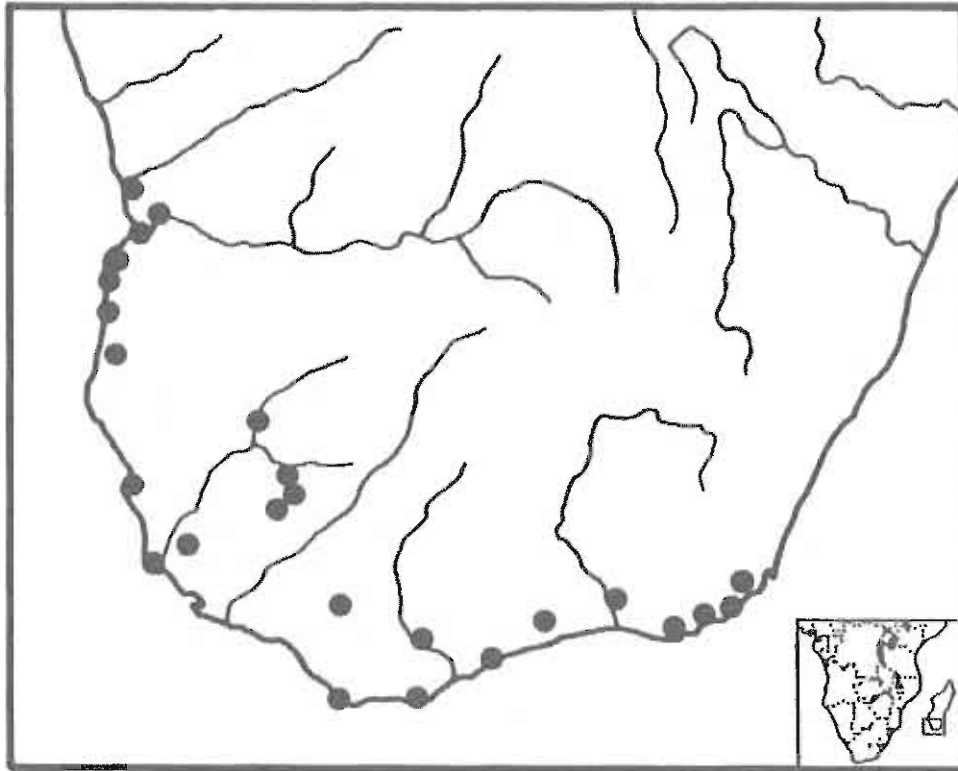
**Distribution:** southern Burma

**Subspecies:** None

**Comment:** Subgenus *Geochelone* according to Bour (1984c). Reviewed by Smith (1931; as *Testudo platynota*), Bourret (1941; as *Testudo platynota*), Groombridge (1982), and Moll (in Swingland and Klemens, 1989). Considered to be a subspecies of *G. elegans* by Obst (1985:218; 1986:210) without justification.



## TESTUDINIDAE

*Geochelone radiata* (Shaw, 1802:22)  
Radiated Tortoise**Original name:** *Testudo radiata***Holotype:** BMNH 1947.3.5.15**Type locality:** "Madagascar"; restricted by Bour (1978:152) to "Soalara (Baie de Saint-Augustin) sud-ouest de Madagascar"**Distribution:** southern Madagascar; apparently introduced on Mauritius and Reunion Islands**Subspecies:** None**Comment:** Subgenus *Astrochelys* (not *Asterochelys*) according to Bour (1984c). Reviewed by Juvik (1975), Groombridge (1982), Juvik et al. (1981), and Durrell et al. (in Swingland and Klemens, 1989). Includes *Testudo hypselonota* Bourret (1941:9) according to Auffenberg (1963:462-65).

## TESTUDINIDAE

*Geochelone sulcata* (Miller, 1779:Fig. 26)  
African Spurred Tortoise

**Original name:** *Testudo sulcata*

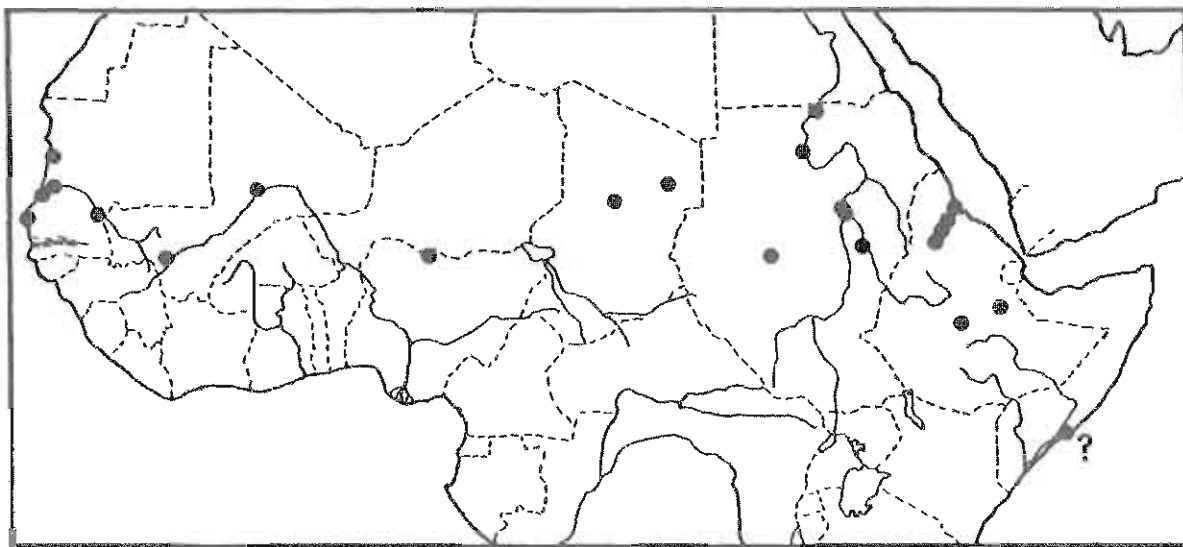
**Holotype:** Not located; although ZSM 2753/0 has the notation 'lectotype' in the museum's species catalog; however, this number is three juveniles of *Geochelone denticulata* according to Crumly (pers. comm.)

**Type locality:** "India orientali" (in error); erroneously listed as "Westindien" by Wermuth and Mertens (1961:224; 1977:90)

**Distribution:** central Africa from Mauritania and Senegal to Ethiopia

**Subspecies:** None

**Comment:** Subgenus *Centrochelys* according to Bour (1984c). Reviewed by Loveridge and Williams (1957), and Broadley (in Swingland and Klemens, 1989). Hirth and Latif (1981) reported on morphometrics of a Sudan population.



## TESTUDINIDAE

*Geochelone yniphora* (Vaillant, 1885:440)  
Angonoka

**Original name:** *Testudo yniphora*

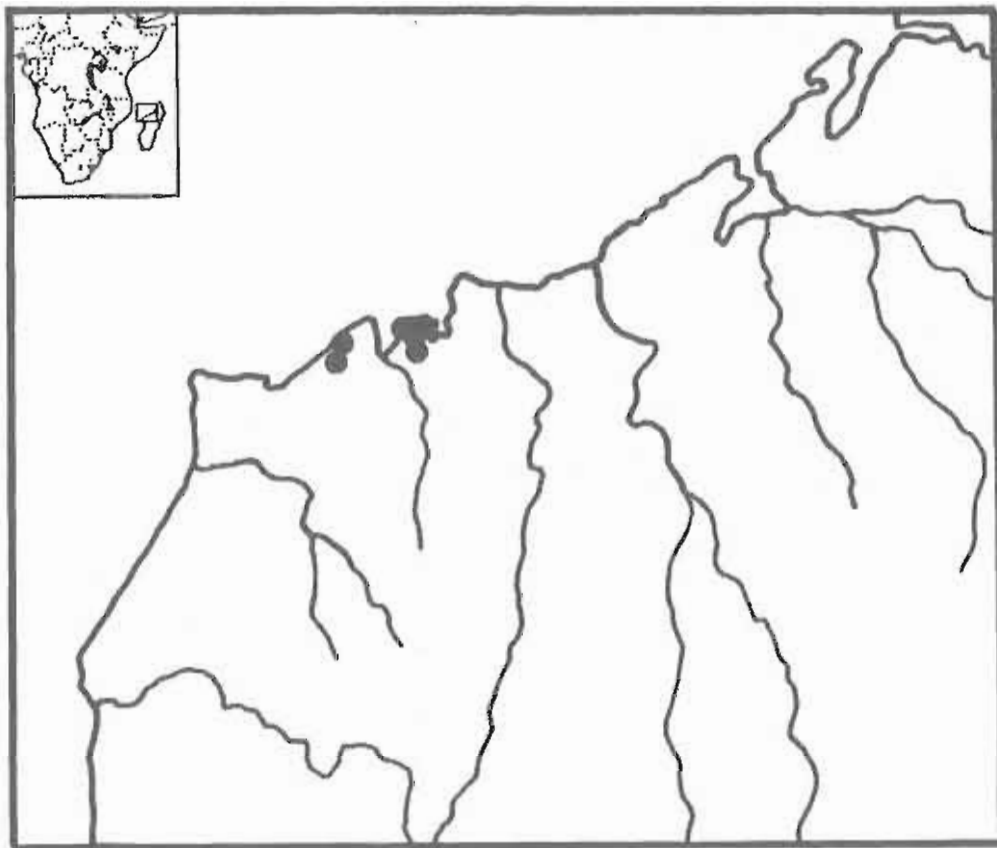
**Holotype:** MNHN 1885-499; now unlocatable

**Type locality:** "Quoique la provenance de cette espèce ne puisse être fixée d'une manière absolument précise, on doit cependant regarder comme certain, d'après les renseignements fournis par les matelots arabes qui, à la grande Comore, vendirent à M. Humblot ces Tortues, que ces animaux avaient été capturés sur un îlot situé au nord-nord-est de cette terre; d'ailleurs, étant donné les vents qui régnaient à cette époque et la manière de naviguer de ces hommes, leur embarcation n'avait pu venir qu'en suivant cette direction, c'est-à-dire d'une localité située vers Aldabra, dépendant même peut-être de ce groupe d'îles où l'on connaît de si curieux représentants de la famille des Chersites" (in error); restricted by Bour (1978:152) to "cap d'Amparafaka (Baie de Baly), nord-ouest de Madagascar".

**Distribution:** northwestern Madagascar

**Subspecies:** None

**Comment:** Subgenus *Astrochelys* (not *Asterochelys*) according to Bour (1984c). Reviewed by Juvik et al. (1981), Groombridge (1982), and Durrell et al. (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Gopherus* Rafinesque, 1832:64  
Gopher Tortoises

**Type species:** *Testudo polyphemus* Daudin (1802), by original designation

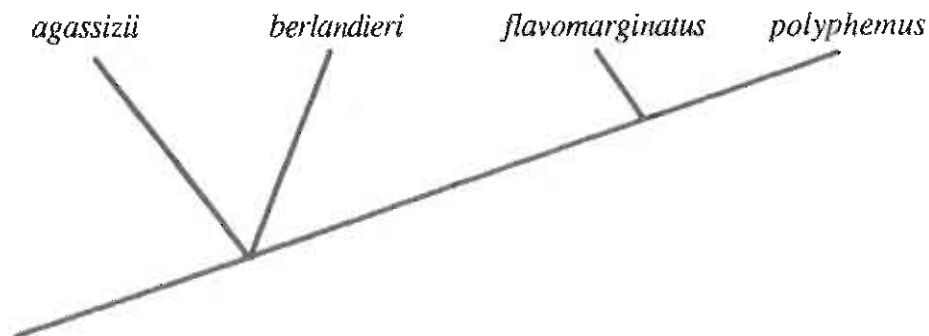
**Distribution:** southern USA and northern Mexico

**Comment:** Reviewed by Auffenberg and Franz (1978a-e) and Smith and Smith (1979). Although Bramble (1982:853) described the genus *Scaptochelys* to include the species *agassizii* and *berlandieri*, the name *Xerobates* was previously available (Bour and Dubois, 1984b); however, most authors consider this partitioning of the genus *Gopherus* invalid (e.g., Crumly, 1984b, 1984c, 1990; but see Lamb et al., 1989).

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Distance from the base of the first claw to the base of the third claw on the forefoot approximately equal to the distance from the base of the first claw to the base of the fourth claw on the hind foot.....*G. polyphemus* (p. 261)
- 1b. Distance from the base of the first claw to the base of the fourth claw on the forefoot approximately equal to the same measurement on the hind foot.....2
- 2a. Marginals of carapace lighter in color than the rest of the shell; carapacial scutes with dark areolae.....*G. flavomarginatus* (p. 260)
- 2b. Marginals of carapace not lighter in color than the rest of the shell; carapacial scutes with light areolae.....3
- 3a. Paired axillary scutes present on each bridge; third vertebral scute broadest.....*G. berlandieri* (p. 259)
- 3b. Single axillary scute present on each bridge; fifth vertebral scute broadest.....*G. agassizii* (p. 258)

**Phylogenetic hypothesis:** (after Crumly, 1990)



## TESTUDINIDAE

*Gopherus agassizii* (Cooper, 1863:120)  
Desert Tortoise

**Original name:** *Xerobates agassizii*

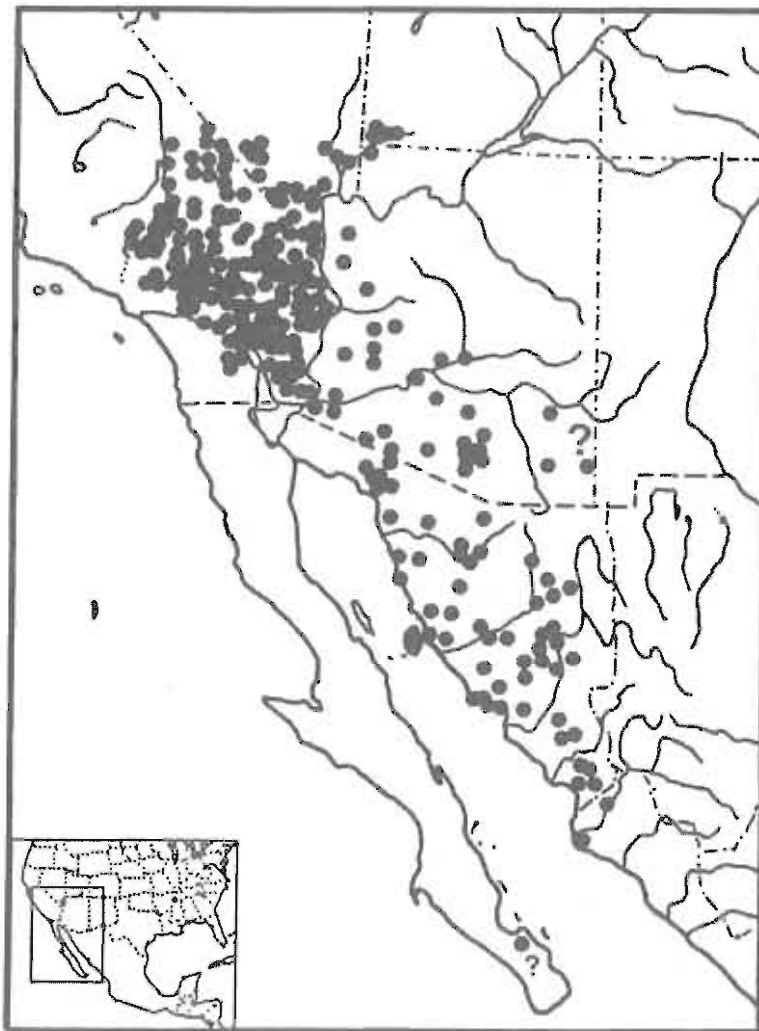
**Syntypes:** "Three young specimens, a male of seven years of age, two females of six and four years . . .", apparently originally in the California State Geological Survey collection according to Cooper (1863:120). Syntypes apparently transferred to other collections, since USNM 7888 was listed by Cochran (1961:236) as one of the syntypes; if the other syntypes were transferred to the CAS collection in San Francisco, they were destroyed in the 1906 earthquake and fire.

**Type locality:** "mountains of California, near Fort Mojave" [USA]; surviving syntype (USNM) from "Utah Basin, Mojave River" (USNM catalog reads 'Soldado Valley, California') according to Cochran (1961:236)

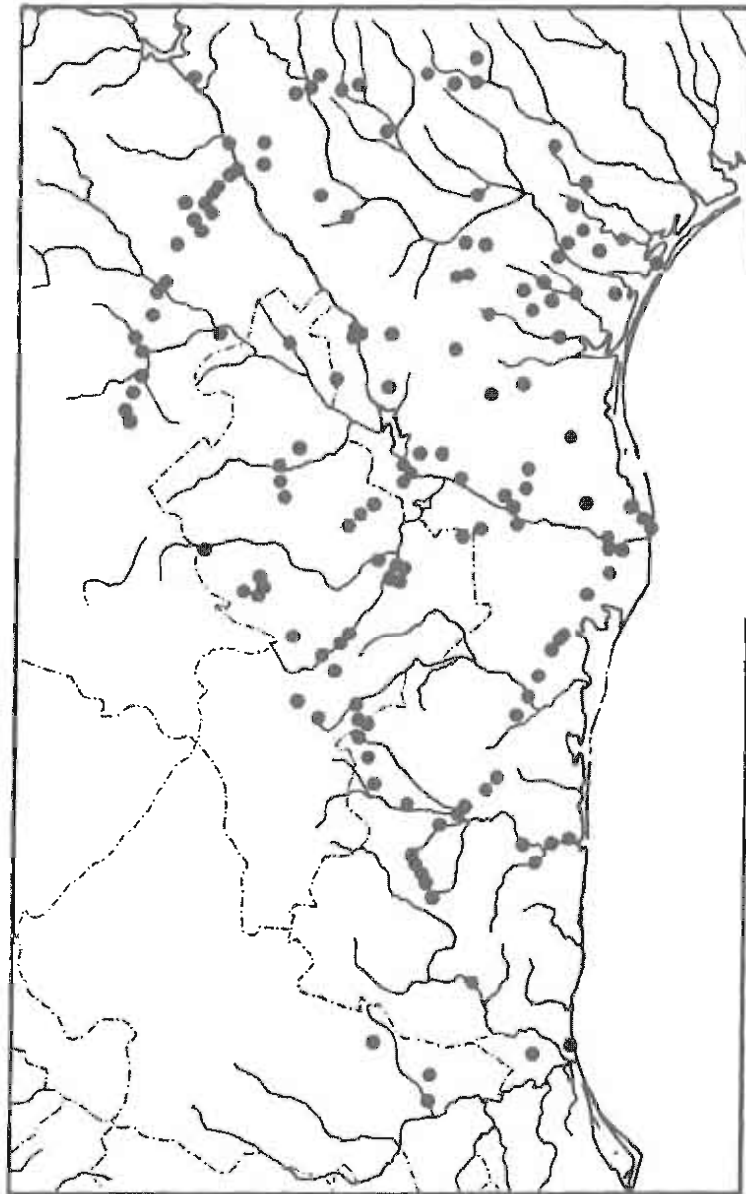
**Distribution:** southeastern California, southern Nevada, and southwestern Utah through southern Arizona (USA), Sonora to northern Sinaloa, and (possibly introduced) the cape region of Baja California Sur, Mexico

**Subspecies:** None yet, although Lamb et al. (1989) and Glenn et al. (1990) demonstrated significant geographic variation in mitochondrial DNA and plasma proteins, respectively, in *G. agassizii*, with tortoises west of the Colorado River differing significantly from those to the east and south of the river.

**Comment:** Reviewed by Auffenberg and Franz (1978a and b), Smith and Smith (1979), Groombridge (1982), and Berry (in Swingland and Klemens, 1989). *Xerobates leptocephalus*, described by Otley and Velázquez-Solis (1989:497) from the Cape region of Baja California Sur, is apparently synonymous with *G. agassizii* (Crumly and Grismer, 1990; see also Pritchard, 1990).



## TESTUDINIDAE

*Gopherus berlandieri* (Agassiz, 1857:447)  
Berlandier's Tortoise**Original name:** *Xerobates berlandieri***Syntypes:** USNM 60 (2 specimens)**Type locality:** "southern Texas and Mexico"; restricted to "Lower Rio Grande, Texas," [USA] by Stejneger and Barbour (1917:121); restricted to "Brownsville, Cameron County, Texas," USA, by Schmidt (1953:105)**Distribution:** southern Texas (USA) and northeastern Mexico (Coahuila, Nuevo Leon, and Tamaulipas)**Subspecies:** None**Comment:** Reviewed by Auffenberg and Franz (1978c), Smith and Smith (1979), Groombridge (1982), and Rose and Judd in (Swingland and Klemens, 1989).



## TESTUDINIDAE

*Gopherus flavomarginatus* Legler, 1959:337  
Bolson Tortoise

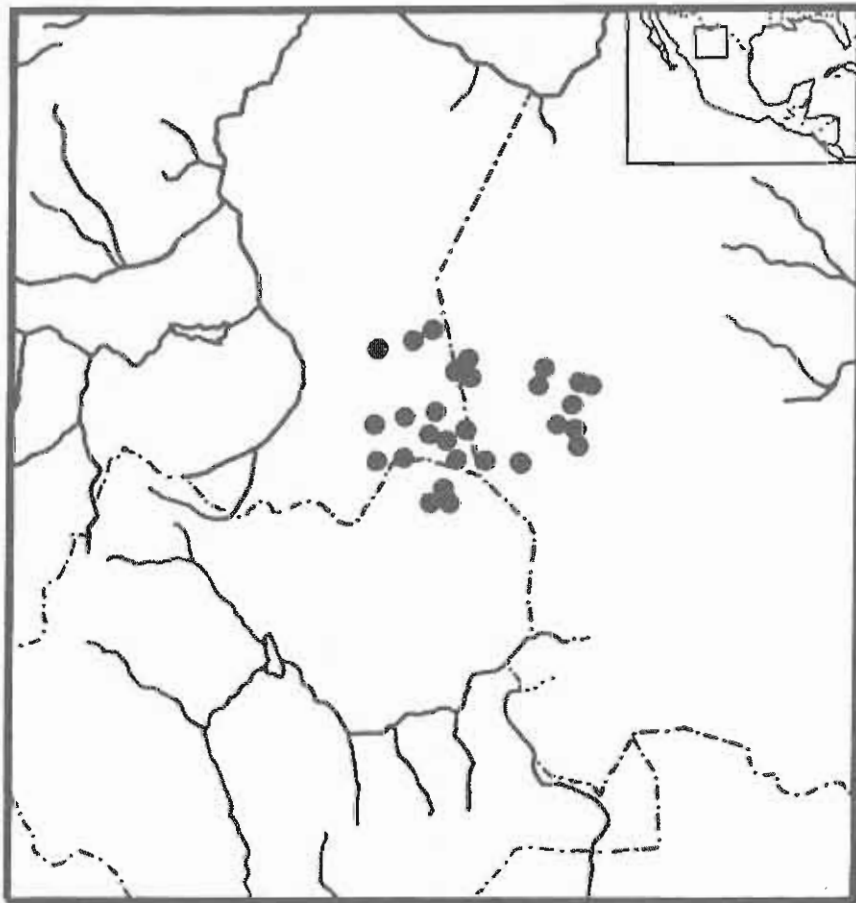
**Holotype:** USNM 61253

**Type locality:** "30 to 40 miles from Lerdo, Durango, Mexico"

**Distribution:** north-central Mexico: southeastern Chihuahua, western Coahuila, and northern Durango

**Subspecies:** None

**Comment:** Reviewed by Auffenberg and Franz (1978d), Smith and Smith (1979), Groombridge (1982), Morafka (1982), Bury et al. (1988 in Morafka and McCoy, 1988), and Morafka et al. (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Gopherus polyphemus* (Daudin, 1802:256)  
Gopher Tortoise

**Original name:** *Testudo polyphemus*

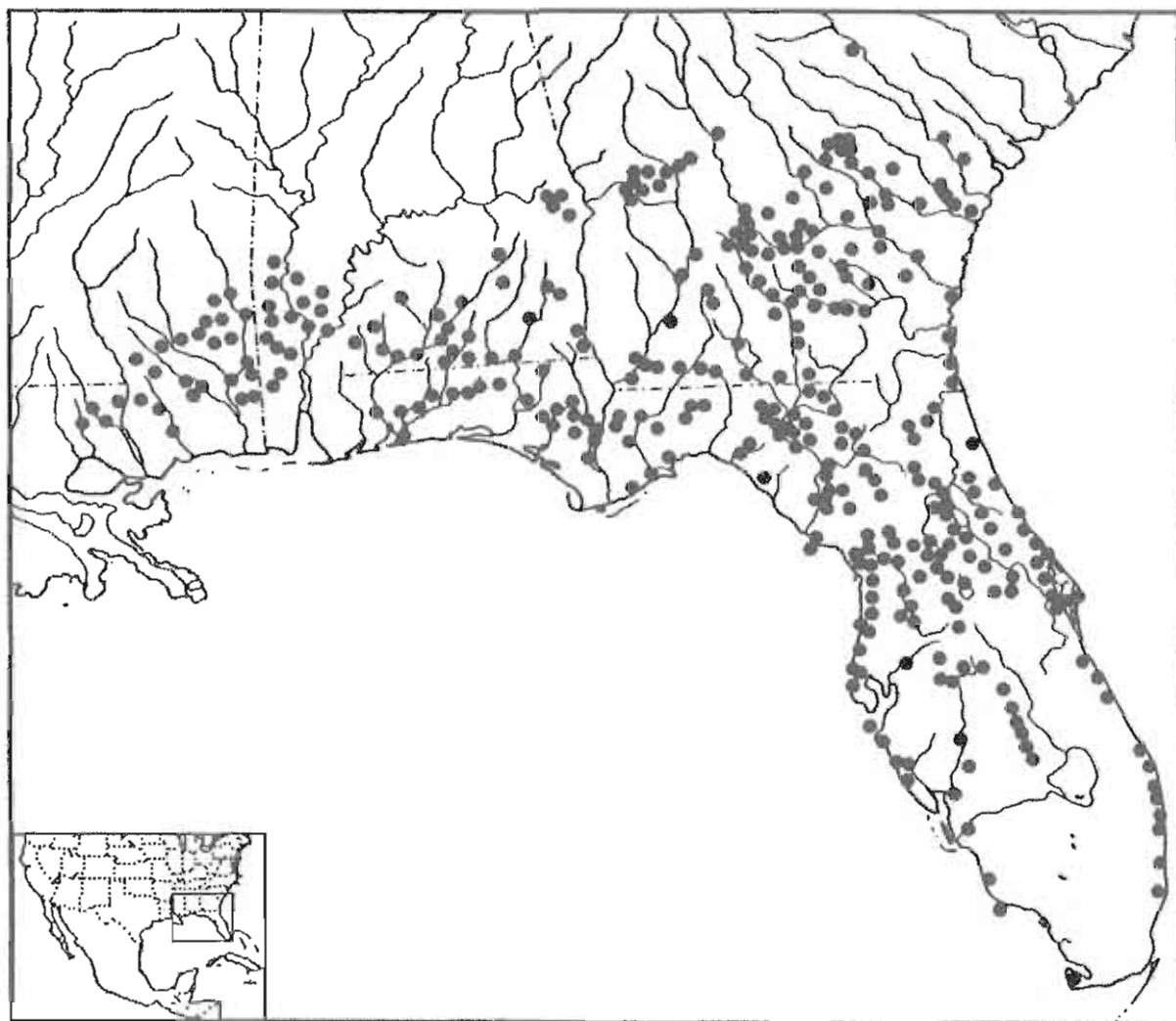
**Syntypes:** Unlocated

**Type locality:** "bords de la rivière Savanna et près de l'Altamaha" [USA]; restricted by Schmidt (1953:104) to "vicinity of Savannah [Chatham Co.], Georgia," USA

**Distribution:** Florida to southeastern Louisiana and southern South Carolina, USA

**Subspecies:** None

**Comment:** Reviewed by Auffenberg and Franz (1978e and 1982), Groombridge (1982), and Diemer (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Homopus* Duméril and Bibron, 1834:357  
Cape Tortoises

**Type species:** *Testudo areolata* Thunberg (1787:180), by subsequent designation of Duméril and Bibron (1835:7) according to Bour (1988a:2)

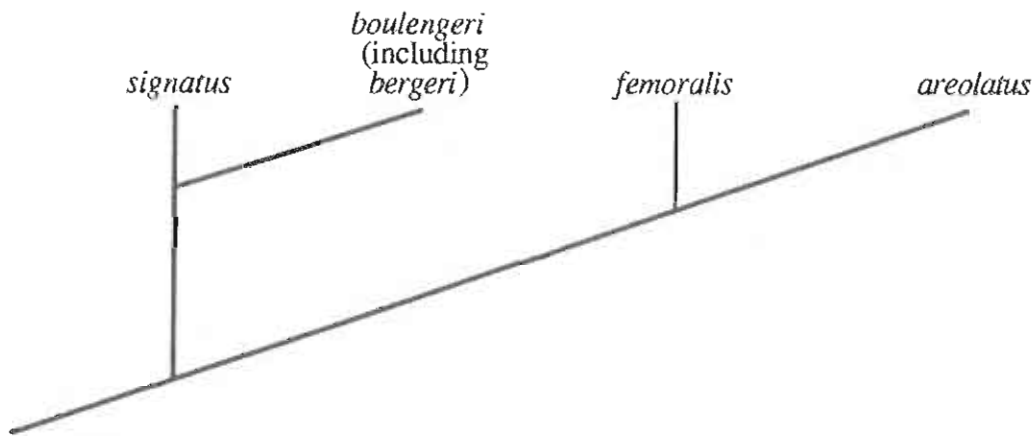
**Distribution:** southern Africa

**Comment:** Reviewed by Loveridge and Williams (1957), Greig and Burdett (1976), and Cooper and Broadley (1990).

**Key to the species:** (modified from Boycott, 1986)

- 1a. Forelimb with five claws; usually twelve marginal scutes present.....2
- 1b. Forelimb with four claws; eleven marginal scutes present.....4
- 2a. Buttock tubercles absent.....*H. bergeri* (p. 264)
- 2b. Buttock tubercles present, but may be poorly developed.....3
- 3a. Carapace unpatterned; posterior marginal scutes, not serrate; buttock tubercles poorly developed.....*H. boulengeri* (p. 265)
- 3b. Carapace with black blotches or stipples on a light background; posterior marginal scutes strongly or poorly serrate; buttock tubercles well developed.....*H. signatus* (p. 267)
- 4a. Buttock tubercles poorly developed or absent; upper jaw strongly hooked; nostrils high on snout, between eyes.....*H. areolatus* (p. 263)
- 4b. Buttock tubercles large and prominent; upper jaw weakly or not hooked; nostrils low on snout, below level of eyes.....*H. femoralis* (p. 266)

**Phylogenetic hypothesis:** (based on Loveridge and Williams, 1957)



## TESTUDINIDAE

*Homopus areolatus* (Thunberg, 1787:180)  
Beaked Cape Tortoise

**Original name:** *Testudo areolata*

**Holotype:** ZIUS 298

**Type locality:** "India" (in error)

**Distribution:** southern Republic of South Africa

**Subspecies:** None

**Comment:** Reviewed by Loveridge and Williams (1957), Greig and Burdett (1976), Boycott and Bourquin (1988), and Branch (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Homopus bergeri* Lindholm 1906:348  
Berger's Cape tortoise

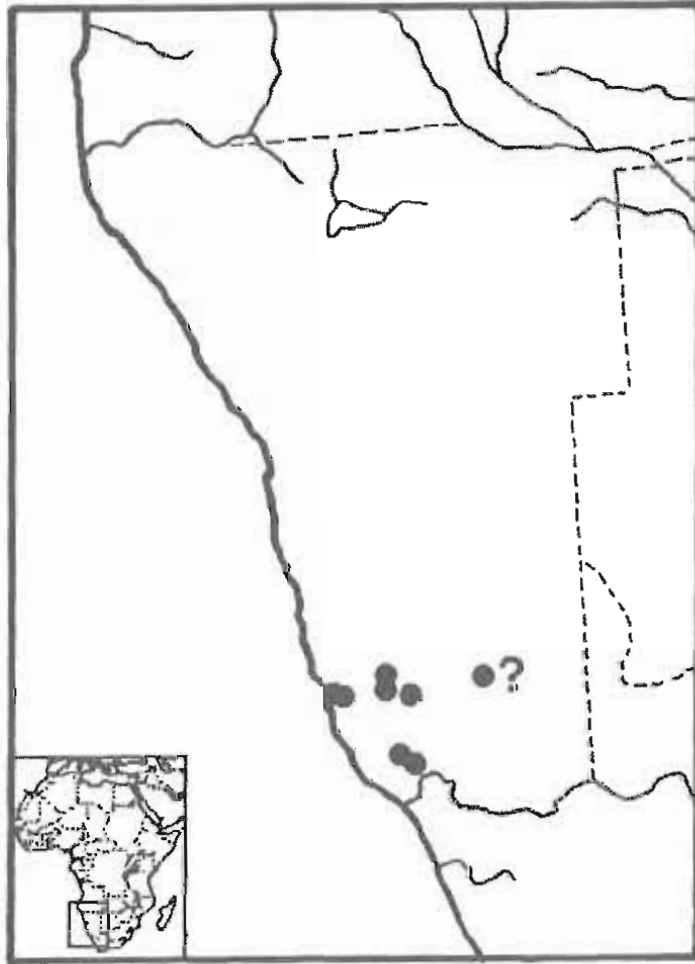
**Holotype:** Not located

**Type locality:** Gibeon, Gross-Namaqualand [Namibia]

**Distribution:** southwestern Namibia

**Subspecies:** None

**Comment:** Removed from the synonymy of *H. boulengeri* by Boycott (1986:10), Branch (1988, 1989), and Branch (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Homopus boulengeri* Duerden, 1906:406  
Boulenger's Cape Tortoise

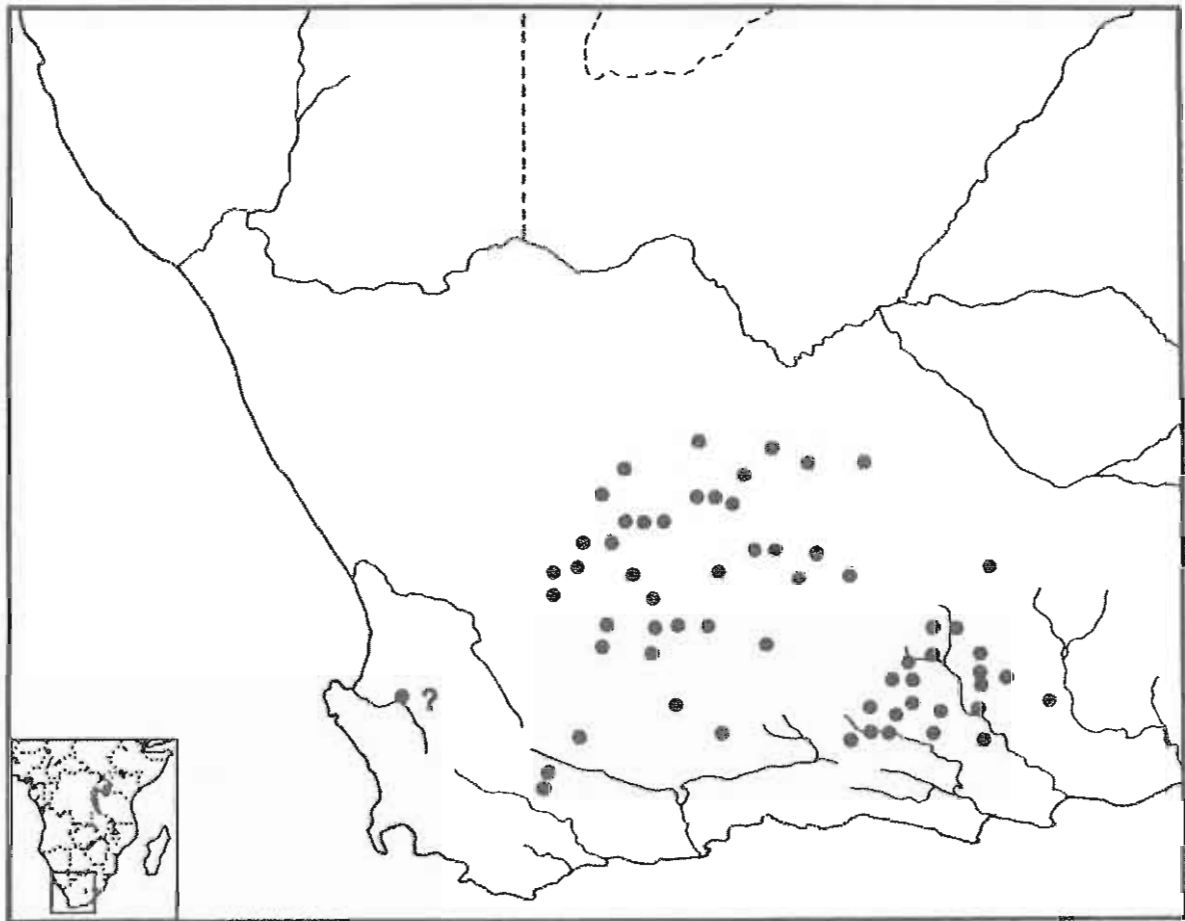
**Holotype:** BMNH 1946.1.23.4, formerly BMNH 1906.6.21

**Type locality:** "South Africa - Districts of Willowmore, Aberdeen and Beaufort West"

**Distribution:** southern Republic of South Africa

**Subspecies:** None

**Comment:** Reviewed by Loveridge and Williams (1957), Greig and Burdett (1976), Boycott and Bourquin (1988), and Boycott (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Homopus femoralis* Boulenger, 1888b:251  
Karoo Cape Tortoise

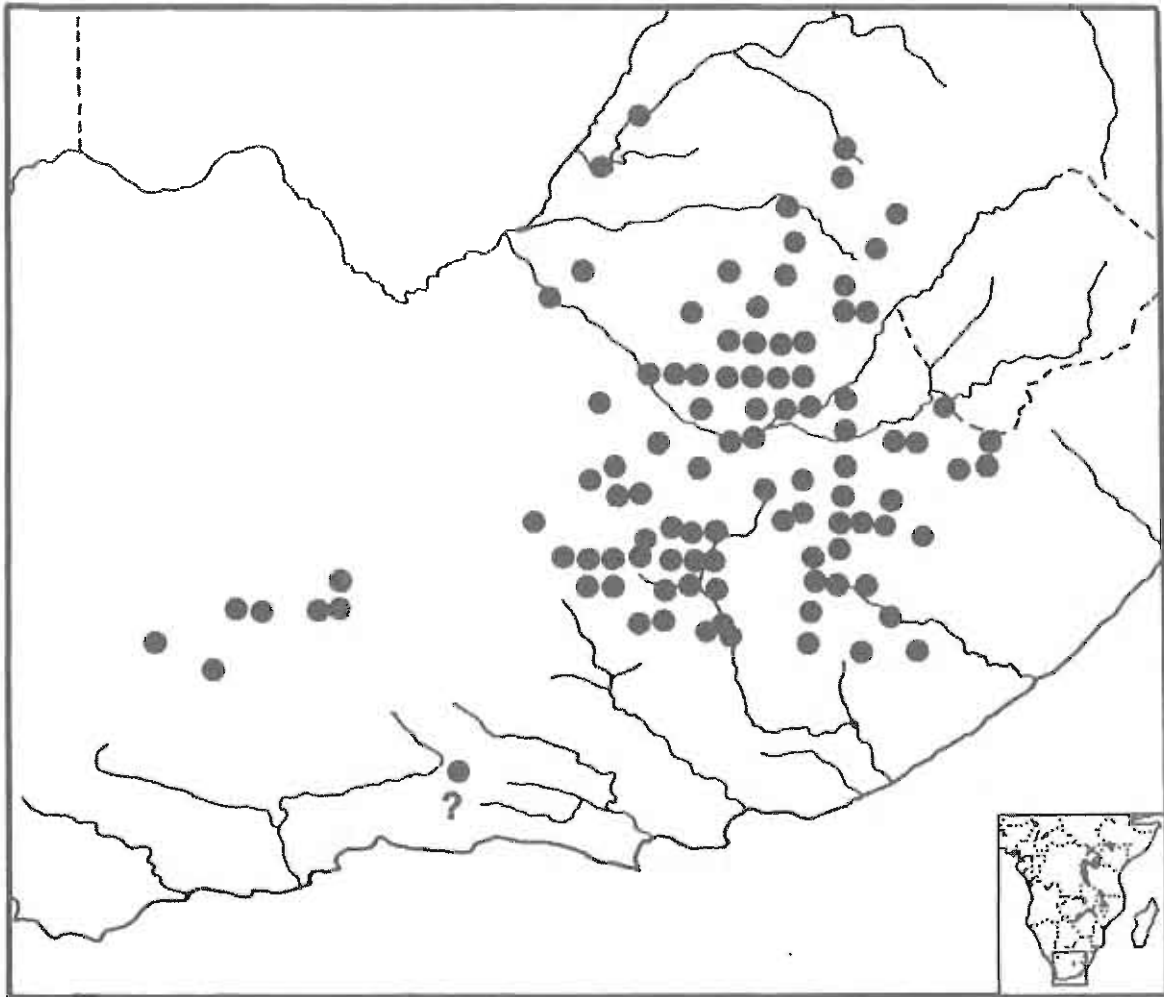
**Syntypes:** (apparently 3 specimens) BMNH 1946.1.22.54 (formerly BMNH 1888.12.28.1) and two other specimens not located

**Type locality:** "Cradlock" [Cape Province, Republic of South Africa]

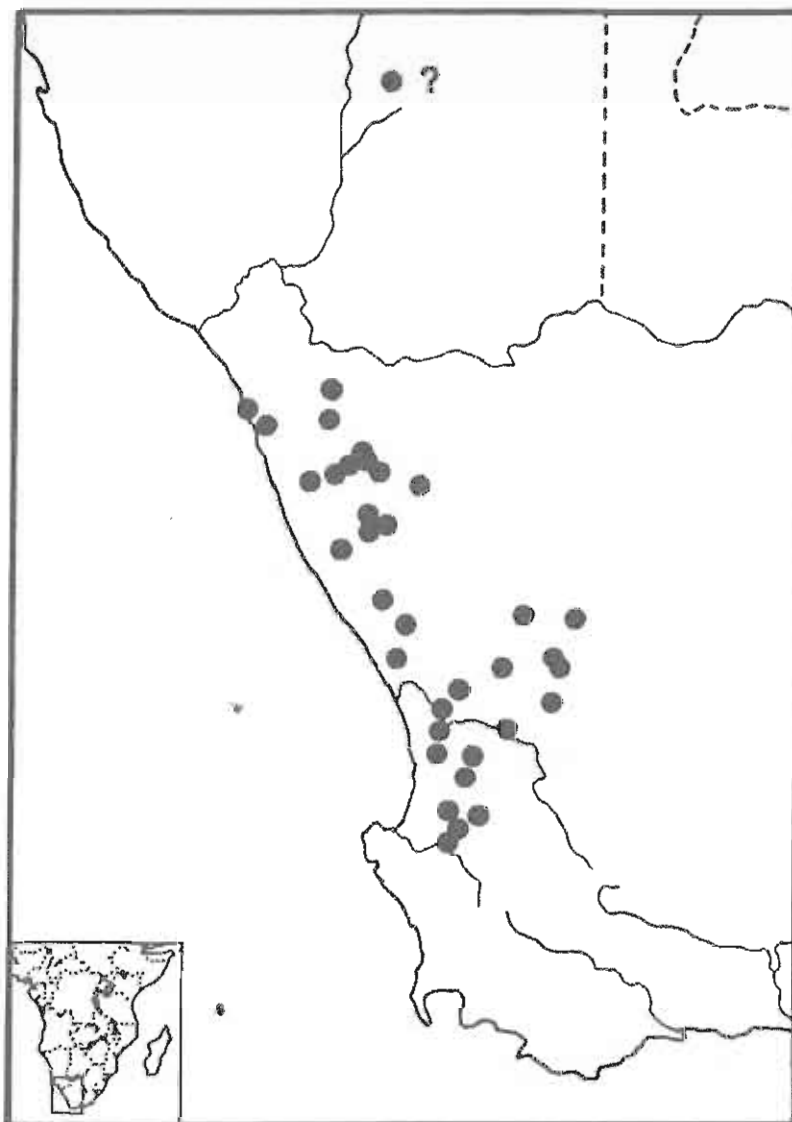
**Distribution:** Republic of South Africa

**Subspecies:** None

**Comment:** Reviewed by Loveridge and Williams (1957), Greig and Burdett (1976), Boycott and Bourquin (1988), and Branch (in Swingland and Klemens, 1989).



## TESTUDINIDAE

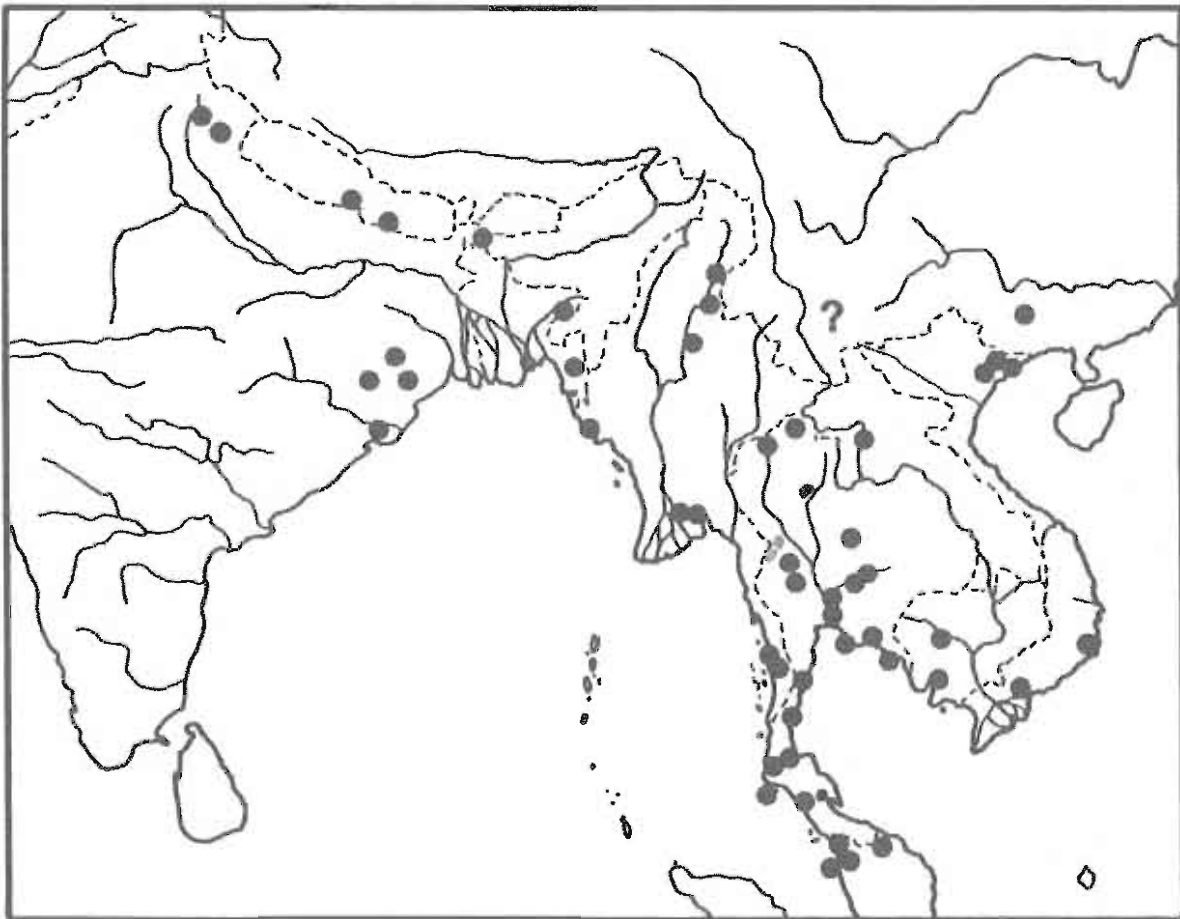
*Homopus signatus* (Gmelin 1789:1043)  
Speckled Cape Tortoise**Original name:** *Testudo signata***Holotype:** Not designated; the Plate labelled "Testud. Sign. var." in Walbaum (1782) was designated lectotype by Bour (1988a:1) and reproduced in that work**Type locality:** Not stated; designated as "vicinity of Springbok, Cape Province, South Africa" by Bour (1988a:3)**Distribution:** western Cape Province, Republic of South Africa**Subspecies:** Two are recognized:*H. s. signatus* (Gmelin 1789:1043) Northern Speckled cape tortoise [Holotype: see above; type locality: see above; range: near Clanwilliam and northward, Republic of South Africa]*H. s. cafer* (Daudin 1802:291; includes *H. s. peersi*, according to Bour, 1988a:2) Southern speckled cape tortoise [Holotype: MNHN 7924; type locality: "Cafreric" [= Kaffraria, Republic of South Africa], restricted to "Drainage of the Olifants River, Cape Province, South Africa" by Bour (1988a:3); range: near Clanwilliam and southwestward, Republic of South Africa]**Comment:** Reviewed by Loveridge and Williams (1957), Greig and Burdett (1976), Boycott (1986), Bour (1988a), Boycott and Bourquin (1988), and Boycott (in Swingland and Klemens, 1989).



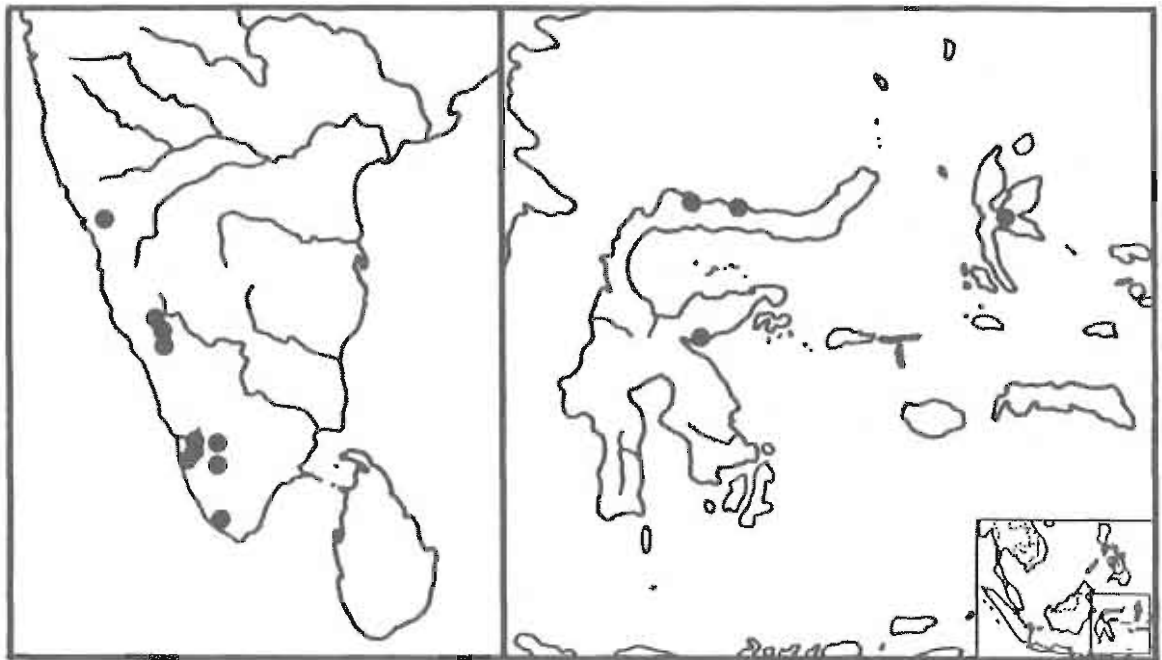
## TESTUDINIDAE

*Indotestudo* Lindholm, 1929:285  
Asian Tortoises**Type species:** *Testudo elongata* Blyth (1853), by monotypy**Distribution:** southwestern India and northwestern India to Guangxi, China (PRC) and south to Indonesia**Comment:** See Comment under *Geochelone*.**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Cervical scute present; interpectoral seam as long or longer than the interhumeral seam.....*I. elongata* (p. 268)
- 1b. Cervical scute absent; interpectoral seam usually less than 70% as long as interhumeral seam.....*I. forsteni* (p. 269)

*Indotestudo elongata* (Blyth, 1853:639)  
Elongated Tortoise**Holotype:** Possibly in the Indian Museum, Calcutta according to Bourret (1941:189); may be ZSI 799 from "Arakan" according to Crumly (pers. comm.); syntypes are ZSI 796, 798, and 800, according to Das (pers. comm.)**Type locality:** "Hab. Arakan" [Burma]**Distribution:** northern India and Nepal to Guangxi, China (PRC) and Malaya (Malaysia)**Subspecies:** None**Comment:** Reviewed by Smith (1931; as *Testudo elongata*), Pope (1935; as *Testudo elongata*), Bourret (1941; as *Testudo elongata*), Taylor (1970; as *Testudo elongata*), Biswas et al. (1978), Tikader and Sharma (1985; as *Geochelone elongata*), Moll (in Swingland and Klemens, 1989), and Das (1991). Ross and Crumly (1983) discuss the distribution in northern India.

## TESTUDINIDAE

*Indotestudo forstenii* (Schlegel and Müller, 1844:30)  
Travancore Tortoise**Original name:** *Testudo Forstenii***Holotype:** Not stated; RMNH 3811 designated lectotype by Hoogmoed and Crumly (1984:245)**Type locality:** "Gilolo" [= Halmahera Island, Moluccas, Indonesia]**Distribution:** Sulawesi (= Celebes) and Halmahera Islands, Indonesia and Kerala, India**Subspecies:** None**Comment:** *Geochelone travancorica* Boulenger (1907:560) is considered to be a synonym according to Hoogmoed and Crumly (1984). Reviewed by Groombridge (1982: as *Geochelone travancorica* and *G. forstenii*), Tikader and Sharma (1985; as *Geochelone travancorica*), Moll (in Swingland and Klemens, 1989), and Das (1991).

## TESTUDINIDAE

*Kinixys* Bell, 1827:398  
Hinge-back Tortoises

**Type species:** *Kinixys castanea* Bell (1827) [= *Testudo erosa* Schweigger (1812)], by subsequent designation of Bell (1828b)

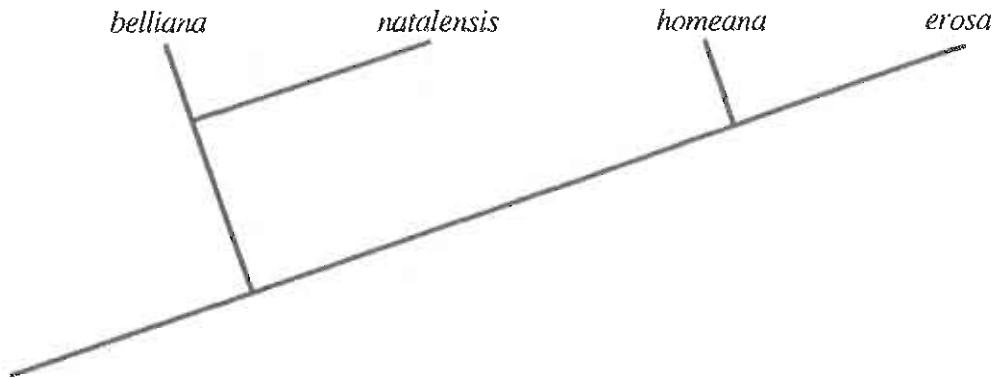
**Distribution:** western, central and southern Africa

**Comment:** Reviewed by Broadley (1981a and 1992).

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Gular scutes usually twice as broad as long; supracaudal scute divided; upper jaw tricuspid.....*K. natalensis* (p. 274)
- 1b. Gular scutes usually less than twice as broad as long; supracaudal scute not divided; upper jaw unicuspid or bicuspid.....2
- 2a. Posterior midline of carapace angles downward abruptly at level of anterior end of the fifth vertebral scute.....*K. homeana* (p. 273)
- 2b. Posterior midline of carapace slopes downward or abruptly angles downward at level of the middle of the fifth vertebral scute.....3
- 3a. Posterior marginal scutes of carapace not strongly serrated; four or five claws on each forefoot.....*K. belliana* (p. 271)
- 3b. Posterior marginal scutes strongly serrated; five claws on each forefoot.....*K. erosa* (p. 272)

**Phylogenetic hypothesis:** (based on Loveridge and Williams, 1957)



## TESTUDINIDAE

*Kinixys belliana* Gray, 1831b:69  
Bell's Hinge-back Tortoise

**Original name:** *Kinixys Belliana*

**Holotype:** BMNH 1979.919; not BMNH 1947.3.5.73 as originally indicated in the BMNH catalog, according to Broadley (1981a:196)

**Type locality:** Not stated; "West Africa" according to label on BMNH 1947.3.5.73

**Distribution:** Ethiopia to Senegal to Botswana and Republic of South Africa; Madagascar (where it may be introduced)

**Subspecies:** At least five are presently recognized, although Broadley (1989, 1992; and in Swingland and Klemens, 1989) argued that at least two (*lobatsiana* and *spekii*) deserve species status:

*K. b. belliana* Gray (1831b:69; includes *K. b. mertensi* Laurent 1956:27 according to Broadley, in Swingland and Klemens, 1989) Eastern hinge-back tortoise [Holotype: see above; type locality: see above; range: east Africa from northeastern Zaire to Ethiopia and Somalia to Uganda and western Kenya]

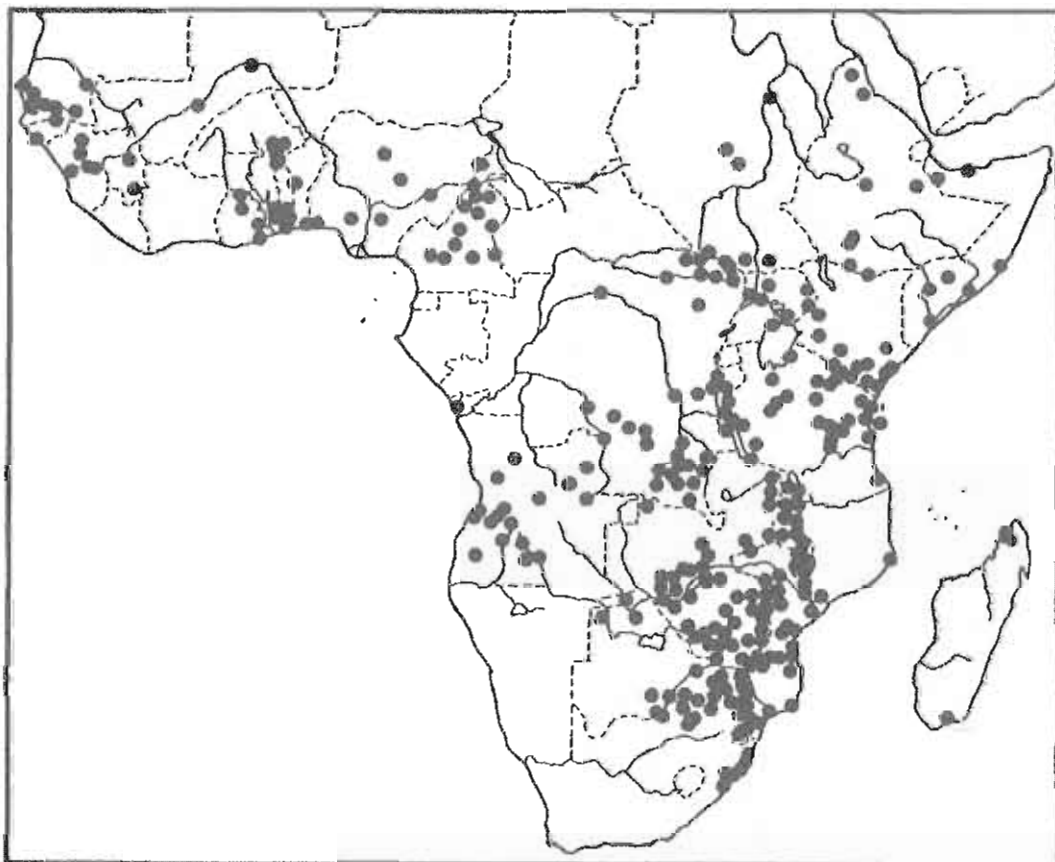
*K. b. lobatsiana* Power (1927:410) Lobatse hinge-back tortoise [Syntypes: (3 specimens) MMK (McGregor Mus., Kimberly) 217, 221, and 224; type locality: "Lobatse" [Botswana]; range: northeastern Republic of South Africa into southeastern Botswana]

*K. b. nogueyi* (Lataste 1886:286) Western hinge-back tortoise [Syntypes: (2 specimens) BMNH 1946.1.22.46 and 1947.3.5.75; type locality: "Médine (Haut-Senegal)"; range: western Africa, from Senegal to Cameroon to the Central African Republic]

*K. b. spekii* Gray (1863f:381) Speke's hinge-back tortoise [Holotype: BMNH 1936.5.3.117; type locality: "Central Africa" (probably "N.W. Tanzania", according to Broadley, 1988:372); range: Kenya south to northeastern Republic of South Africa and Swaziland, and west to southeastern Zaire, Zambia, and northern Botswana]

*K. b. zombensis* Hewitt (1931:469) Southeastern hinge-back tortoise [Holotype: possibly in the NMP, according to Bour (1978:153); type locality: Zomba, Nyasaland [= Malawi]; range: northeastern Tanzania south to Zululand; Madagascar]

**Comment:** Reviewed by Loveridge and Williams (1957), Greig and Burdett (1976), Broadley (1981a), Boycott and Bourquin (1988), and Broadley (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Kinixys erosa* (Schweigger, 1812:321)  
Serrated Hinge-back Tortoise

**Original name:** *Testudo erosa*

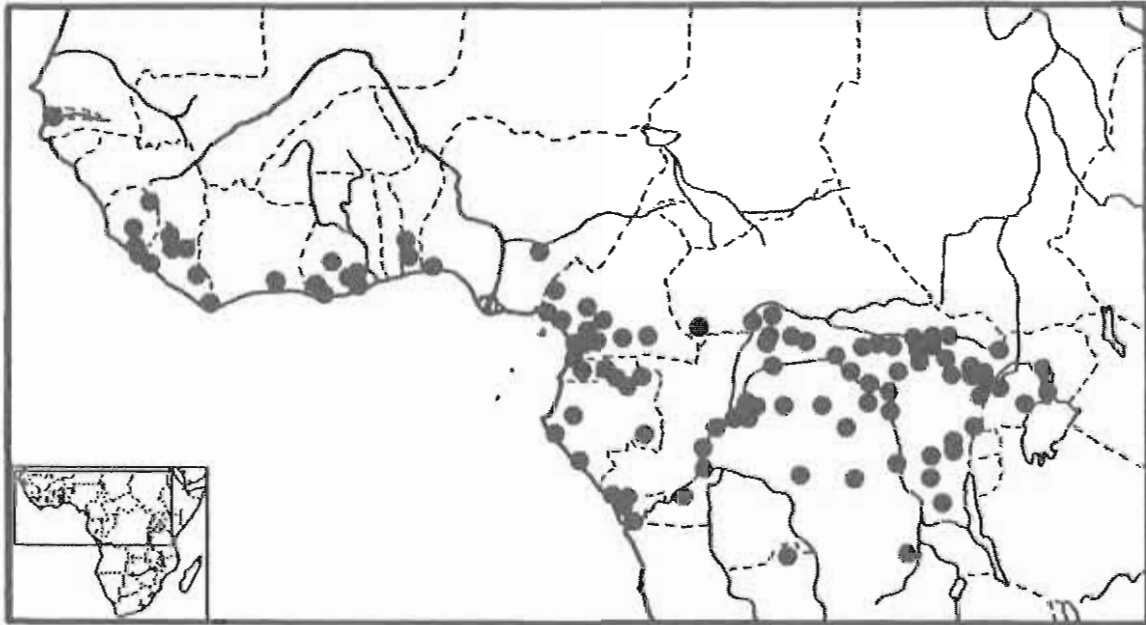
**Syntypes:** (possibly 3 specimens) Not located; possibly in the Mannheim Museum and Leverian Museum according to R. Bour (pers. comm.)

**Type locality:** "America septentrionali" (in error)

**Distribution:** Gambia to Republic of the Congo and Uganda

**Subspecies:** None

**Comment:** Reviewed by Loveridge and Williams (1957) and Broadley (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Kinixys homeana* Bell, 1827:400  
Home's Hinge-back Tortoise

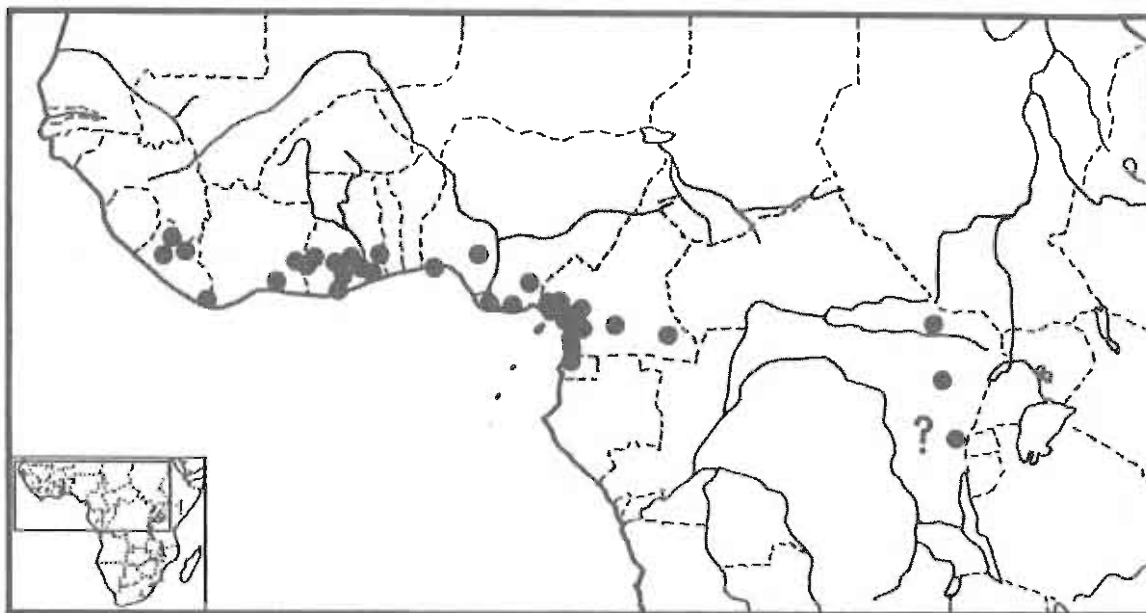
**Syntypes:** at least OUM 8522

**Type locality:** "Africâ occidentali"

**Distribution:** Liberia to Cameroon and eastern Zaire

**Subspecies:** None

**Comment:** Reviewed by Lovridge and Williams (1957) and Broadley (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Kinixys natalensis* Hewitt, 1935:353  
Natal Hinge-back Tortoise

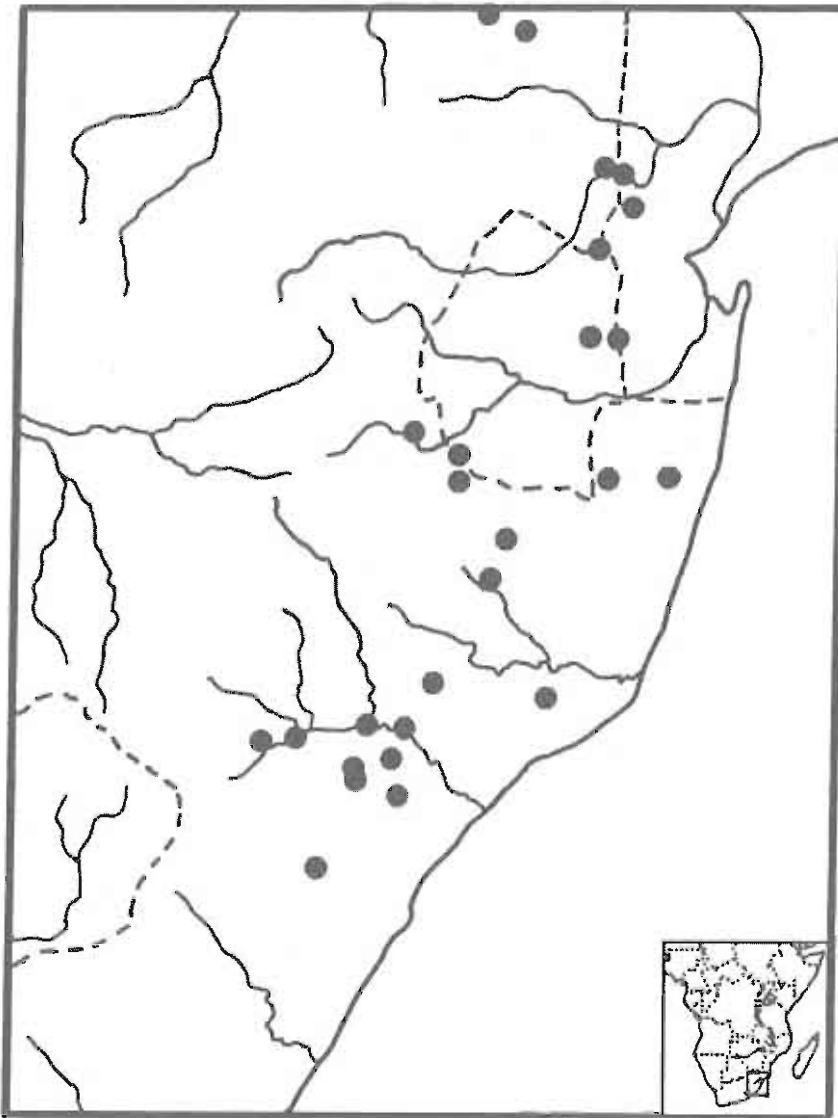
**Syntypes:** (2 specimens) AMG 6975A and unnumbered; the unnumbered AMG specimen was designated lectotype by Broadley (1981a:206-207)

**Type locality:** "Jameson Drift, Tugela River . . . and . . . Dimane stream, near Jameson Drift." [Natal Prov., Republic of South Africa]

**Distribution:** eastern Republic of South Africa (eastern Transvaal and Natal), Swaziland, and southern Mozambique

**Subspecies:** None

**Comment:** Previously considered a synonym of *K. belliana* (e.g., see Loveridge and Williams, 1957:388), but elevated to species status by Broadley (1981a). Reviewed by Boycott and Bourquin (1988), Boycott and Jacobsen (1988), and Broadley (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Malacochersus* Lindholm, 1929:285  
Pancake Tortoises

**Type species:** *Testudo tornieri* Siebenrock (1903b), by original designation

**Distribution:** As for the single species.

**Comment:** Reviewed by Loveridge and Williams (1957).

*Malacochersus tornieri* (Siebenrock, 1903b:443)  
African Pancake Tortoise

**Original name:** *Testudo tornieri*

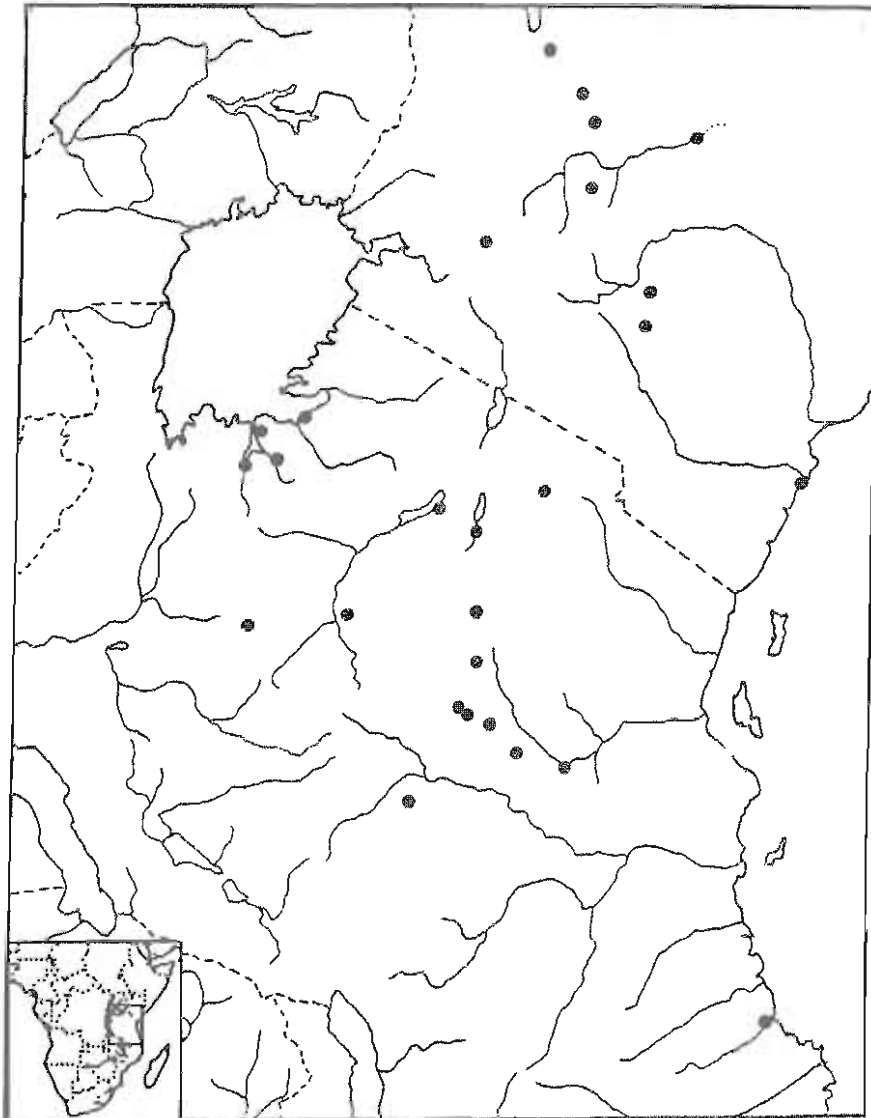
**Holotype:** ZMB 11740, destroyed during World War II

**Type locality:** "bei Bussisia [= Busisi] am Viktoria Nyanza" [Tanzania]

**Distribution:** Kenya and Tanzania

**Subspecies:** None

**Comment:** Reviewed by Loveridge and Williams (1957), Groombridge (1982), and Broadley (in Swingland and Klemens, 1989)





## TESTUDINIDAE

*Manouria* Gray, 1852:133  
Indochinese Tortoises

**Type species:** *Manouria fusca* Gray (1852) [= *Testudo emys* Schlegel and Müller (1844)], by monotypy

**Distribution:** eastern India to Vietnam, China (PRC), Malaya, Sumatra, and Borneo

**Comment:** See Comment under *Geochelone*.

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Carapace uniformly dark brown, olive, or black; posterior marginal scutes only slightly serrated; pectoral scutes may not meet at plastral midline; several very large pointed tubercles (spurs) on each thigh.....*M. emys* (p. 276)
- 1b. Carapace yellow-brown to brown with dark seams; posterior marginals strongly serrated; pectoral scutes always meet at plastral midline; a single large, conical tubercle surrounded by very much smaller scales on each thigh.....*M. impressa* (p. 278)

*Manouria emys* (Schlegel and Müller, 1844:34)  
Asian Brown Tortoise

**Original name:** *Testudo emys*

**Syntypes:** (5 specimens) RMNH 3808, 6005, 6030, 17967, and MNHN 9422; RMNH 3808 designated lectotype by Hoogmoed and Crumly (1984:251)

**Type locality:** "Sumatra, te midden der hoage bergbosschen, aan de Zuidzijde van den Goenong Singalong, in derok groote vallei, door welke de river Auch, uit de zoogenaamde bovenlanden naar de westelijke zeekurt afstroomt."

**Distribution:** (next page) Eastern India to southern Vietnam and south to Malaya, Sumatra, and Borneo

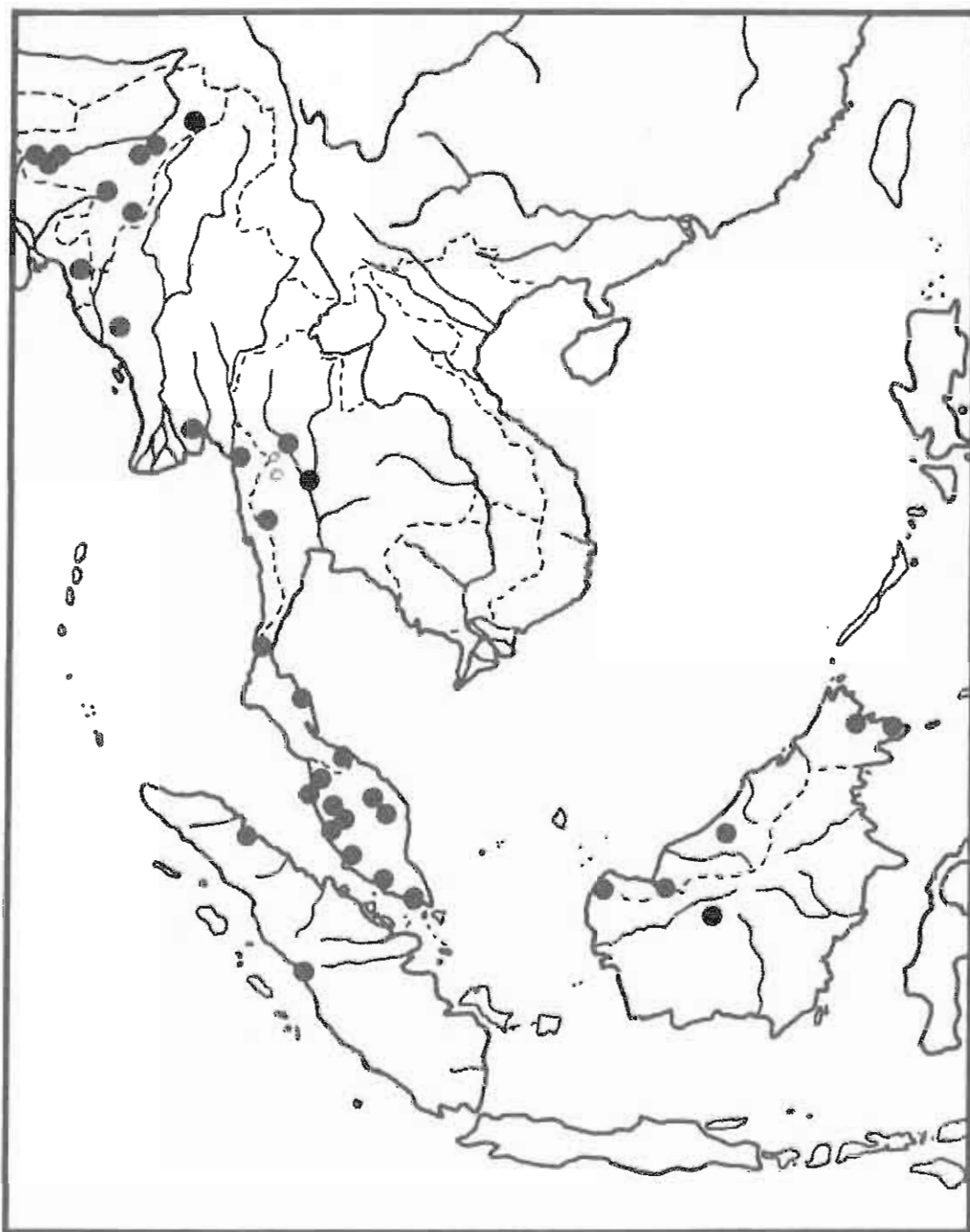
**Subspecies:** Two are recognized:

*M. e. emys* (Schlegel and Müller, 1844:34) Brown tortoise [Syntypes: see above; type locality: see above; range: southern Thailand through Malaysia to Sumatra, Borneo, and other Indonesian Islands]

*M. e. phayrei* (Blyth, 1853:639) Burmese black tortoise [Syntypes: (2 specimens) ZSI 813, 15492, according to Das (pers. comm.); type locality: "Arakan; Tenasserim Provinces"; range: central Thailand to Burma and Assam, India]

**Comment:** Reviewed by Smith (1931; as *Testudo emys*), Bourret (1941; as *Testudo emys*), Taylor (1970; as *Testudo emys*), Groombridge (1982; as *Geochelone emys*), Obst (1983a), Tikader and Sharma (1985), Moll (in Swingland and Klemens, 1989), and Das (1991). Includes *Testudo nutapundi* Reimann (in Wirot, 1979), according to Obst (1983a), Hoogmoed and Crumly (1984), Bour (1984b:169), and Crumly (1988).

## TESTUDINIDAE

*Manouria emys* (continued)

## TESTUDINIDAE

*Manouria impressa* (Günther, 1882:343)  
Impressed Tortoise**Original name:** *Geoemyda impressa***Holotype:** BMNH 1947.3.5.7**Type locality:** "Siam" [= Thailand]**Distribution:** Burma and Malaya (Malaysia) to Vietnam and southern China (PRC)**Subspecies:** None**Comment:** Reviewed by Smith (1931; as *Testudo impressa*), Bourret (1941; as *Testudo impressa*), Taylor (1970; as *Testudo impressa*), Groombridge (1982; as *Geochelone impressa*), Obst (1983a), and Moll (in Swingland and Klemens, 1989).

## TESTUDINIDAE

*Psammobates* Fitzinger, 1835:113  
South African Star Tortoises

**Type species:** *Testudo geometrica* Linnaeus (1758), by subsequent designation of Fitzinger (1843:29)

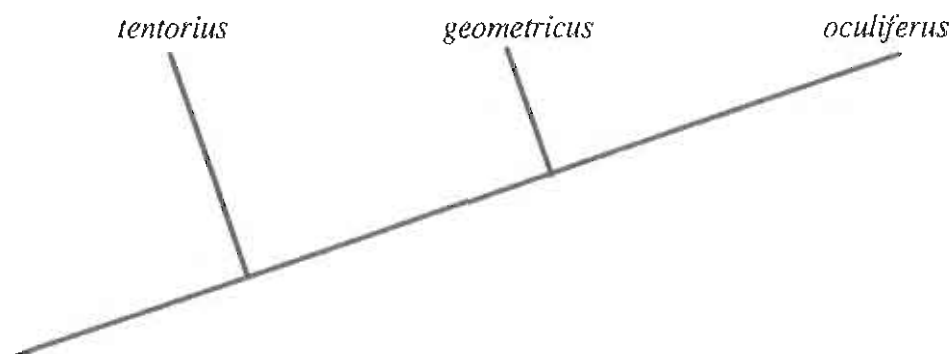
**Distribution:** southern Africa

**Comment:** Genus and species reviewed by Loveridge and Williams (1957).

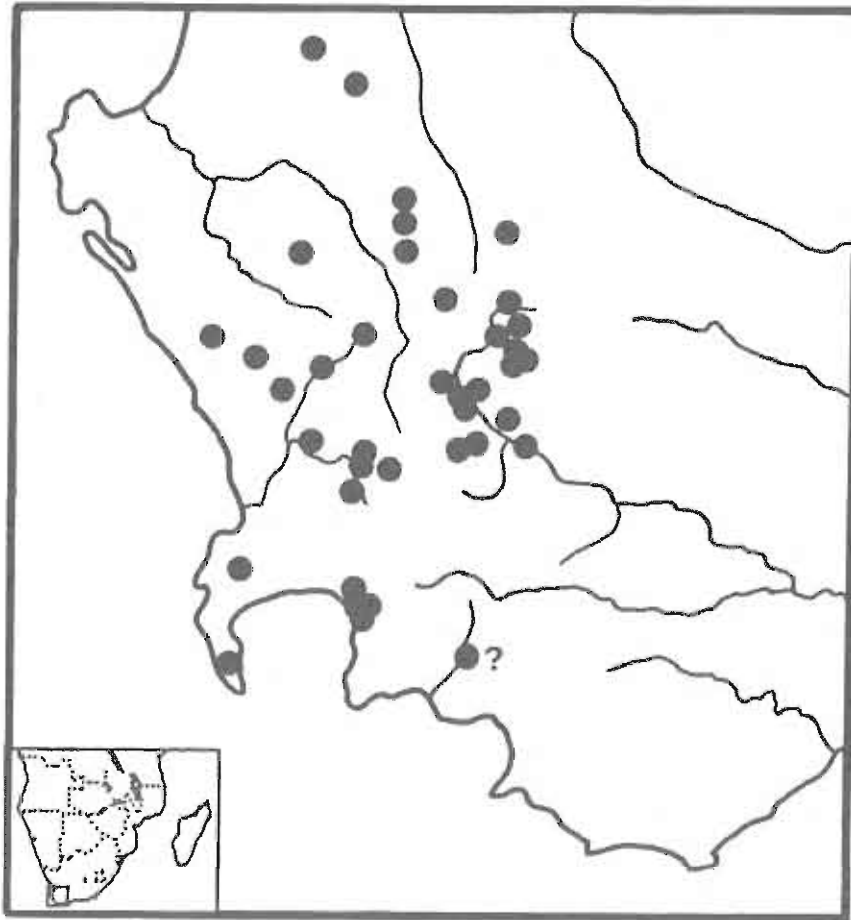
**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. A single axillary scute fused with the humeral scute; cervical scute large; carapacial rim strongly serrated.....*P. oculiferus* (p. 281)
- 1b. One to three axillary scutes present, not fused with the humeral scute; cervical scute small; carapacial rim only slightly serrate at most.....2
- 2a. A single axillary scute; forelimb with large non-overlapping scales.....*P. geometricus* (p. 280)
- 2b. Two or three axillary scutes; forelimb with large overlapping scales.....*P. tentorius* (p. 282)

**Phylogenetic hypothesis:** (after Loveridge and Williams, 1957; and Beard, 1990)



## TESTUDINIDAE

*Psammobates geometricus* (Linnaeus, 1758:199)  
Geometric Tortoise**Original name:** *Testudo geometrica***Syntype:** (1 specimen) ZMUU 20, plus published material; Hoogmoed and Crumly (1984:241, 254-55) designated the figure in Piso (1658:105) as lectotype (see Comment)**Type locality:** "Asia"; restricted to "southwestern Cape Province, South Africa" by Beard (1991:9)**Distribution:** southwestern Cape Province, Republic of South Africa**Subspecies:** None**Comment:** Wallin (1977) showed that a Linnaean type specimen of *Testudo geometrica* is actually a *Geochelone elegans* (Schoepff, 1795). To avoid nomenclatural chaos, Hoogmoed and Crumly (1984) considered the figure in Piso (1658) as syntypical and designated it as lectotype. Reviewed by Loveridge and Williams (1957), Rau (1971; 1976), Greig and Burdett (1976), Groombridge (1982), Boycott and Bourquin (1988), Beard (in Swingland and Klemens, 1989), and Beard (1990, 1991).

## TESTUDINIDAE

*Psammobates oculiferus* (Kuhl, 1820:77)  
Serrated Tortoise

**Original name:** *Testudo oculifera*

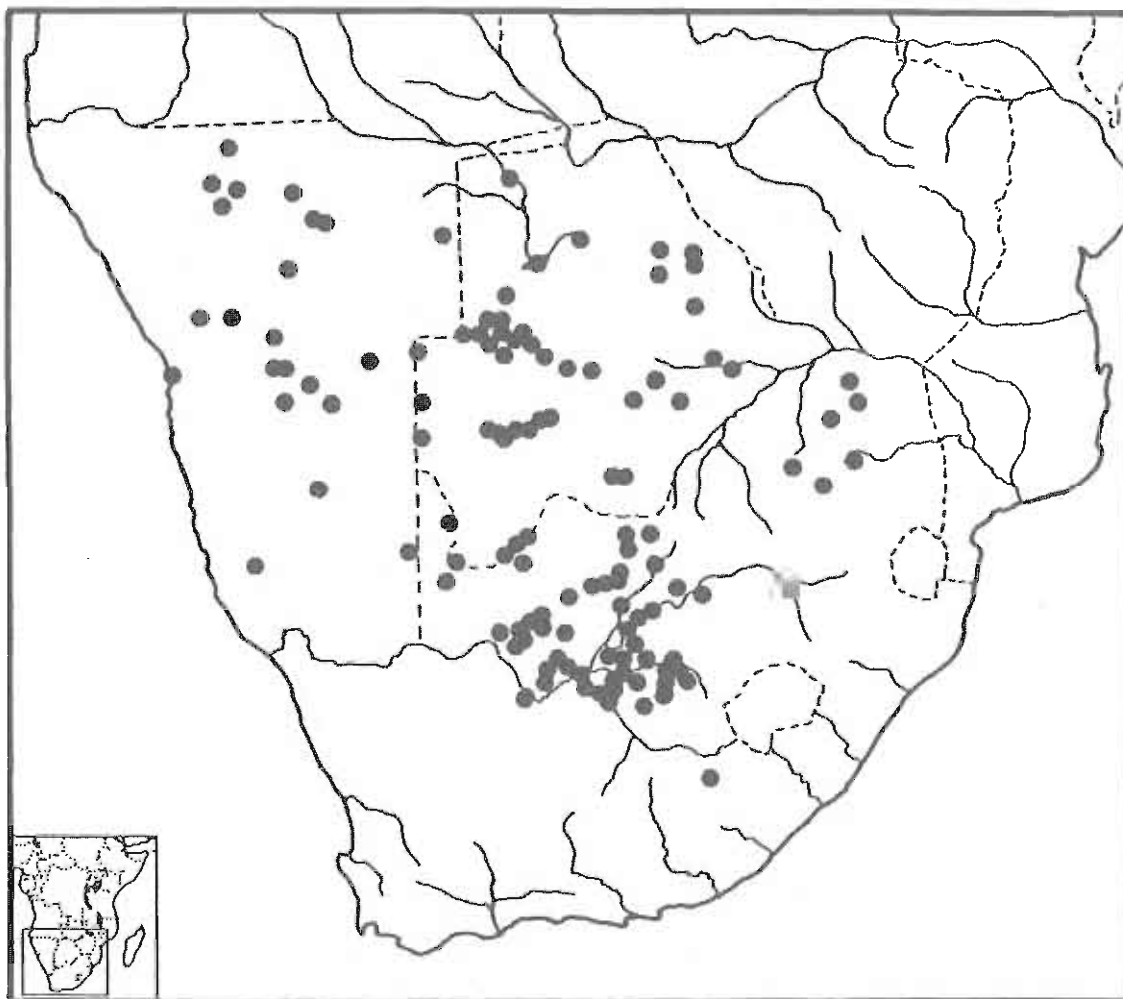
**Holotype:** ZMB 223; destroyed during World War II

**Type locality:** "Cap" [= Cape, Republic of South Africa]

**Distribution:** Namibia, Botswana, and Republic of South Africa

**Subspecies:** None

**Comment:** Reviewed by Loveridge and Williams (1957), Greig and Burdett (1976), Boycott and Bourquin (1988), and Boycott and Branch (in Swingland and Klemens, 1989).



## TESTUDINIDAE

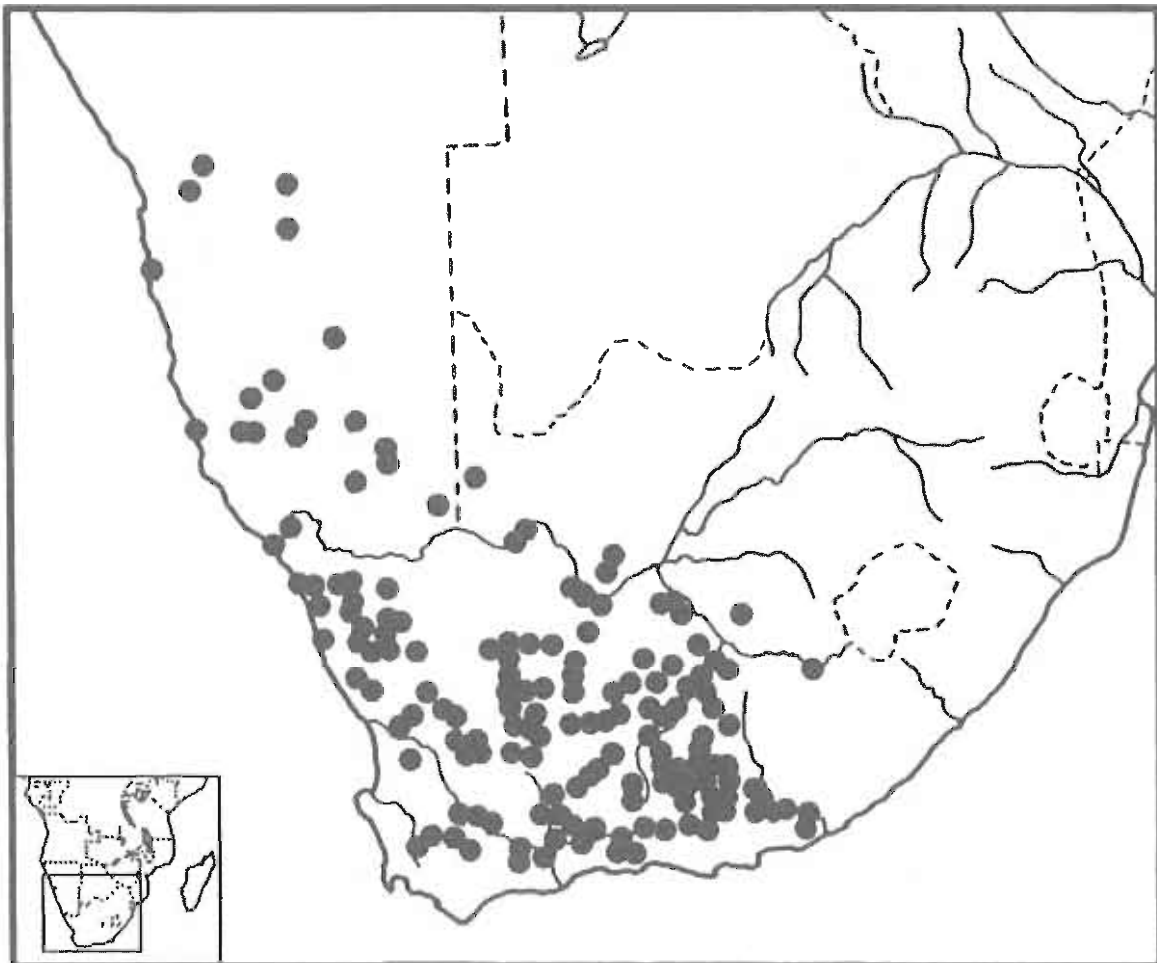
*Psammobates tentorius* (Bell, 1828a:420)  
Tent Tortoise**Original name:** *Testudo Tentoria***Holotype:** OUM 8570**Type locality:** "Africâ?"**Distribution:** Namibia and Republic of South Africa**Subspecies:** Three are recognized:

*P. t. tentorius* (Bell, 1828a:420) Common tent tortoise [Holotype: see above; type locality: see above; range: the southern and eastern Karoo from Grahamstown to Matjiesfontein, Republic of South Africa]

*P. t. trimenti* Boulenger (1886:541) Western tent tortoise [Syntypes: (3 specimens) BMNH 1947.3.5.10-12; type locality: "Mouth of the Oranje River"; range: coastal Namibia south to Lambert's Bay, Republic of South Africa]

*P. t. verroxii* Smith (1839:8) Northern tent tortoise [Holotype: RSM 1859.13.1680; type locality: "districts of South Africa near the sources of the Gariep or Orange River"; restricted to "somewhere north of Aliwal North, between the Orange and Caledon Rivers; . . . roughly 260 miles east of Niekerk's Hope [= Niekerkshoop]", Republic of South Africa by Power (1932:466), although the latter restriction may not be appropriate (see Loveridge and Williams 1957:327-28); range: the northern Karoo and Bushmanland, Republic of South Africa, and north into Namibia]

**Comment:** Reviewed by Loveridge and Williams (1957), Greig and Burdett (1976), Boycott and Bourquin (1988), and Branch (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Pyxis* Bell, 1827:395  
Spider Tortoises

**Type species:** *Pyxis arachnoides* Bell (1827), by monotypy

**Distribution:** Madagascar

**Comment:** Reviewed by Bour (1981), who placed *Acinixys* in the synonymy of this genus. Reviewed by Loveridge and Williams (1957), and Obst (1978, 1980).

**Key to the species:**

- 1a. Plastral hinge obvious between humeral and pectoral scutes.....*P. arachnoides* (p. 283)  
1b. No plastral hinge present between humeral and pectoral scutes.....*P. planicauda* (p. 284)

*Pyxis arachnoides* Bell, 1827:395  
Common Spider Tortoise

**Syntypes:** (2 specimens) OUM 1092 and 8528; OUM 1092 (=13a) designated lectotype by Bour (1978:153)

**Type locality:** Not stated; designated as "Soalara (Baie de Saint-Augustin), sud-ouest de Madagascar" by Bour (1978:153)

**Distribution:** southwestern Madagascar

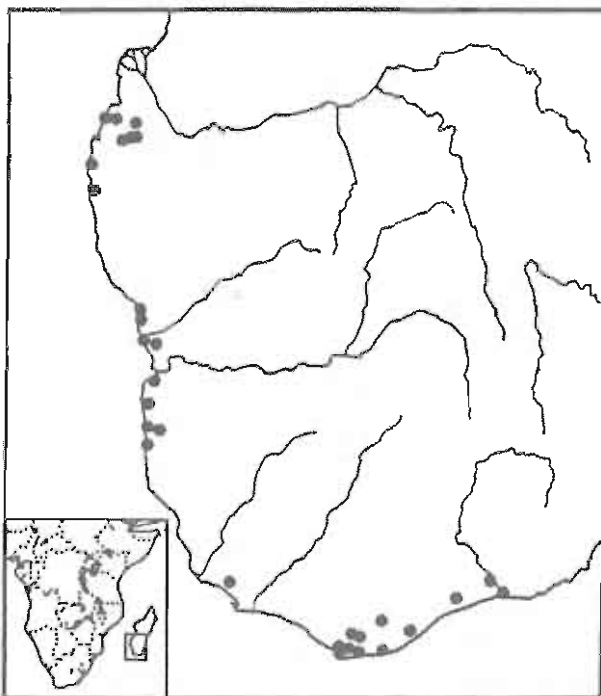
**Subspecies:** Three are recognized:

*P. a. arachnoides* Bell (1827:395) Common spider tortoise [Syntypes: see above; type locality: see above; range: Madagascar, in the Tuléar region from the Manombo river in the north to Soalara in the south]

*P. a. brygooi* (Vuillemin and Domergue, 1972:193) Northern spider tortoise [Syntypes: MNHN A.277; type locality: "C'est sur la côte Sud-Ouest entre Morombe et Tuléar, aux alentours du lac Ihotry, dans la forêt des Mikea", restricted to "Ampanonga (N. W. Lac Ihotry), sud-ouest de Madagascar" by Bour (1978:153); range: Morombe region, Madagascar]

*P. a. oblonga* Gray (1869a:173) Southern spider tortoise [Holotype: BMNH 1861.3.20.31; type locality: not stated, but restricted to "Cap Sainte-Marie province du Tuléar (Toliara) sud de Madagascar" by Bour (1982a:30); range: from the Linta River to Lake Anony and inland to Tsihombe, Madagascar]

**Comment:** Reviewed by Bour (1978, 1981), Obst (1978, 1980), Groombridge (1982), and Durrell et al. (in Swingland and Klemens, 1989).





## TESTUDINIDAE

*Pyxis planicauda* (Grandidier, 1867:233)  
Flat-shelled Spider Tortoise

**Original name:** *Testudo planicauda*

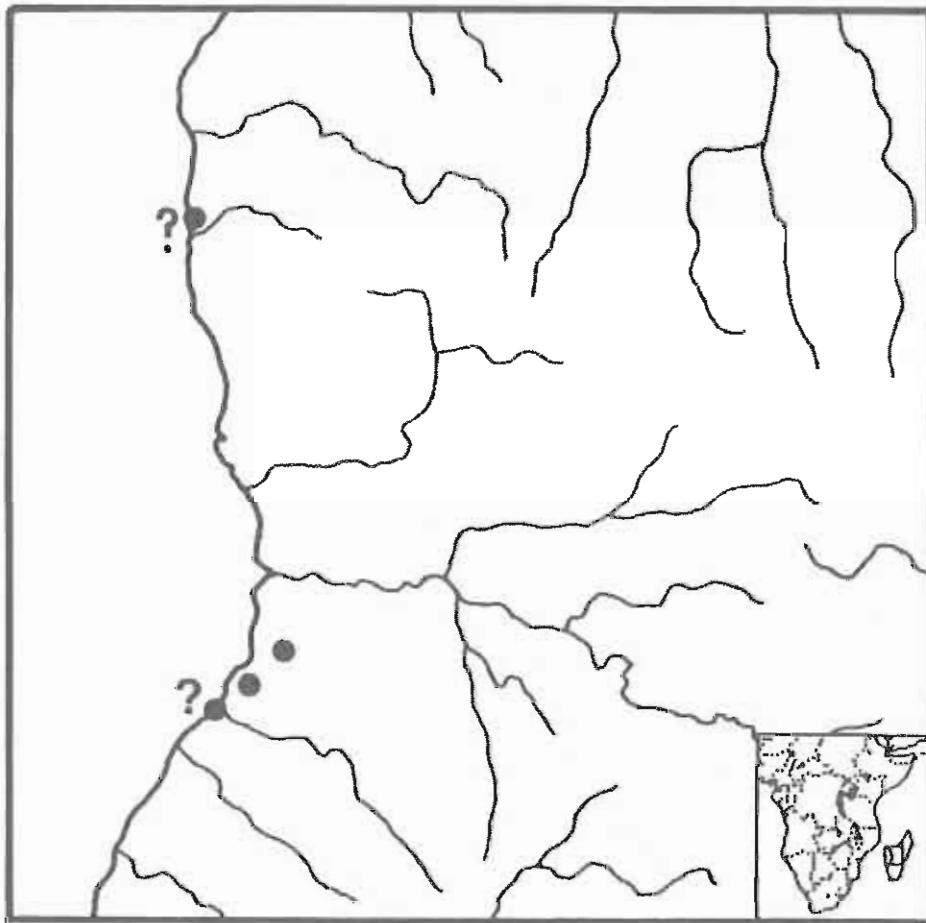
**Holotype:** MNHN 9373

**Type locality:** "Mouroundava" [western Madagascar]; restricted by Bour (1981:165) to "Morondava, province de Tuléar, Madagascar (pourrait être restreinte a la forêt d'Andranomena)"

**Distribution:** Known only from near the type locality in western Madagascar

**Subspecies:** None

**Comment:** Transferred from the monotypic genus *Acinixys* by Bour (1981) and supported by Obst (1980); however, Crumly (1984c, 1988) supported the retention of *Acinixys*. Also reviewed by Obst (1978, as *Acinixys planicauda*; 1980), Groombridge (1982), and Durrell et al. (in Swingland and Klemens, 1989; as *Acinixys planicauda*). Includes *Testudo morondavaensis* Vuillemin (1972:127).



TESTUDINIDAE

*Testudo* Linnaeus, 1758:197  
Palearctic Tortoises

**Type species:** *Testudo graeca* Linnaeus (1758), by subsequent designation of Bell (1828b:514)

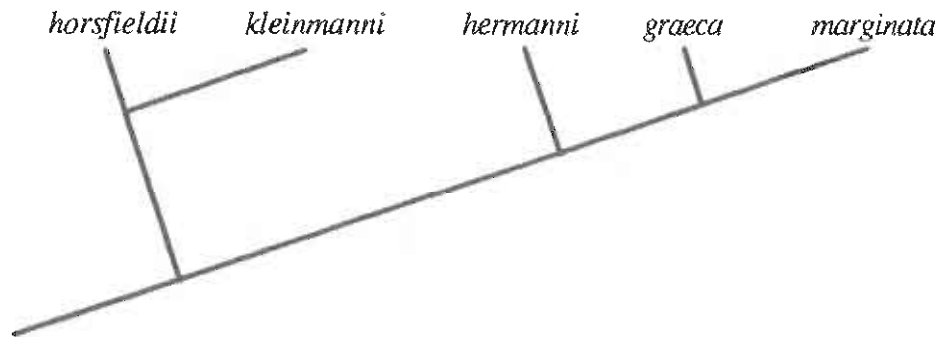
**Distribution:** southern Europe and North Africa to southwestern Asia

**Comment:** Subgenera listed in the species accounts were defined by Loveridge and Williams (1957) and Khozatsky and Mlynarski (1966), but are not accepted by some authors. Obst and Meusel (1963) reviewed European species.

**Key to the species:** (after Ernst and Barbour, 1989)

- 1a. Adult plastron lacking a moveable hinge between the abdominal and femoral scutes; carapace flattened, about as broad as long; 4 claws on each forefoot.....*T. horsfieldii* (p. 289)
- 1b. Adult plastron with a moveable hinge between the abdominal and femoral scutes; carapace domed with descending sides, much longer than broad; usually 5 claws on each forefoot.....2
- 2a. Supracaudal usually divided; no enlarged tubercles on thigh; 5-10 longitudinal rows of small scales on anterior surface of foreleg.....*T. hermanni* (p. 288)
- 2b. Supracaudal usually single; enlarged tubercles usually occur on thigh; 3-6 longitudinal rows of large scales on anterior surface of the foreleg.....3
- 3a. Hindside of thigh with a large conical tubercle; no enlarged, horny scale at end of tail.....*T. graeca* (p. 286)
- 3b. Hindside of thigh lacking enlarged tubercles; usually an enlarged, horny scale at end of tail....4
- 4a. Supracaudal and posterior marginals greatly flared; carapace elongated (> 20 cm); usually 4-5 longitudinal rows of enlarged scales on the anterior surface of the foreleg.....*T. marginata* (p. 291)
- 4b. Posterior marginal scutes not flared, supracaudal may or may not be flared; carapace short (< 14 cm); usually only 3 longitudinal rows of enlarged scales on anterior surface of the foreleg...*T. kleinmanni* (p. 290)

**Phylogenetic hypothesis:** (after Crumly, 1984b, and pers. comm.)



## TESTUDINIDAE

*Testudo graeca* Linnaeus, 1758:198  
Spur-thighed Tortoise

**Holotype:** Not designated; the color figure in Plate 204 in Edwards (1751; see Bour 1986b) according to Loveridge and Williams (1957) and Bour (1986b); reproduced in Bour (1986b).

**Type locality:** "Africa" (Linnaeus, 1758:198 and 1766:352); the caption for the figure in Edwards (1751) reads "Loc. Santa Cruz in West Barbary"; "the old Spanish fort of Santa Cruz near Oran, Algeria", according to Loveridge and Williams (1957:265); designated by Mertens and Müller (1928:22) as "Santa Cruz in der Westberberei, Nordafrika"; "Santa Cruz, Oran, Algeria", according to Bour (1986b).

**Distribution:** Northern Africa and southwestern Europe, Yugoslavia to Iran and Turkman SSR, USSR; apparently introduced to Islas Canarias (Spain), France, Sardinia, Italy, and Sicily

**Subspecies:** At least six are currently recognized, although Chkhikvadze (1989a:67) lists *T. g. pallasi* (from Dagestan) and *T. g. arenica* (from the valley of the River Araks) without authorship or description and he (1989b) also lists *T. g. armenica* (from the Araks river bed within the borders of Armenia) without authorship or description:

*T. g. graeca* Linnaeus (1758:198) Mediterranean spur-thighed tortoise [Holotype: see above; type locality: see above; range: Spain, Morocco, Algeria, Tunisia and Libya]

*T. g. anamurensis* Weissinger (1987:14) Anamurum spur-thighed tortoise [Holotype: NMW 30795; type locality: "Strand von Anamurum, 7km westlich von Anamur, SW-küste der Turkei"; range: southern coast of Turkey]

*T. g. ibera* Pallas (1814:18) Asia Minor spur-thighed tortoise [Lectotype: Pallas, Plate II, fig. 2-3 (originally unpublished but reproduced by Strauch 1862:69; Darevsky and Mertens 1973:100; and Bour 1986b:113), designated by Bour (1986b:113); type locality: not stated; restricted to "Iberia, haud procul a Tiflisio [= Tbilisi, Georgia, USSR]" by Eichwald (1831:196), "Caucasus" by Strauch (1862:69), "Iberia in Transcaucasia" by Flower (1925:929), and "Gebiet des mittleren Kura-Tales im Kaukasus" by Mertens (1946:113); range: central Balkans to the Black Sea, Turkey and southern Caucasus, USSR to Iran]

*T. g. nikolskii* Chkhikvadze and Tunijev (1986:618) Nikolsky's spur-thighed tortoise [Holotype: Georgia Acad. Sci. Institute of Paleobiology (Tbilisi) 13.3.008; type locality: "Nebut Town, Tuapse district (Krasnodarsky Territory) [translated from the Russian]", western Transcaucasia, USSR; range: northwestern Caucasus region of USSR]

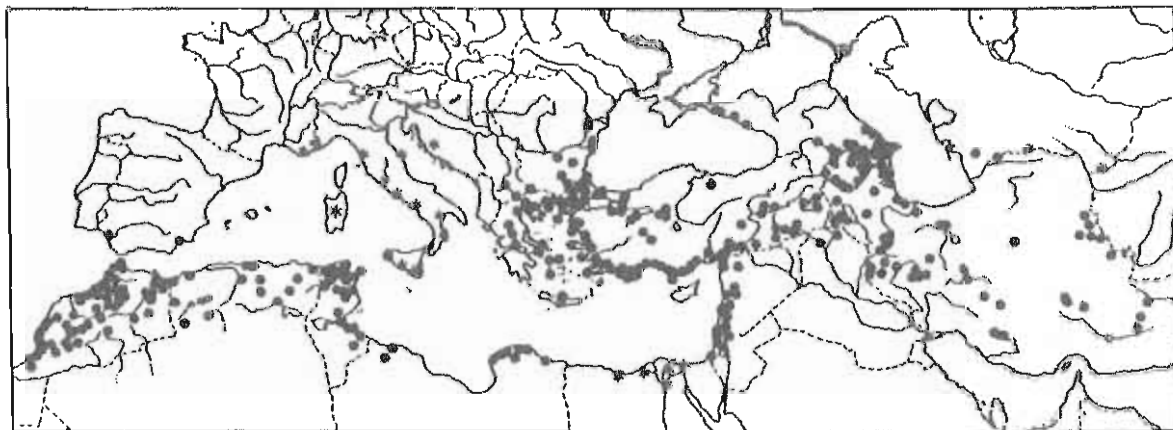
*T. g. terrestris* Forsskål (1775: VIII, 12; includes *T. g. floweri* Bodenheimer, 1935:197, according to most authors) Middle Eastern spur-thighed tortoise [Holotype: apparently lost (R. G. Webb, pers. comm.); type locality: not designated; restricted to "Libanon-Gebirge, Israel" by Wermuth (1958:152); range: Syria, Israel, and Sinai]

*T. g. zarudnyi* Nikolsky (1896:369) Iranian spur-thighed tortoise [Holotype: ZIL 8738; type locality: not stated, but listed as "Habitat in montibus provinciae Birdschan in Persia" by Nikolsky (1897:307) and restricted to "Berge in der Provinz Birdschan, Ost-Persien" [Iran], by Mertens (1946:113); range: eastern and southern Iran]

**Comment:** Subgenus *Testudo*. Reviewed by Loveridge and Williams (1957), Wermuth (1958), Groombridge (1982), Lambert (1983), Bour (1986b), Stubbs (in Swingland and Klemens, 1989), and Heimann (1990). Highfield and Martin (1989a and b) and Highfield (1990) believe that the currently recognized subspecies *zarudnyi*, *ibera*, and *terrestris* should be elevated to full species; that an Algerian population of *graeca* represents the full species *Testudo whitei* Bennett (in White, 1836:361; but in the new genus *Furculachelys*); and that two Tunisian populations of *graeca* deserve specific (and in one case generic) recognition (*Testudo flavonimmaralis* and *Furculachelys nabeulensis*). Because these authors apparently have relied primarily on color and body size differences, because they failed to realize the range of variation of many of their "diagnostic" characters within the genus *Testudo* (e.g., see Pritchard, 1990), because their papers were published privately (apparently without peer review), their proposed taxonomy is not followed here. Given the proliferation of new names being applied to isolated populations of *Testudo graeca*, it would seem prudent for someone to undertake a range-wide study of variation in that taxon, rather than erect a plethora of names, many of which will likely eventually have to be synonymized.

TESTUDINIDAE

*Testudo graeca* (continued)



## TESTUDINIDAE

*Testudo hermanni* Gmelin, 1789:1041  
Hermann's Tortoise

**Holotype:** MZUS 121 [figured in original description: Gmelin's figure and holotype photographed in Bour (1986b)]

**Type locality:** Not stated; restricted to "Collobrières, Massif des Maures, Var, France" by Bour (1986b:111)

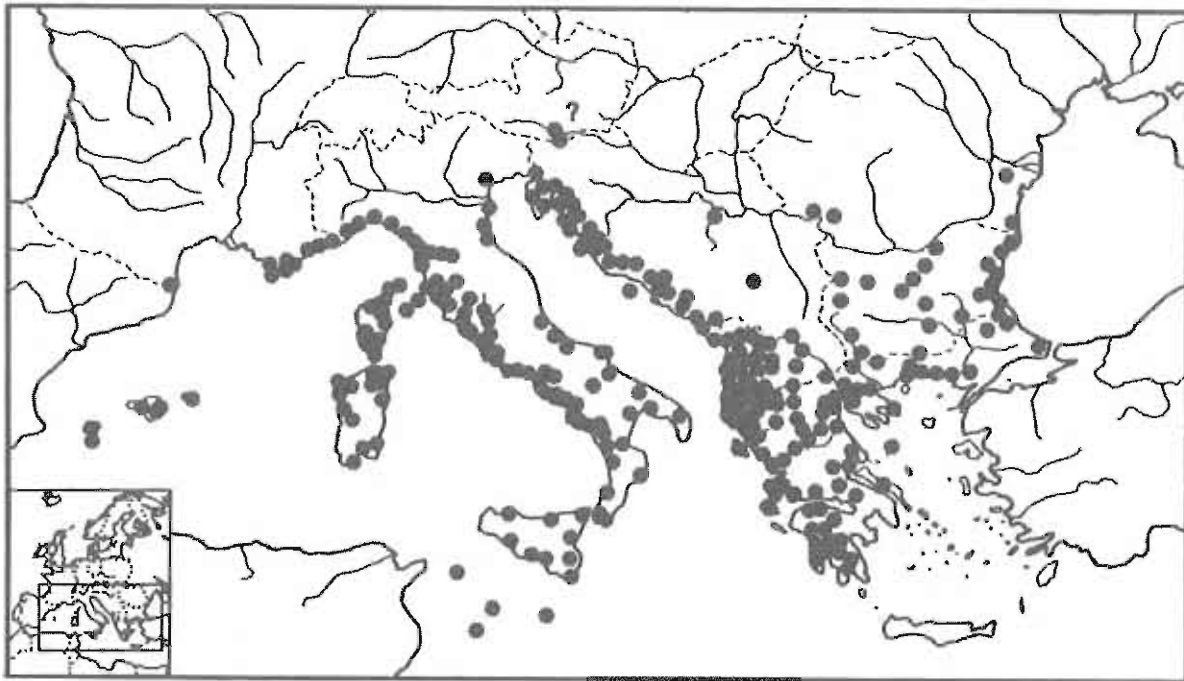
**Distribution:** Islas Baleares (Spain) and southern France eastward to European Turkey and Romania; Sardinia; Corsica

**Subspecies:** Two are recognized:

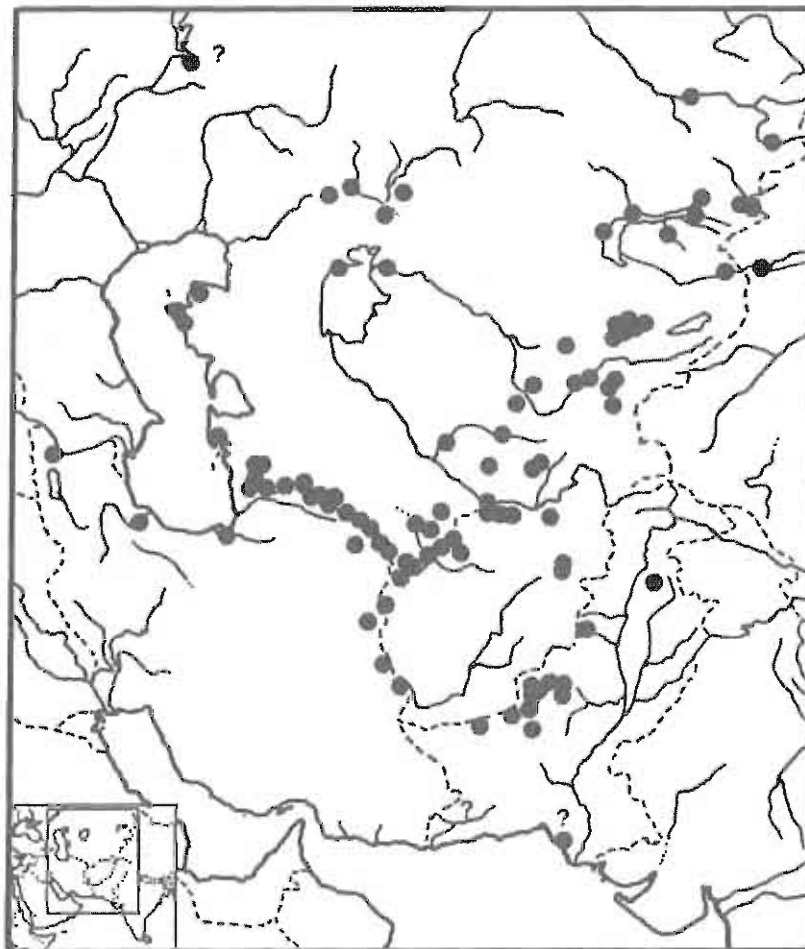
*T. h. hermanni* Gmelin (1789:1041; including *T. h. robertmertensi* Wermuth 1952:162, according to Bour 1986b) Western Hermann's tortoise [Holotype: see above; type locality: see above; range: Islas Baleares (Spain) and southern France to western Italy, Corsica, Sardinia]

*T. h. boettgeri* Mojsisovics (1889:242) Eastern Hermann's tortoise [Lectotype: SMF 7836, designated by Boettger (1893:11); type locality: "Orsova, Banat" [Romania] by Boettger (1893:11); range: western Turkey, Bulgaria, and Romania to Yugoslavia, Greece, Albania and southern Italy (including Sicily)]

**Comment:** Subgenus *Testudo*. Reviewed by Wermuth (1952), Street (1979), Cheylan (1981), Groombridge (1982), Bour (1986b), and Stubbs (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Testudo horsfieldii* Gray, 1844:7  
Central Asian Tortoise**Original name:** *Testudo Horsfieldii***Holotype:** BMNH 1947.3.4.3**Type locality:** "India, Affghanistan [sic]"; specifically "Kabul", according to Gray (1844:iv)**Distribution:** From the region of the Caspian Sea, eastward through Kazakhstan (USSR) to western Xinjiang, China (PRC), and southward to Iran, Afghanistan, and Pakistan**Subspecies:** Two are recognized:*T. h. horsfieldii* Gray (1844:7) Central Asian tortoise [Holotype: see above; type locality: see above; range: Iran, Afghanistan, and Pakistan to western Xinjiang, China (PRC)]*T. h. kazakhstanica* (Chkhikvadze, 1988:110) Kazakhstan tortoise [Holotype: Georgia Acad. Sci. Institute of Palcobiology (Tbilisi) 13.4.1; type locality: "Southern Pribalhashic, village of Karatal [translated from the Russian]", Kazakhstan, USSR; range: Kazakhstan and Turkmeniya, USSR]*T. h. rustamovi* (Chkhikvadze, Amiranashvili, and Ataev, 1990:72) Kopet-Dag tortoise [Holotype: Georgia Acad. Sci. Institute of Paleontology (Tbilisi) 13.4.88; type locality: "Madau village (Kizyl-Atrek region), southwestern Turkmenistan", USSR [translated from the Russian]; range: Kopet-Dag mountain region of southwest Turkmeniya, USSR]**Comment:** Subgenus *Agrionemys*. Reviewed by Smith (1931), Nikolsky (1915), Stubbs (in Swingland and Klemens, 1989), and Das (1991). The fact that this species hybridized with *T. hermanni* in captivity (Kirsche, 1984) suggests that the subgenera of Loveridge and Williams (1957) are invalid (see also Crumly, 1988, and Bour, 1988c).

## TESTUDINIDAE

*Testudo kleinmanni* Lortet, 1883:188  
Egyptian Tortoise

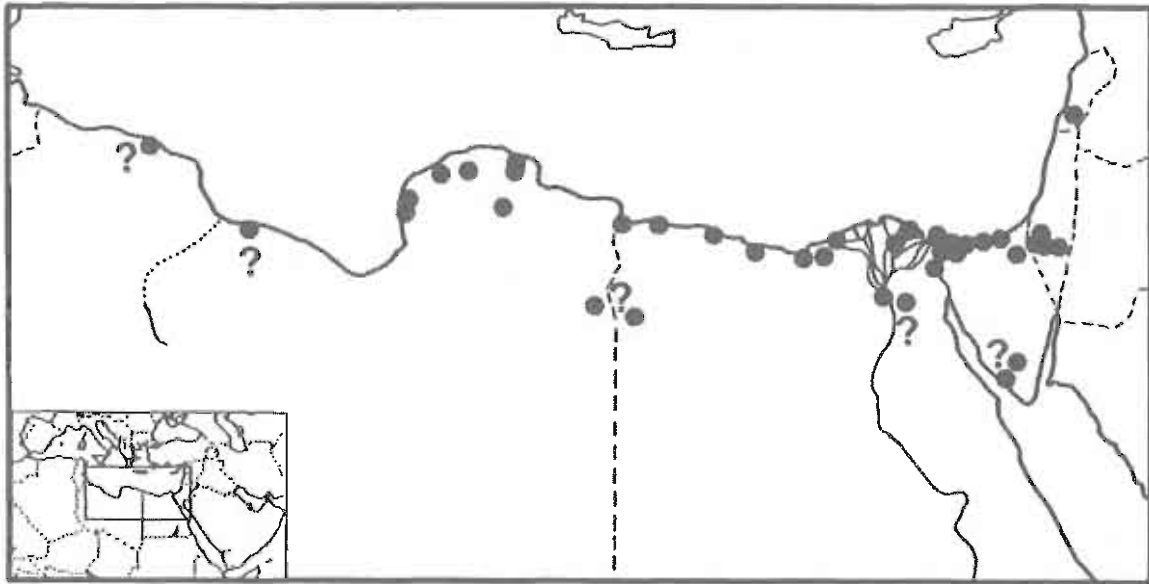
**Syntypes:** (number uncertain) includes at least MNHN 9839, USNM 10979, and SMF 7810; SMF 7810 designated lectotype by Mertens (1967:52)

**Type locality:** "dans les sables de la basse Égypte, surtout dans les environs d'Alexandrie" [Egypt]

**Distribution:** north Africa from Libya to southern Israel

**Subspecies:** None

**Comment:** Subgenus *Pseudotestudo*, although Bour (1988c:18) presents evidence that this subgenus is not diagnosable. Reviewed by Loveridge and Williams (1957), Groombridge (1982), Buskirk (1985), and Stubbs (in Swingland and Klemens, 1989).



## TESTUDINIDAE

*Testudo marginata* Schoepff, 1792:52  
Marginated Tortoise

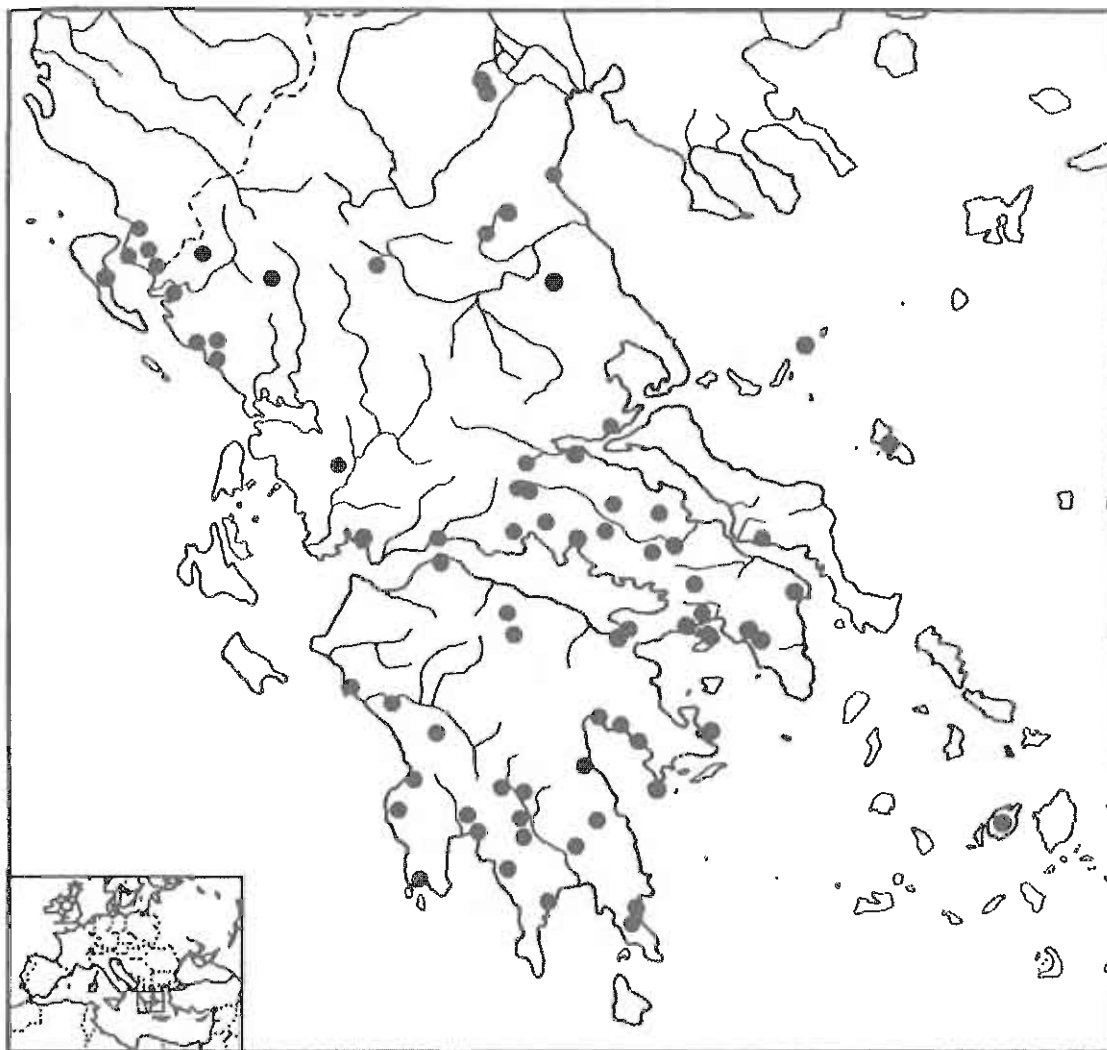
**Syntypes:** (3 specimens) MZUS 143 designated lectotype and figured by Bour (1986b:118, 120), and figured in original description

**Type locality:** Not stated; designated as "Greece, probably province of Attica, Stereá Eláda" by Bour (1986b:111)

**Distribution:** Greece and extreme southern Albania; introduced on Sardinia and in Tuscany, Italy.

**Subspecies:** None described, although Bour and Weissinger (pers. comm.) believe that a distinct subspecies may exist in southern Pelopónnisos

**Comment:** Subgenus *Testudo*. Reviewed by Kock and Storch (1979), Bour (1986b), and Stubbs (in Swingland and Klemens, 1989).





## TRIONYCHIDAE

Family **Trionychidae** Fitzinger, 1826:5  
Softshell Turtles

**Original name:** Trionychoidea

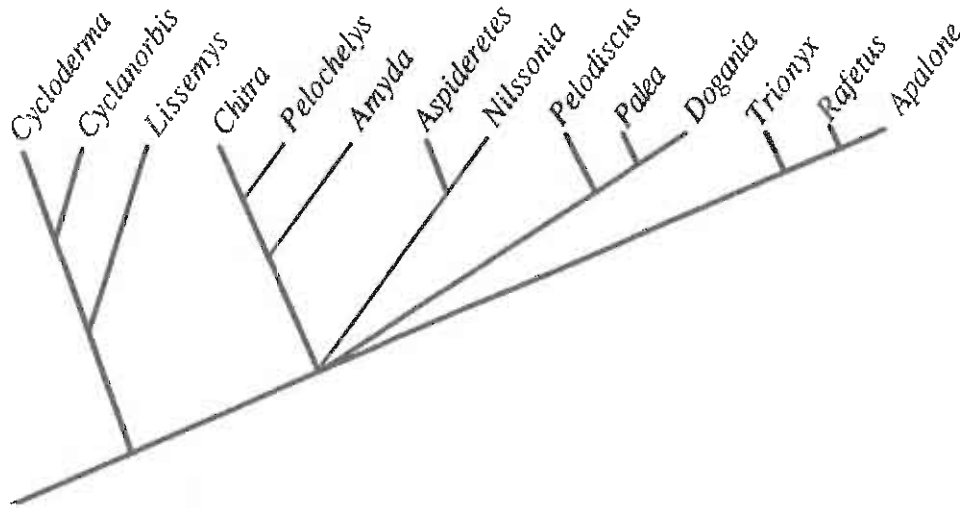
**Distribution:** North America, Africa, southern and eastern Asia, and the East Indies to New Guinea

**Comment:** Smith and Smith (1979) discuss the taxonomic history of the group. Loveridge and Williams (1957) reviewed the African species; and Webb (1962) reviewed the North American species. Meylan (1984, 1987) reviewed the taxonomy and phylogeny of the entire family, resurrecting many older generic names (especially from the synonymy of the genus *Trionyx*); his classification is followed here despite the disagreement by Kizirian and Webb (1990) and Webb (1990b). Karyotype variation is discussed in Bickham et al. (1983). See also Comment under Carettochelyidae.

**Key to the subfamilies:**

- 1a. Plastron with flexible flaps protecting the hind limbs.....Cyclanorbinae (p. 292)  
1b. Plastron without flexible flaps protecting the hind limbs.....Trionychinae (p. 299)

**Phylogenetic hypothesis:** (after Meylan, 1987, and Gaffney and Meylan, 1988)



Subfamily **Cyclanorbinae** Lydekker, 1889:x  
Flapshell Softshell Turtles

**Distribution:** Africa and Pakistan to India and Burma

**Comment:** Reviewed by Meylan (1987). Phylogenetic relationships of fossil and living taxa are discussed by Meylan et al. (1990).

**Key to the genera:** (after Meylan, pers. comm.)

- 1a. Ossifications present in periphery of carapace; Pakistan to Burma.....*Lissemys* (p.297)  
1b. No ossifications present in periphery of carapace; Africa.....2  
2a. Dermal callosities absent from epiplastra and entoplastron, and very small or absent from xiphiplastra.....*Cyclanorbis* (in part) (p. 293)  
2b. Dermal callosities on epiplastra, entoplastron, and xiphiplastra well developed.....3  
3a. Distinct and separate ossifications present anterior to nuchal and both epiplastra.....  
.....*Cyclanorbis* (in part) (p. 293)  
3b. No separate ossifications present anterior to nuchal or epiplastra.....*Cycloderma* (p. 295)

## TRIONYCHIDAE

*Cyclanorbis* Gray, 1852:135  
Sub-saharan Flapshell Turtles

**Type species:** *Cyclanorbis petersii* Gray (1852) [= *Cryptopus senegalensis* Duméril and Bibron (1835)],  
by monotypy

**Distribution:** central Africa

**Comment:** Genus and species discussed by Loveridge and Williams (1957) and Meylan (1987).

**Key to the species:** (after Meylan, pers comm.)

- 1a. Dermal callosities absent from epiplastra and entoplastron and very small or absent from xiphiplastra.....*Cyclanorbis elegans* (p. 293)  
1b. Dermal callosities on epiplastra, entoplastron, and xiphiplastra well developed.....*Cyclanorbis senegalensis* (p. 294)

*Cyclanorbis elegans* (Gray, 1869a:222)  
Nubian Flapshell Turtle

**Original name:** *Baikiea elegans*

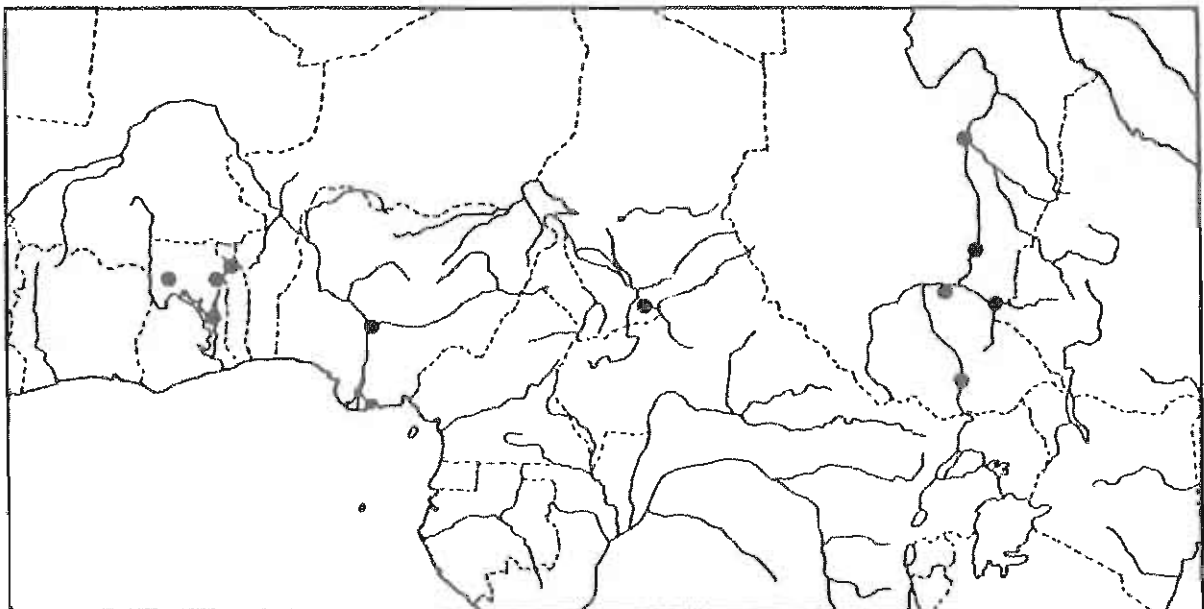
**Syntypes:** (5 specimens) BMNH 1946.1.22.15 and 1947.3.6.26-29; BMNH 1946.1.22.15 designated lectotype by Webb (1975:348)

**Type locality:** "Africa"; restricted to "Niger River drainage in West Africa" by Webb (1975:349)

**Distribution:** Ghana to Sudan

**Subspecies:** None

**Comment:** Reviewed by Loveridge and Williams (1957) and Meylan (1987).



## TRIONYCHIDAE

*Cyclanorbis senegalensis* (Duméril and Bibron, 1835:504)  
Senegal Flapshell Turtle

**Original name:** *Cryptopus Senegalensis*

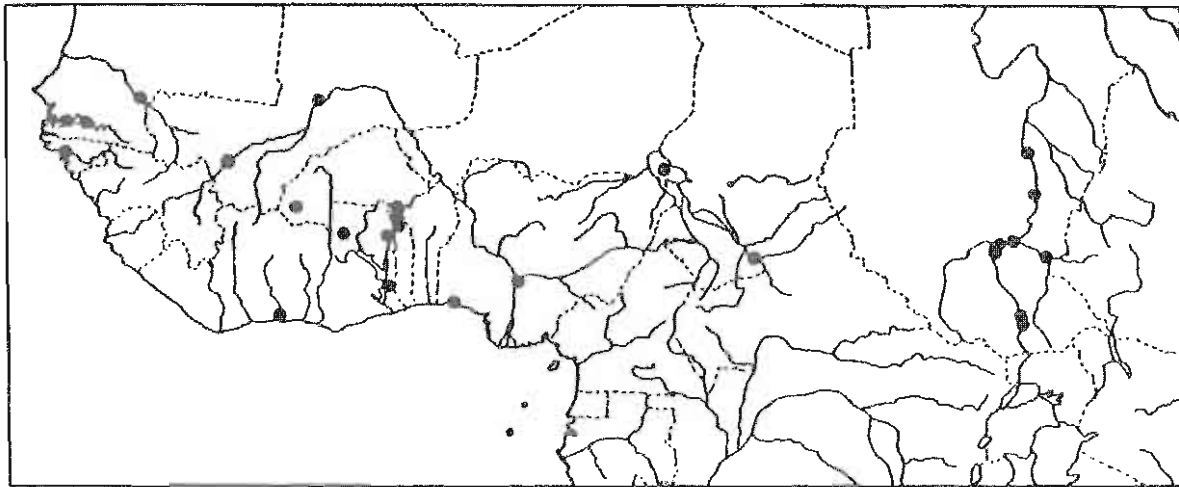
**Holotype:** MNHN 4151

**Type locality:** "Sénégal"

**Distribution:** Senegal to Cameroon to Sudan

**Subspecies:** None

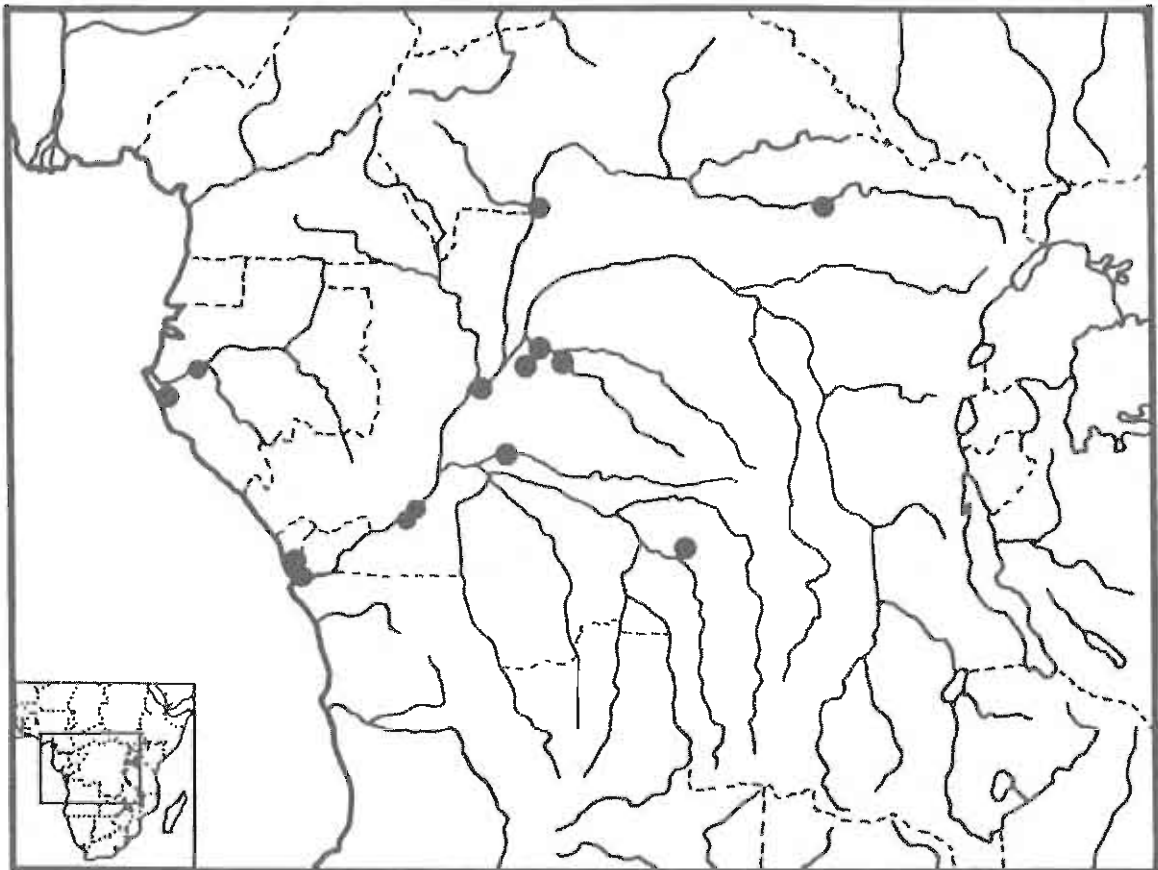
**Comment:** Reviewed by Loveridge and Williams (1957) and Meylan (1987).



## TRIONYCHIDAE

*Cycloderma* Peters, 1854:216  
Central African Flapshell Turtles**Type species:** *Cycloderma frenatum* Peters (1854), by monotypy**Distribution:** central to southeastern Africa**Comment:** Genus and species reviewed by Loveridge and Williams (1957) and Meylan (1987).**Key to the species:** (after Meylan, pers. comm.)

- 1a. Head and neck gray, brown or tan with at least one distinct black stripe; upper lip with marked angle; entoplastral callosity  $\geq$  epiplastral callosities.....*Cycloderma aubryi* (p. 295)
- 1b. Head and neck greenish with black mottling or multiple stripes; entoplastral callosity very small,  $\leq$  one-eighth of epiplastral callosity.....*Cycloderma frenatum* (p. 296)

*Cycloderma aubryi* (Duméril, 1856:374)  
Aubry's Flapshell Turtle**Original name:** *Cryptopus* [lapsus for *Cryptopus*] *Aubryi***Holotype:** MNHN 8006**Type locality:** "Gabon"**Distribution:** Central African Republic, Gabon, Cabinda, Rep. Congo, and Zaire**Subspecies:** None**Comment:** Reviewed by Loveridge and Williams (1957) and Meylan (1987).

## TRIONYCHIDAE

*Cycloderma frenatum* Peters, 1854:216  
Zambezi Flapshell Turtle

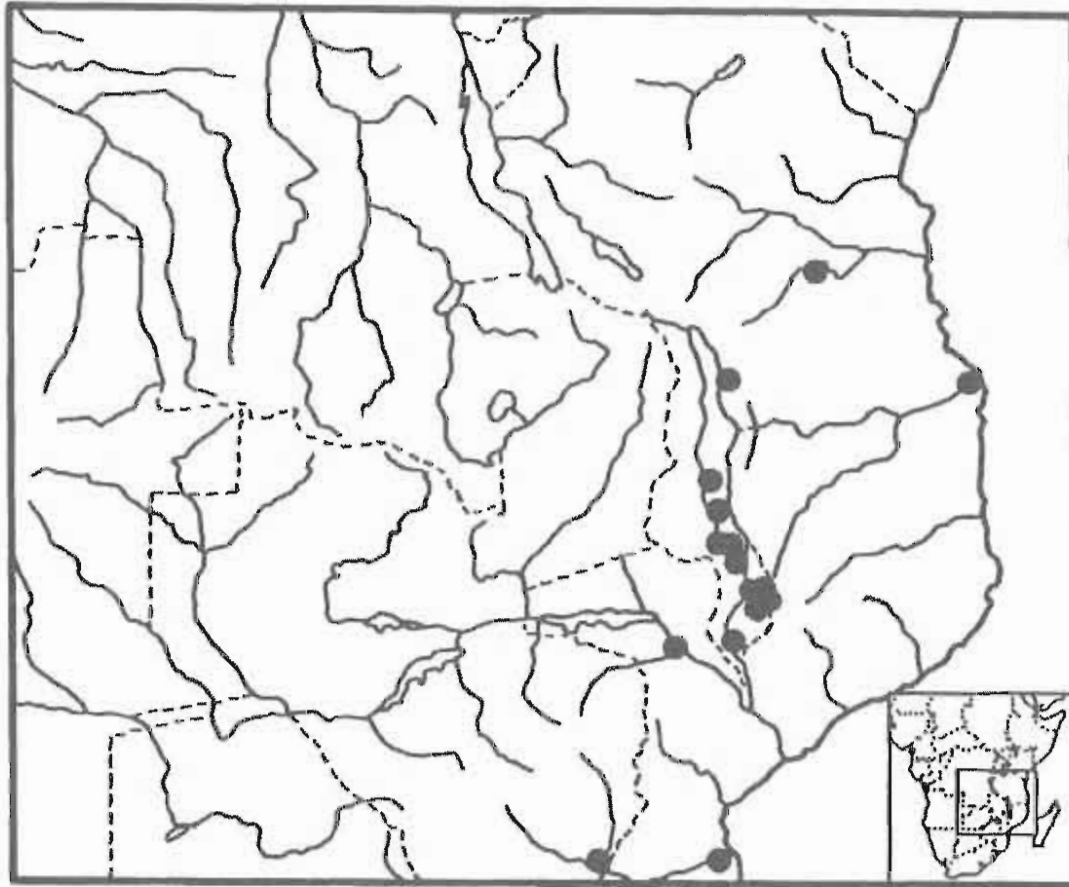
**Syntypes:** (6 specimens) ZMB 47, 49, 50, 4815, 8243, 8432

**Type locality:** "im fluminibus Zambeze et Licuare ... Tette et Sena..., in terra Boror" [Zambesi River, Mozambique]

**Distribution:** Rufiji river basin in Tanzania to the Save river basin in Mozambique and southeastern Zimbabwe

**Subspecies:** None

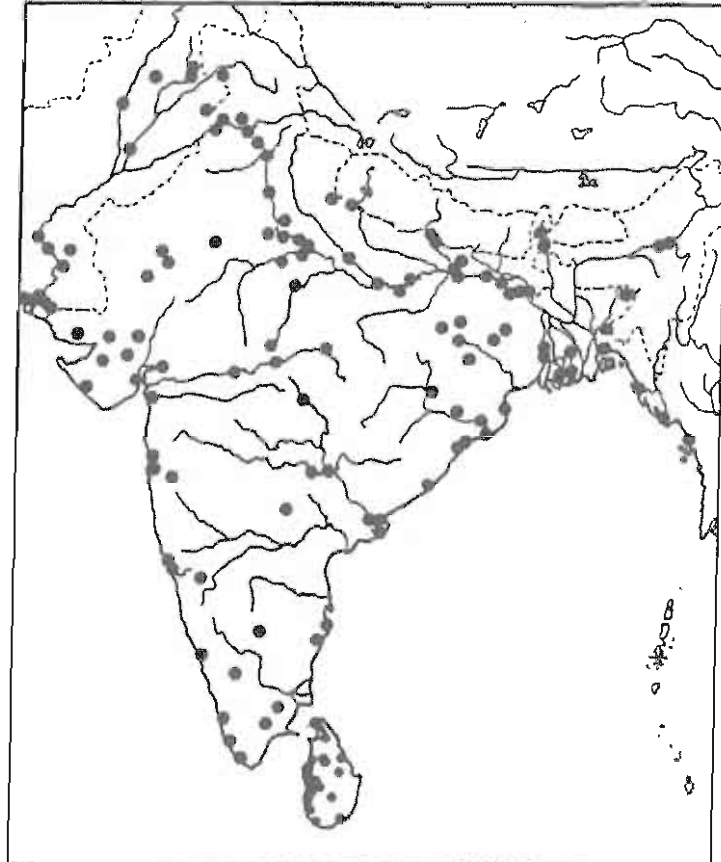
**Comment:** Reviewed by Lovridge and Williams (1957) and Meylan (1987).



## TRIONYCHIDAE

*Lissemys* Smith, 1931:154  
Indian Flapshell Turtles**Type species:** *T[estudo]. punctata* Lacepède (1788), by monotypy**Distribution:** Pakistan through India to Sri Lanka and Burma**Comment:** *Lissemys* is a replacement name for *Emyda* Gray (1831a:19), which is preoccupied by *Emyda* Rafinesque (1815), and *Cryptopus* Duméril and Bibron (1835:499), which is preoccupied by *Cryptopus* Latreille (1829). Reviewed by Smith (1931) and Meylan (1987).**Key to species:**

- 1a. Plastral callosities not well-developed at plastral lengths less than 200 mm; maximum carapace length 285 to 370 mm.....*L. punctata* (p. 297)
- 1b. Plastral callosities well-developed at plastral lengths as small as 140 mm; maximum carapace length about 230 mm.....*L. scutata* (p. 298)

*Lissemys punctata* (Bonnaterre, 1789:30)  
Indian Flapshell Turtle**Original name:** *Testudo Punctata***Holotype:** MNHN 7978**Type locality:** "des grandes Indes"; restricted by Webb (1980b:553) to "Pondicherry, Coromandel Coast, India"**Distribution:** Pakistan, India, Nepal, western Burma, Sri Lanka, and Bangladesh; introduced in the Andaman Islands (Das, 1991)**Subspecies:** Two are recognized:*L. p. punctata* (Bonnaterre 1789:30; includes *Testudo granosa* Schoepff, 1801:127) Indian flapshell turtle [Holotype: see above; type locality: see above; range: central and peninsular India and Sri Lanka]*L. p. andersoni* Webb (1980b:554) Indo-Gangetic flapshell turtle [Holotype: MNHN 1977-1486; type locality: "Belbari, Terai, southeastern Nepal, elevation 210 m"; range: Pakistan to northern India, Nepal, and Bangladesh to western Burma]**Comment:** Originally described by Lacepède (1788:171), but that work was made unavailable by ICZN Opinion 1463 (1987). Reviewed by Webb (1980b and 1982), Tikader and Sharma (1985), Meylan (1987), and Das (1991).

## TRIONYCHIDAE

*Lissemys scutata* (Peters, 1868:449)  
Burmese Flapshell Turtle

**Original name:** *Emyda scutata*

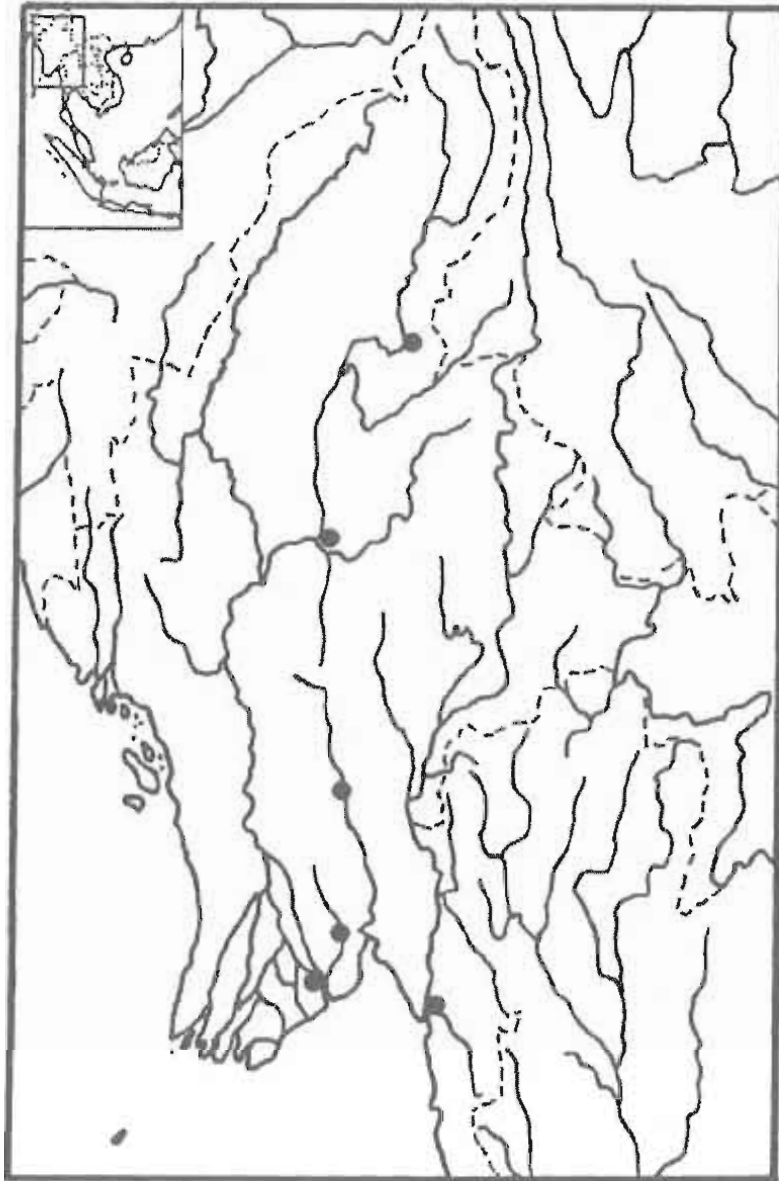
**Holotype:** ZMB 6029

**Type locality:** "Pegú" [Burma]

**Distribution:** Irawaddy-Salween river basin of Burma

**Subspecies:** None

**Comment:** Removed from the synonymy of *Lissemys punctata* by Webb (1982), but again synonymized by Meylan (1987), although recognized as a full species by most recent authors, (e.g., King and Burke, 1989; Ernst and Barbour, 1989). Retained here because of lack of consensus. Reviewed by Bourret (1941; as *Lissemys punctata scutata*).



## TRIONYCHIDAE

Subfamily *Trionychinae* Lydekker, 1889:4  
Common Softshell Turtles

**Distribution:** As for the family, except for extreme southern India and Sri Lanka

**Comment:** Reviewed by Smith and Smith (1979) and Meylan (1987). Generic names follow Meylan (1987) despite the disagreement of Kizirian and Webb (1990) and Webb (1990b).

**Key to the species** (adults only): (after Meylan, pers. comm)

- 1a. Dermal callosities absent from some plastral elements.....2
- 1b. Seven dermal callosities on plastron (that covering the hyo- and hypoplastron on each side considered a single callosity); that is, all nine bones of the plastron have some textured callosity on them.....9
- 2a. Dermal callosity present on entoplastron; five total plastral callosities present.....3
- 2b. Dermal callosity absent from entoplastron; plastral callosities either two or four in number...5
- 3a. One neural visible between first pair of costal bones.....4
- 3b. Two neurals visible between first pair of costal bones.....*Aspideretes* sp. (p. 306)
- 4a. Anterior extension of each epiplastron extremely long, as long or longer than length of contact between epiplastron and entoplastron .....*Amyda cartilaginea* (p. 300)
- 4b. Anterior extension of each epiplastron relatively short, shorter than length of contact between epiplastron and entoplastron .....*Apalone* (in part) (p. 301)
- 5a. Dermal callosities present on xiphisplastra.....6
- 5b. Dermal callosities absent from xiphisplastra.....*Rafetus* sp. (p. 316)
- 6a. Eighth costals very small or absent.....*Apalone* (in part) (p. 301)
- 6b. Eighth costals only slightly smaller than seventh.....7
- 7a. Neural bone series separates all costals; ornamentation of carapacial, and especially plastral callosities, very weakly developed.....*Dogania subplana* (p. 311)
- 7b. Posterior-most costals meet on midline.....8
- 8a. Large wattles of flesh on either side of neck.....*Palea steindachneri* (p. 313)
- 8b. Sides of neck without large wattles.....10
- 9a. Eighth costals very small or absent.....*Apalone* (in part) (p. 301)
- 9b. Eighth costals only slightly smaller than seventh.....*Pelodiscus sinensis* (p. 315)
- 10a. Snout short, shorter than the diameter of orbit.....*Pelochelys bibroni* (p. 314)
- 10b. Snout long, equal to or longer than greatest width of orbit.....11
- 11a. Skull long and narrow with eyes far forward; postorbital bar twice as wide as orbit.....*Chitra indica* (p. 310)
- 11b. Skull not especially long and narrow; postorbital bar narrower than orbit.....12
- 12a. Carapacial pattern includes ocelli or remnants of ocelli; maximum size bony disc, 274 mm...*Nilssonina formosa* (p. 312)
- 12b. Carapacial pattern includes single, small, yellow spots; maximum size bony disc, 410 mm...*Trionyx triunguis* (p. 318)

**Phylogenetic hypothesis:** See Trionychidae account.



## TRIONYCHIDAE

*Amyda* Geoffrey Saint-Hilaire, 1809a:15  
Asiatic Softshell Turtles

**Type species:** *Testudo cartilaginea* Boddaert (1770), by monotypy

**Distribution:** As for the single species

**Comment:** Removed from the synonymy of *Trionyx* by Meylan (1987).

*Amyda cartilaginea* (Boddaert, 1770:no pagination)  
Asiatic Softshell Turtle

**Original name:** *Testudo cartilaginea*

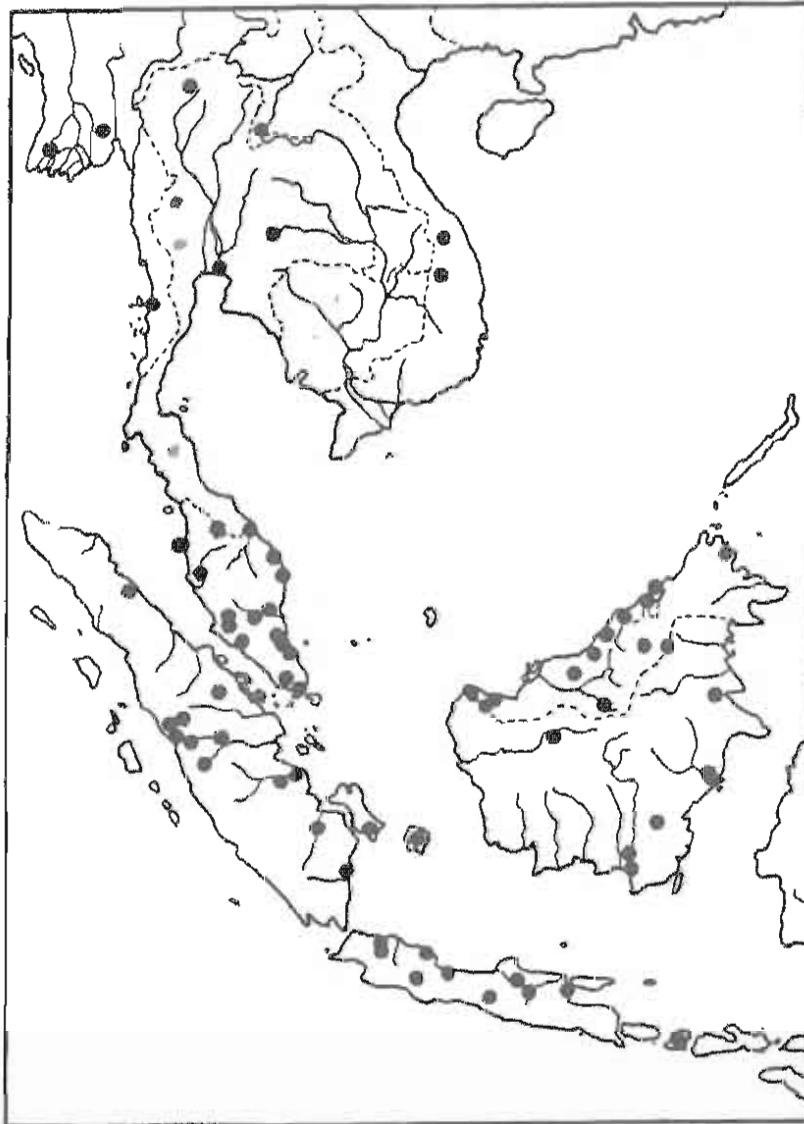
**Holotype:** Not designated; MNHN 4150 according to R. Bour (pers. comm. to R. G. Webb)

**Type locality:** Not stated; designated as "Java" by Baur (1893b:220)

**Distribution:** southern Burma to Vietnam and south to Sumatra, Kalimantan (Borneo) and Java, Indonesia

**Subspecies:** None

**Comment:** Includes *Trionyx nakornsrihammarajensis* Wirot (1979:209) according to Meylan (1987:10).  
Reviewed by Smith (1931; as *Trionyx cartilagineus*), Bourret (1941; as *Trionyx cartilagineus*), and Taylor (1970; as *Trionyx cartilagineus*) and Meylan (1987).



## TRIONYCHIDAE

*Apalone* Rafinesque, 1832:64  
North American Softshell Turtles

**Type species:** *Apalone hudsonica* Rafinesque 1832 [= *Trionyx spiniferus* LeSueur (1827)], by monotypy

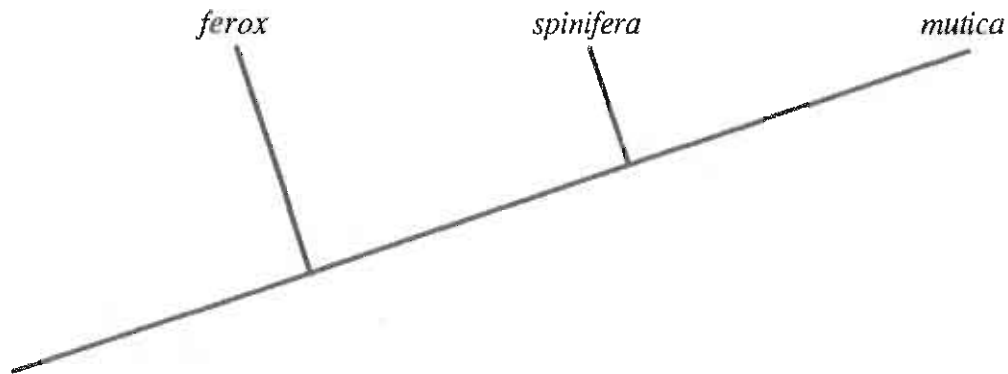
**Distribution:** North America

**Comment:** Removed from the synonymy of *Trionyx* by Meylan (1987). Reviewed by Smith and Smith (1979; as *Trionyx*). Subgenera (i.e., *Apalone* and *Platypeltis*) follow Meylan (1987:92).

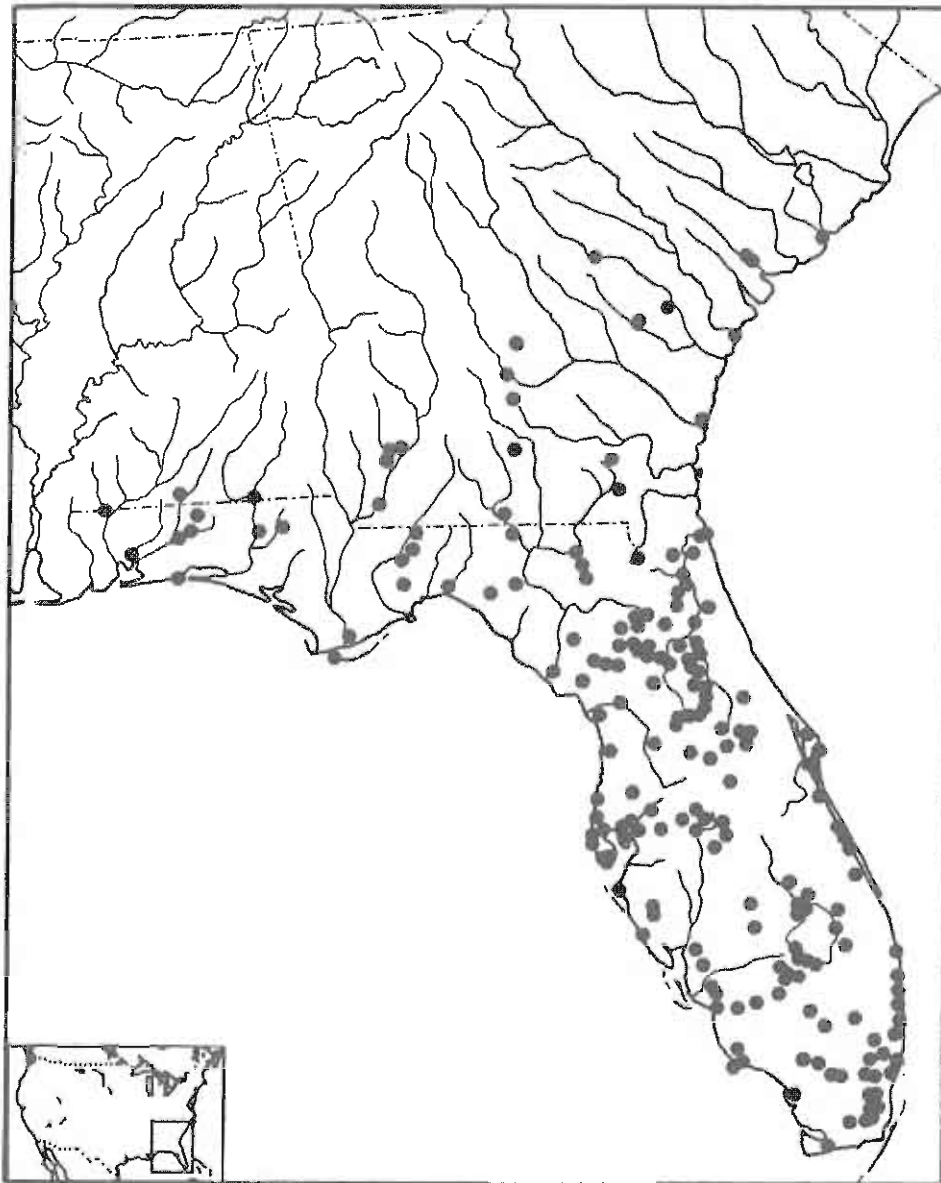
**Key to the species:**

- 1a. Nasal septum with lateral ridges projecting into nostrils; anterior margin of shell tuberculate... 2  
.....  
1b. Nasal septum without lateral ridges projecting into nostrils; anterior margin of shell smooth, not tuberculate ..... *A. mutica* (p. 303)  
2a. Tubercles on front of shell forming longitudinal rows; marginal ridge present; hyo- and hypo-plastra usually fused ..... *A. ferox* (p. 302)  
2b. Tubercles on front of shell scattered, not in rows; no marginal ridge present; hyo- and hypo-plastra not fused..... *A. spinifera* (p. 304)

**Phylogenetic hypothesis:** (after Meylan, 1987)



## TRIONYCHIDAE

*Apalone ferox* (Schneider, 1783:330)  
Florida Softshell Turtle**Original name:** *T[estudo]. ferox***Holotype:** BMNH 1947.3.6.17 (formerly 53A)**Type locality:** Not stated; "Savannah and Altamaha rivers and ... rivers in east Florida" [USA] according to Garden (1772:268-271); restricted to "Georgia" by Boulenger (1889:259); further restricted to "Savannah river, Ga." by Baur (1893b:220); unnecessarily restricted to "East Florida" by Neill (1951:17); restriction corrected to "Savannah River", Georgia by Schwartz (1956b:8)**Distribution:** southern South Carolina, southern Alabama and central Georgia to southern Florida, USA**Subspecies:** None**Comment:** Reviewed by Webb (1962, 1973b; as *Trionyx ferox*) and Meylan (1987). Subgenus *Platypeltis* according to Meylan (1987:92).

## TRIONYCHIDAE

*Apalone mutica* LeSueur, 1827:263  
Smooth Softshell Turtle

**Original name:** *Trionyx muticus*

**Syntypes:** (5 specimens) MNHN 564, 4143, 7977, 8813 (formerly 787), and 8814 (formerly 788); MNHN 8813 (formerly 787) designated lectotype by Webb (1962:534-536)

**Type locality:** "Newharmony, sur le Wabash" [= New Harmony, Wabash River, Posey County, Indiana, USA]

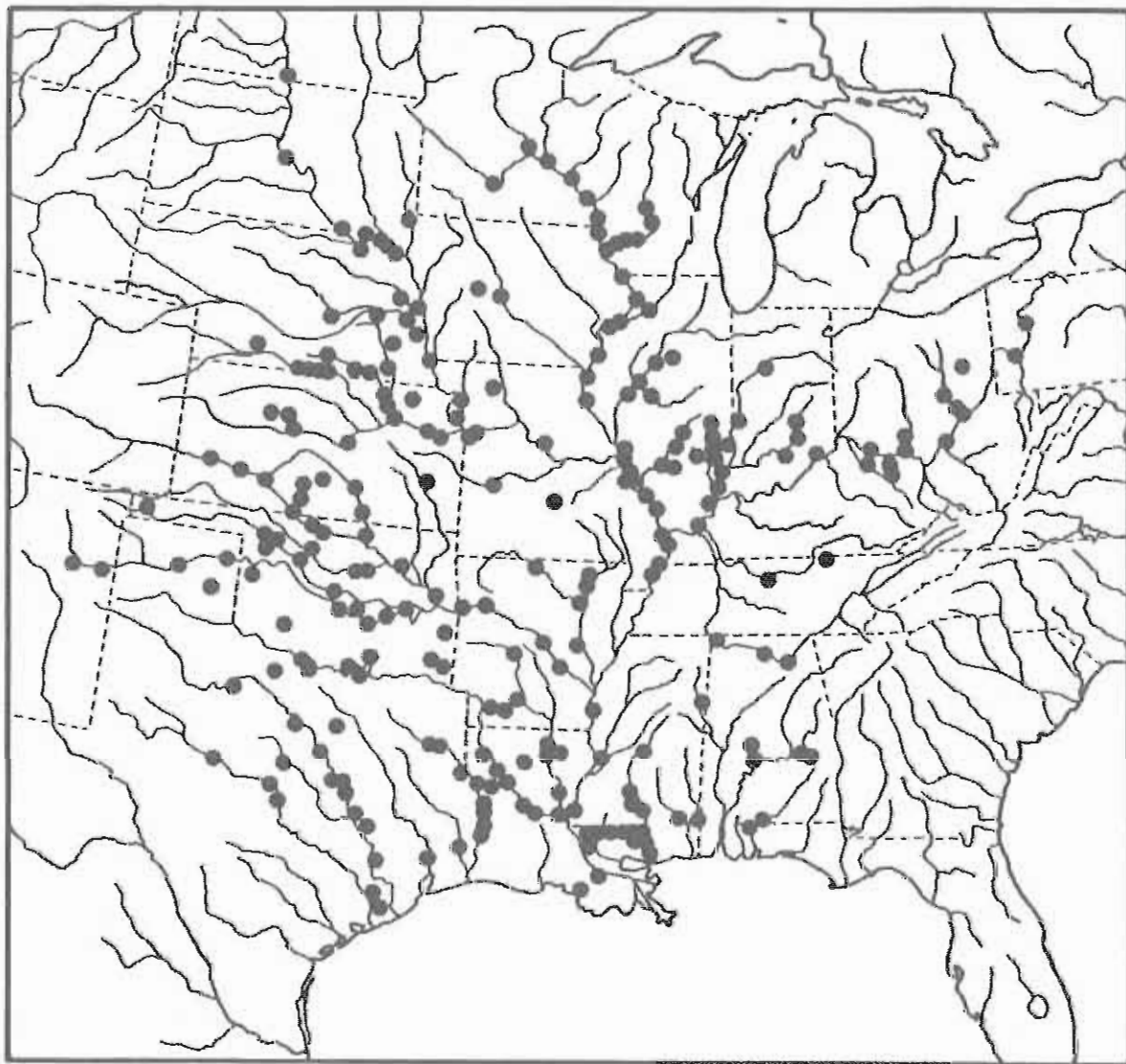
**Distribution:** central USA from southcentral North Dakota, southwestern Wisconsin and western Pennsylvania to east Texas and extreme western Florida

**Subspecies:** Two are recognized:

*A. m. mutica* LeSueur (1827:263) Midland smooth softshell turtle [Syntypes: see above; type locality: see above; range: as for the species, except in the Gulf coastal drainages of Alabama, Mississippi, northwest Florida, and eastern Louisiana, USA]

*A. m. calvata* Webb (1959:519) Gulf Coast smooth softshell turtle [Holotype: UIMNH 31071; type locality: "Pearl River, Roses Bluff, 14 miles northeast Jackson, Rankin County, Mississippi"; range: Gulf coastal basins of Alabama, Mississippi, northwest Florida, and extreme eastern Louisiana, USA]

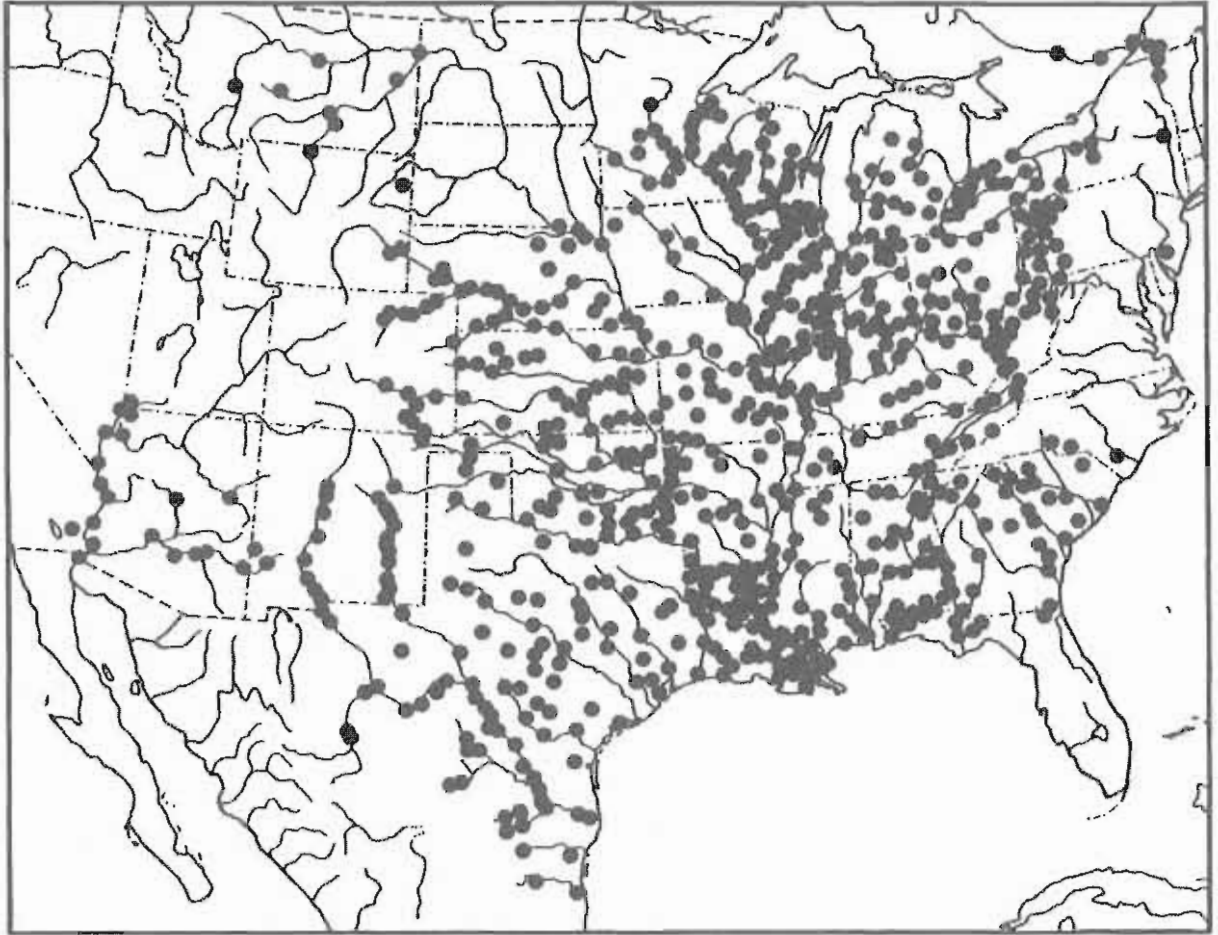
**Comment:** Reviewed by Webb (1962 and 1973c; as *Trionyx muticus*) and Meylan (1987). Subgenus *Apalone* according to Meylan (1987:92).



## TRIONYCHIDAE

*Apalone spinifera* (LeSueur, 1827:258)  
Spiny Softshell Turtle**Original name:** *Trionyx spiniferus***Syntypes:** (8 specimens) MNHN 1949, 6957, 8807-12; MNHN 8808 designated lectotype by Webb (1962:491); MNHN 1949 and 6957 may be syntypes of *Trionyx ocellatus* LeSueur (1827:261 [= *Trionyx spiniferus* LeSueur]) according to R. G. Webb**Type locality:** "Newharmony, sur le Wabash" [= New Harmony, Wabash River, Posey County, Indiana, USA]**Distribution:** southern Ontario and Quebec, Canada to north Florida, Montana and New Mexico, USA, and Chihuahua, Coahuila, Nuevo Leon, and Tamaulipas, Mexico; introduced into the Colorado and Gila river drainages of southwestern USA and adjacent Mexico and several localities along Pacific coast of California (Stebbins, 1985)**Subspecies:** Seven are recognized:*A. s. spinifera* (LeSueur, 1827:258) Eastern spiny softshell turtle [Syntypes: see above; type locality: see above; range: Wisconsin, lower Michigan, and southeastern Canada to northern Mississippi and northern Alabama, USA]*A. s. aspera* (Agassiz, 1857:405) Gulf Coast spiny softshell turtle [Lectotype: MCZ 1597, designated by Webb, 1960:7; type locality: not stated; restricted to "Lake Concordia, La.", Louisiana by Baur (1893b:220); restricted to "Pearl River at Columbus, Marion County, Mississippi" by Webb (1960:7); range: Mississippi to South Carolina and southern North Carolina, USA]*A. s. ater* (Webb and Legler, 1960:21) Black spiny softshell turtle [Holotype: KU 46903; type locality: "16 kilometers south of Cuatro Ciénegas, Coahuila"; range: Cuatro Ciénegas basin, Coahuila, Mexico]*A. s. emoryi* (Agassiz, 1857:407) Texas spiny softshell turtle [Lectotype: USNM 7855, designated by Webb (1962:514); type locality: "lower Rio Grande of Texas near Brownsville" [Cameron Co.]; range: Rio Grande basin in the USA and adjacent northeastern Mexico; introduced into southwestern USA]*A. s. guadalupensis* (Webb, 1962:517) Guadalupe spiny softshell turtle [Holotype: UMMZ 89926; type locality: "15 miles northeast Tilden, McMullen County, Texas"; range: central Texas, U.S.A.]*A. s. hartwegi* (Conant and Goin, 1948:1) Western spiny softshell turtle [Holotype: UMMZ 95365; type locality: "Wichita, Sedgwick County, Kansas"; range: Arkansas to Minnesota and west to northeastern New Mexico, eastern Colorado and Wyoming, and central Montana, USA]*A. s. pallida* (Webb, 1962:522) Pallid spiny softshell turtle [Holotype: TU 484; type locality: "Lake Caddo, Caddo Parish, Louisiana"; range: Louisiana to southern Oklahoma and northeastern Texas, USA]**Comment:** Synonymy includes *Trionyx ater* Webb and Legler (1960:21) according to Smith and Smith (1979). Reviewed by Webb (1973a; as *Trionyx ater*), Webb (1973d; as *Trionyx spiniferus*), Smith and Smith (1979; in Mexico, as *Trionyx spiniferus*), and Meylan (1987). Subgenus *Apalone* according to Meylan (1987:92).

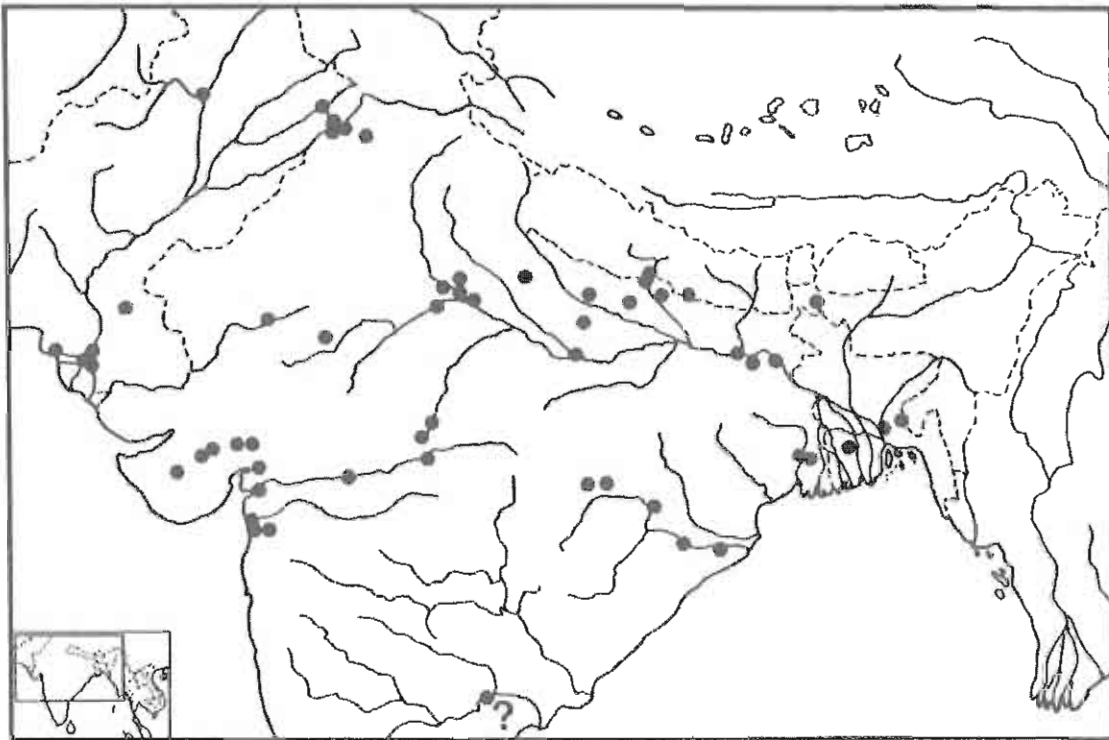
## TRIONYCHIDAE

*Apalone spinifera* (continued)

## TRIONYCHIDAE

*Aspideretes* Hay, 1904:274  
Indian Softshell Turtles**Type species:** *Trionyx gangeticus* Cuvier (1825), by original designation**Distribution:** India, Pakistan, Nepal, and Bangladesh.**Comment:** Removed from the synonymy of *Trionyx* by Meylan (1987).**Key to species:** (after Das, 1991)

- 1a. Anterior rim of shell knobby, with an obvious patch of wart-like prominences..... *A. leithii* (p. 308)  
 1b. Anterior rim of shell smooth, without wart-like prominences.....2  
 2a. Head with broad greenish, yellowish or orangish patch behind each eye.....*A. hurum* (p. 307)  
 2b. Head without broad, light-colored patch behind eye.....3  
 3a. Head green patterned with black lines.....*A. gangeticus* (p. 306)  
 3b. Head green (black in old individuals); upper lip pale.....*A. nigricans* (p. 309)

**Phylogenetic hypothesis:** The monophyly of this genus is debatable (Meylan, 1987), so no phylogeny is included here.*Aspideretes gangeticus* (Cuvier, 1825:186, 203)  
Indian Softshell Turtle**Original name:** *Trionyx gangeticus***Syntypes:** (4 specimens) MNHN 4148, 9387, 1887-838, A5226 (= 1866-751)**Type locality:** "Gange" [= Ganges River, India]**Distribution:** Indus and Ganges and Mahanadi river basins in Pakistan, northern India, southern Nepal, and Bangladesh**Subspecies:** None**Comment:** Reviewed by Smith (1931; as *Trionyx gangeticus*), Minton (1966; as *Trionyx gangeticus*), Tikader and Sharma (1985; as *Trionyx gangeticus*), Meylan (1987), and Das (1991).

## TRIONYCHIDAE

*Aspideretes hurum* (Gray, 1831a:18)  
Indian Peacock Softshell Turtle

**Original name:** *Trionyx hurum*

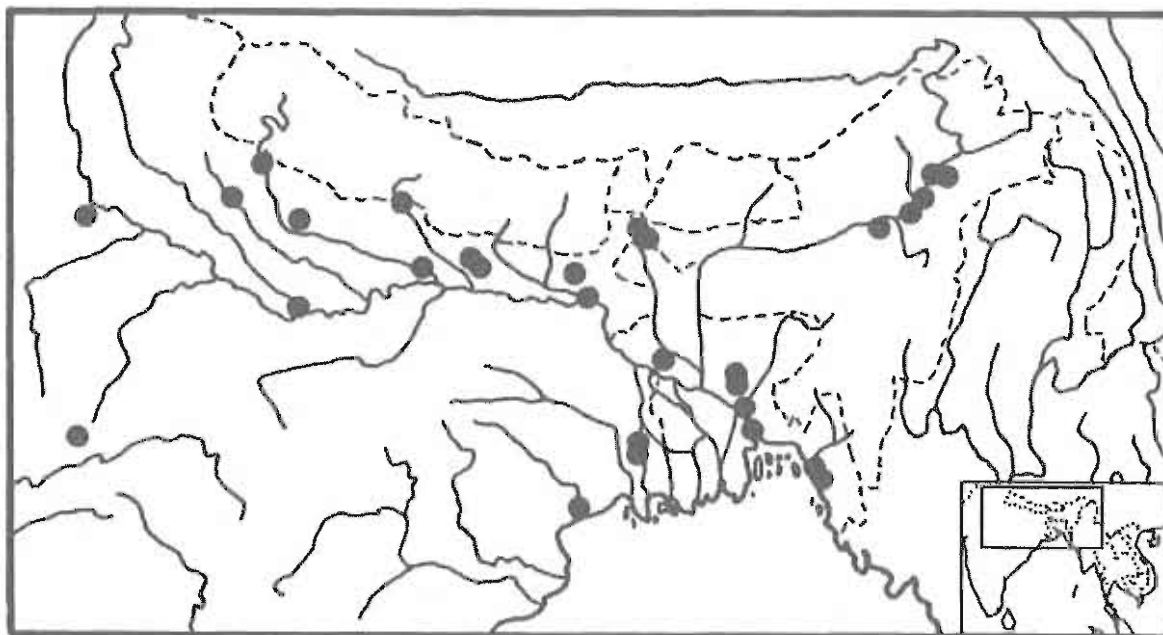
**Holotype:** Plate 66, Gray (1835; "1830-35").

**Type locality:** "India"; "Indiae fluvio Ganges" [India] according to Gray (1831b:47); restricted to "Fatchgarh, Ganges" [India] by Smith (1931:171); restricted by Webb (1980a:71) to "Barrackpore (about 23 kilometers north Calcutta), West Bengal, India"

**Distribution:** Ganges-Brahmaputra river basin in eastern India and Bangladesh; single specimen from the Indus basin in Pakistan (Mertens, 1979) needs confirmation

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Trionyx hurum*), Bourret (1941; as *Trionyx hurum*), Tikader and Sharma (1985; as *Trionyx hurum*), Meylan (1987), and Das (1991).





## TRIONYCHIDAE

*Aspideretes leithii* (Gray, 1872c:334)  
Leith's Softshell Turtle

**Original name:** *Trionyx Leithii*

**Syntypes:** (2 specimens) BMNH 1947.3.4.15 and 1947.3.6.7

**Type locality:** "Poonah" [India]

**Distribution:** peninsular India

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Trionyx leithii*), Tikader and Sharma (1985; as *Trionyx leithii*), Meylan (1987), and Das (1991).



## TRIONYCHIDAE

*Aspideretes nigricans* (Anderson, 1875:284).  
Black Softshell Turtle

**Original name:** *Trionyx nigricans*

**Syntypes:** (2 specimens) ZSI 664 and 1898

**Type locality:** "Tanks at Chittagong, Bengal" [Bangladesh]

**Distribution:** Known only from a single enclosed pond at the Islamic Saint Byazid Bastami Shrine at Nasirabad near Chittagong, Bangladesh.

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Trionyx nigricans*), Groombridge (1982; as *Trionyx nigricans*), Meylan (1987), Ahsan and Saced (1989), and Ahsan et al. (1991).



## TRIONYCHIDAE

*Chitra* Gray, 1844:49  
Narrow-headed Softshell Turtles

**Type species:** *Trionyx indicus* Gray (1831a,b), by monotypy

**Distribution:** As for the single species

**Comment:** Reviewed by Meylan (1987).

*Chitra indica* (Gray, 1831a:18)  
Narrow-headed Softshell Turtle

**Original name:** *Trionyx indicus*

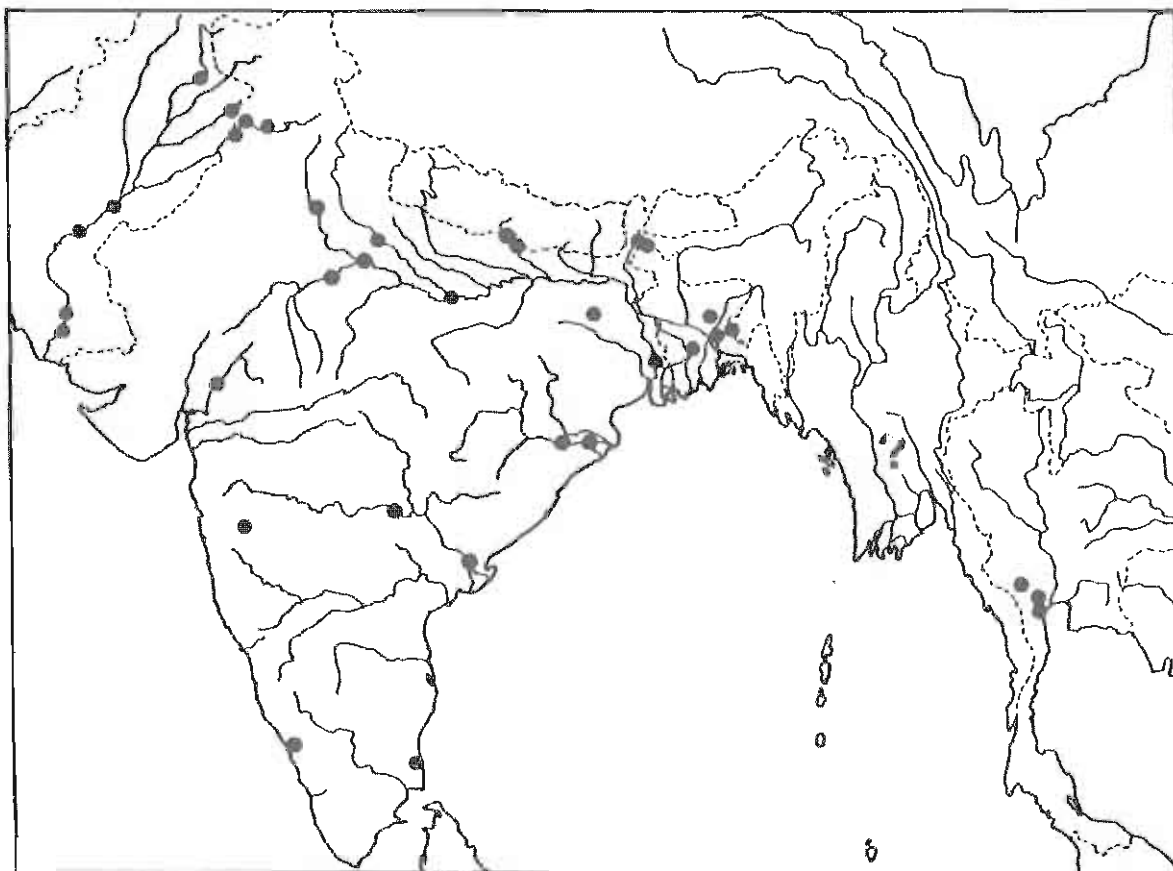
**Holotype:** Plate 80, Gray (1831; "1830-35").

**Type locality:** "India, fl. Ganges, Penang [Malaysia]" according to Gray (1831b:47); "Ganges" according to Gray (1831 "1830-35":Plate 80); restricted to "Fatehgarh, Ganges [India]" by Smith (1931:162); not restricted by Webb (1980a) to "Barrackpore (about 23 kilometers north Calcutta)" as stated by King and Burke (1989:110).

**Distribution:** Pakistan and India to Thailand

**Subspecies:** None

**Comment:** Reviewed by Smith (1931), Bourret (1941), Taylor (1970), Webb (1980a), Tikader and Sharma (1985), Meylan (1987), and Das (1991).



## TRIONYCHIDAE

*Dogania* Gray, 1844:49  
Malayan Softshell Turtles

**Type species:** *Trionyx subplanus* Geoffroy Saint-Hilaire (1809a), by monotypy

**Distribution:** As for the single species

**Comment:** Removed from the synonymy of *Trionyx* by Meylan (1987).

*Dogania subplana* (Geoffroy Saint-Hilaire, 1809a:11)  
Malayan Softshell Turtle

**Original name:** *Trionyx subplanus*

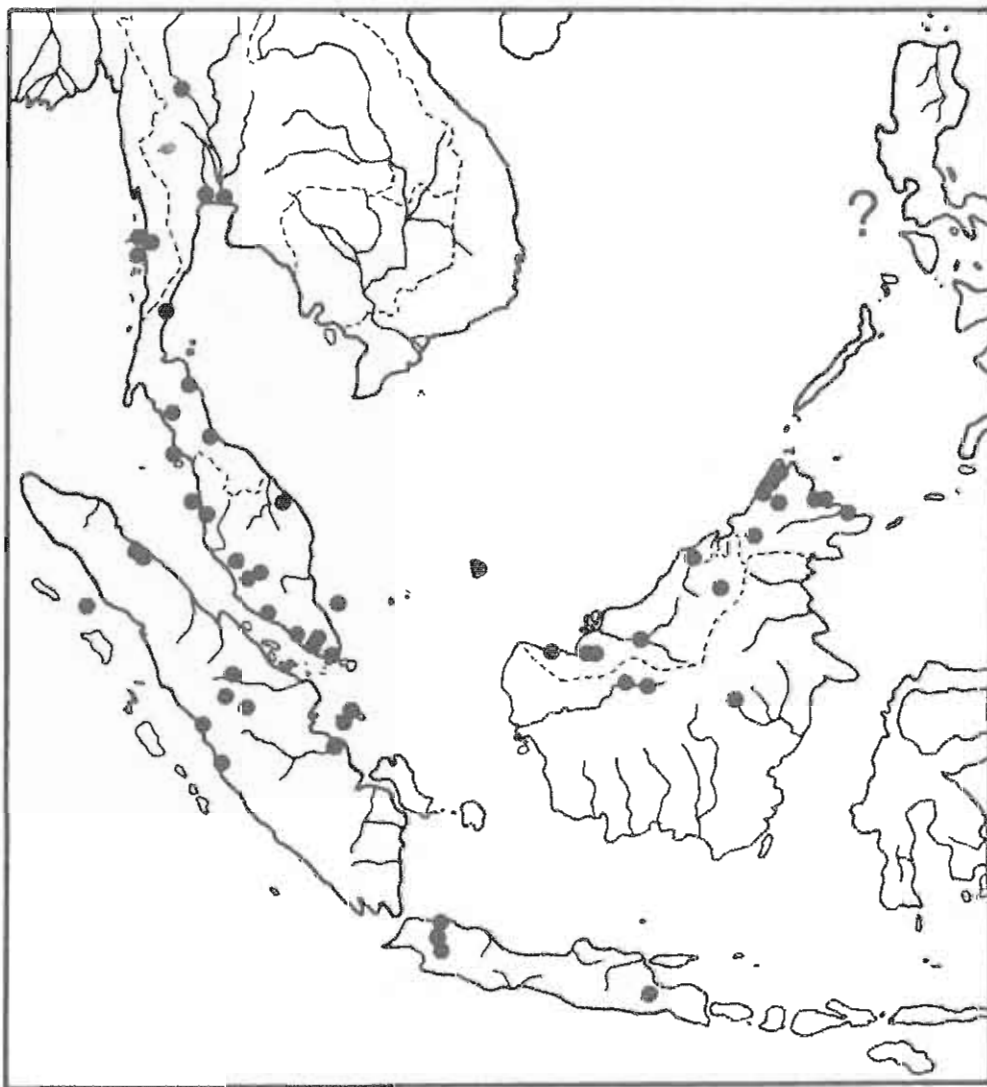
**Holotype:** MNHN 5182

**Type locality:** "Patric Inconnue"

**Distribution:** southern Burma south through Malaya, Sumatra, Borneo, and Java (Malaysia and Indonesia); the Philippines record (de Rooij, 1915) is considered questionable (Taylor, 1920)

**Subspecies:** None

**Comment:** Reviewed by Smith (1931), Bourret (1941), Taylor (1970) and Meylan (1987).



## TRIONYCHIDAE

*Nilssonia* Gray, 1872c:332  
Burmese Peacock Softshell Turtles

**Type species:** *Nilssonia formosus* Gray (1869a), by monotypy

**Distribution:** As for the single species.

**Comments:** Removed from the synonymy of *Trionyx* by Meylan (1987).

*Nilssonia formosa* (Gray, 1869a:217)  
Burmese Peacock Softshell Turtle

**Original name:** *Trionyx formosus*

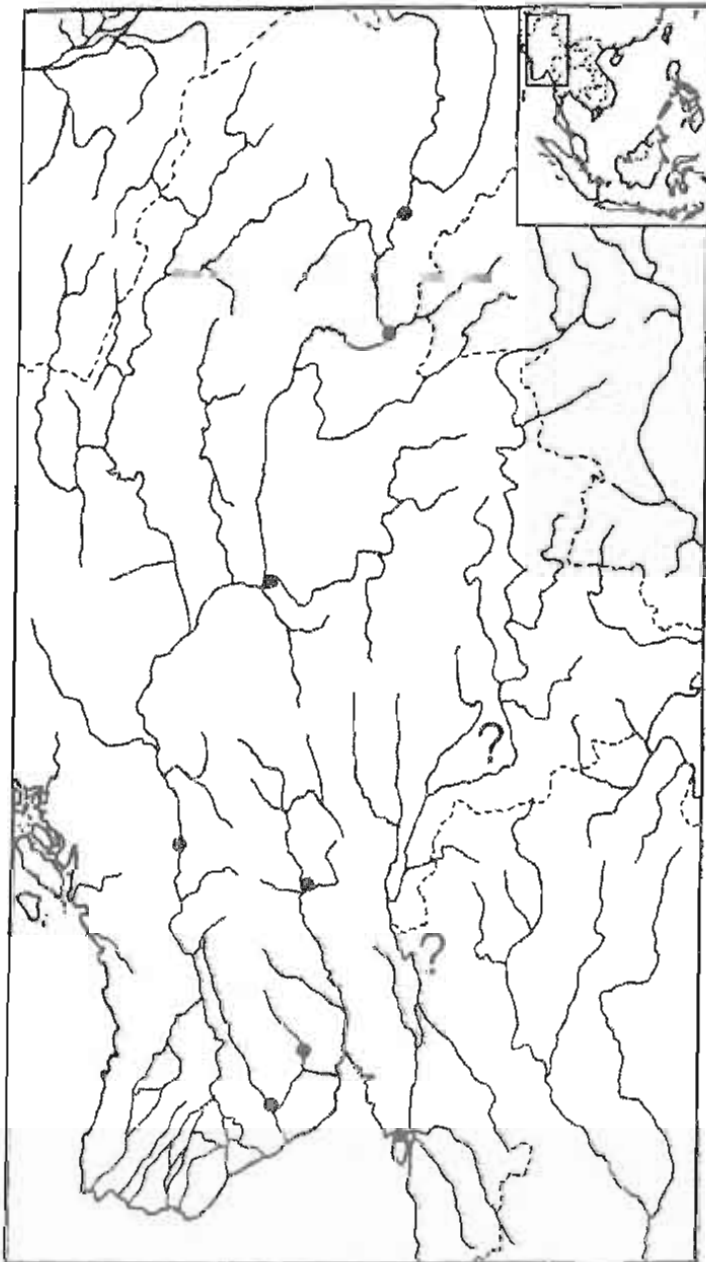
**Holotype:** BMNH 1946.1.22.11

**Type locality:** "Pegu" [Burma]

**Distribution:** Irawaddy-Salween river basin in Burma

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Trionyx formosus*), Bourret (1941; as *Trionyx formosus*), and Meylan (1987).



## TRIONYCHIDAE

*Palea* Meylan, 1987:77, 94  
Wattle-necked Softshell Turtles

**Type species:** *Trionyx steindachneri* Siebenrock (1906b), by original designation

**Distribution:** As for the single species

**Comment:** Removed from the synonymy of *Trionyx* by Meylan (1987).

*Palea steindachneri* (Siebenrock, 1906b:579)  
Wattle-necked Softshell Turtle

**Original name:** *Trionyx steindachneri*

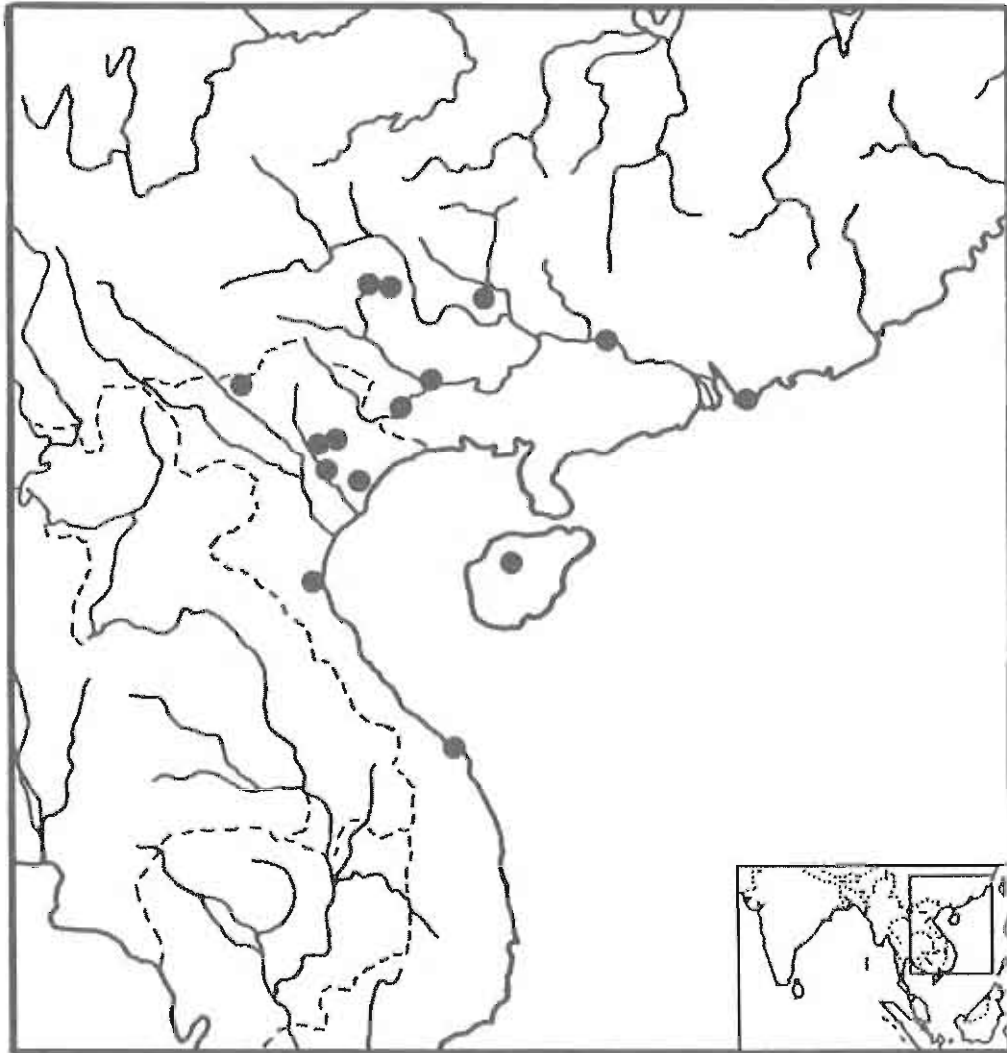
**Holotype:** NMW 20373

**Type locality:** "Kau-Kongriver" [Hainan Island, China (PRC)]

**Distribution:** southeastern China (including Hainan Island) [PRC] and Vietnam; introduced into Hawaii, USA (Webb, 1980c; McKeown and Webb, 1982:107) and Mauritius Island (Bour, 1985b:64)

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Trionyx steindachneri*), Pope (1935; as *Amyda steindachneri*), Bourret (1941; as *Trionyx steindachneri*), and Meylan (1987).



## TRIONYCHIDAE

*Pelochelys* Gray, 1864a:89  
Asian Giant Softshell Turtles

**Type species:** *Pelochelys cantorii* Gray (1864a) [= *Trionyx (Gymnopus) Bibroni* Owen (1853)], by subsequent designation of Günther (1864:108).

**Distribution:** As for the single species

**Comment:** Reviewed by Meylan (1987).

*Pelochelys bibroni* (Owen, 1853:185, 207)  
Asian Giant Softshell Turtle

**Original name:** *Trionyx (Gymnopus) Bibroni*

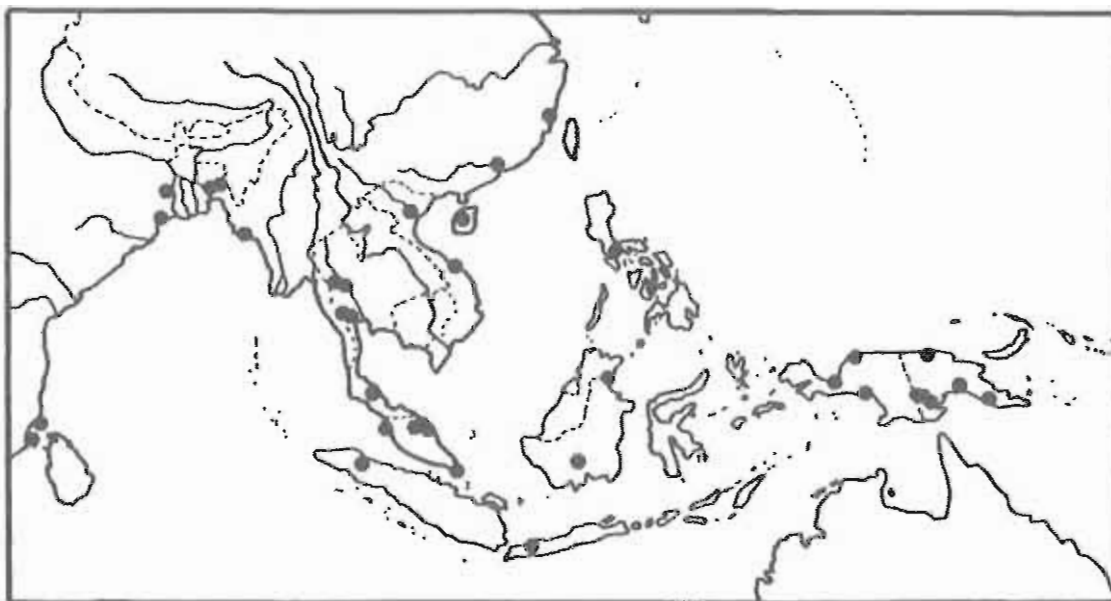
**Holotype:** RCSM 954-959 (skeletal parts)

**Type locality:** "Austrian" [in error]

**Distribution:** India to southern China (including Hainan Island) (PRC), the Malay peninsula, the Philippines, Malaysia and Indonesia and to New Guinea (Irian Jaya and Papua); may also occur along the coast of southwestern India (Webb, 1981; Moll and Vijaya, 1986).

**Subspecies:** None; although the northern and southern populations on New Guinea are taxonomically distinguishable (R. G. Webb, pers. comm.).

**Comment:** Reviewed by Smith (1931), Pope (1935), Bourret (1941), Meylan (1987), and Das (1991).



## TRIONYCHIDAE

*Pelodiscus* Fitzinger, 1835:120, 127  
Chinese Softshell Turtles

**Original name:** *Trionyx* (*Pelodiscus*)

**Type species:** *Trionyx* (*Aspionectes*) *sinensis* Wiegmann (1835), by subsequent designation of Fitzinger (1843:30)

**Distribution:** As for the single species

**Comment:** Removed from the synonymy of *Trionyx* by Meylan (1987).

*Pelodiscus sinensis* (Wiegmann, 1835:189)  
Chinese Softshell Turtle

**Original name:** *Trionyx* (*Aspionectes*) *sinensis*

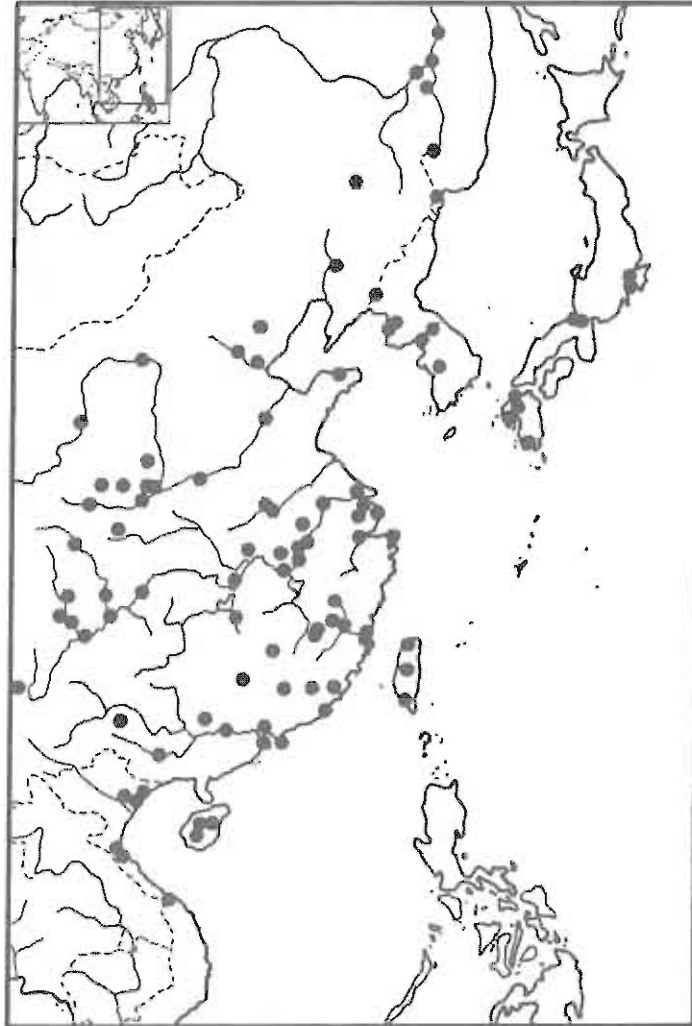
**Syntypes:** (3 specimens) ZMB 38 and 39 (extant); ZMB 37 (lost)

**Type locality:** "kleinen Insel im Tigerflusse, dicht bei Macao" (= small island in the Tiger River near Macao) [China]; see Comment

**Distribution:** USSR (extreme southeastern Siberia), China (from Manchuria to Taiwan and Hainan islands), Korea, Japan, and northern Vietnam; introduced into Hawaii, USA (McKeown and Webb, 1982:107)

**Subspecies:** None

**Comment:** Reviewed by Smith (1931; as *Trionyx sinensis*), Pope (1935; as *Amyda sinensis*), Bourret (1941; as *Trionyx sinensis*), Ernst and Barbour (1972; as *Trionyx sinensis*), and Meylan (1987). The type of *Testudo rostrata* (Thunberg, 1787:179) in the Uppsala Museum in Sweden is not *Amyda cartilaginea* as usually recorded (e.g., Wermuth and Mertens, 1977:107); it has been identified as *Pelodiscus sinensis* by Webb (1985:84). The International Commission on Zoological Nomenclature was petitioned (Case 2693; Webb, 1990a) to suppress the earlier name and conserve Wiegmann's name; conservation of the latter was mandated by ICZN Opinion 1659 (in 1991).

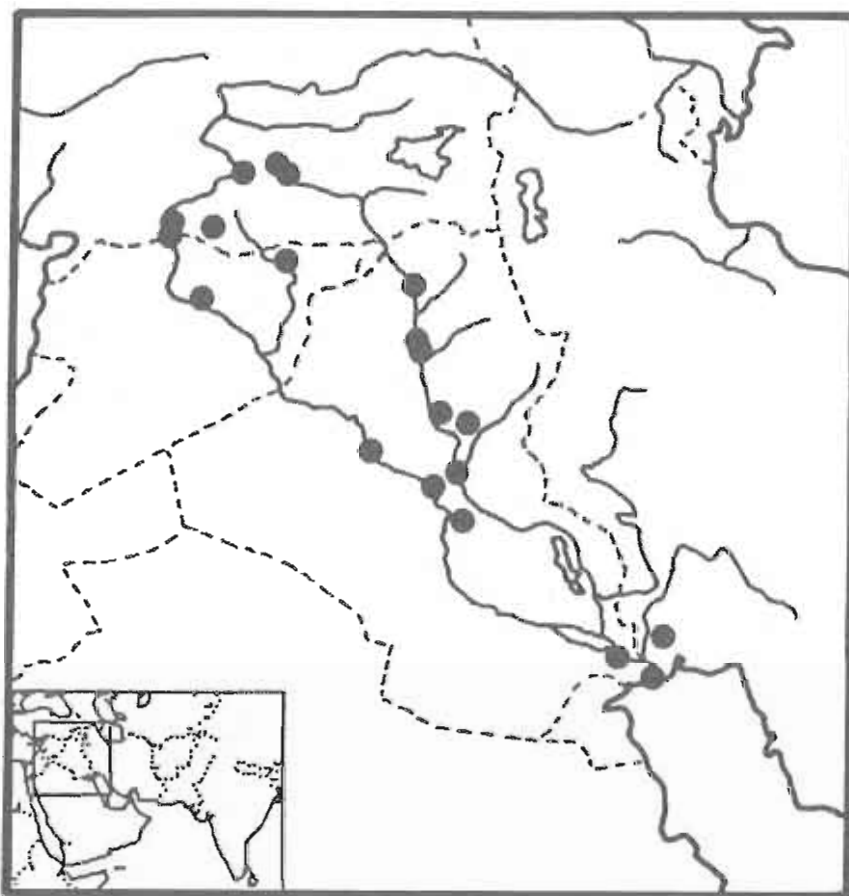




## TRIONYCHIDAE

*Rafetus* Gray, 1864a:81  
Bicallosite Softshell Turtles**Type species:** *Testudo euphratica* Daudin (1802), by monotypy**Distribution:** Asia**Comment:** Removed from the synonymy of *Trionyx* by Meylan (1987).**Key to species:** (after Meylan, pers. comm.)

- 1a. Pterygoids separate basiphenoid from palatines in palate; Tigris and Euphrates rivers .....  
 .....*R. euphraticus* (p. 316)
- 1b. Basisphenoid separates pterygoids to contact palatines in palate; southeast Asia.....  
 .....*R. swinhoei* (p. 317)

*Rafetus euphraticus* (Daudin, 1802:305)  
Euphrates Softshell Turtle**Original name:** *Testudo euphratica***Holotype:** Not located**Type locality:** "dans le Tigre et l'Euphrate"**Distribution:** Tigris-Euphrates river basin in southeastern Turkey, northeastern Syria, Iraq, and southwestern Iran**Subspecies:** None**Comment:** Reviewed by Meylan (1987).

## TRIONYCHIDAE

*Rafetus swinhoei* (Gray, 1873f:157)  
Shanghai Softshell Turtle

**Original name:** *Oscaria swinhoei*

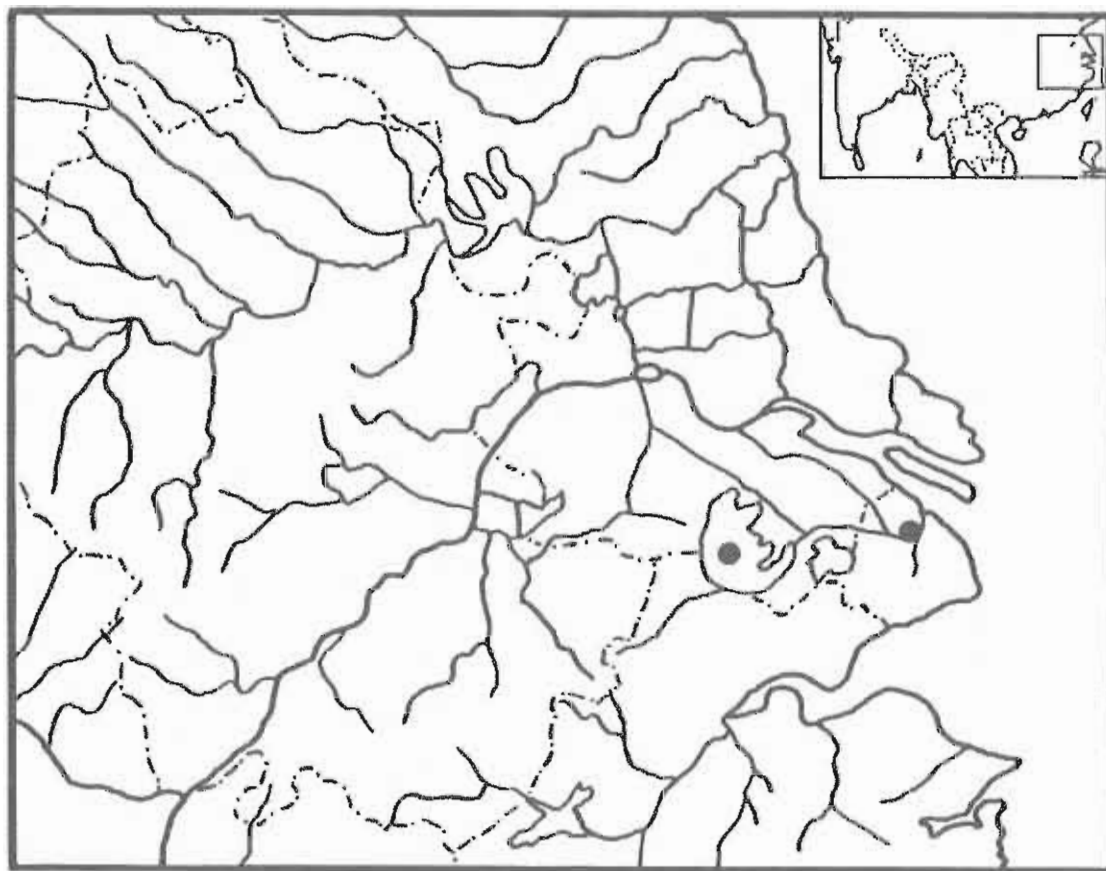
**Holotype:** BMNH 1946.1.22.9 (formerly 73.7.30.125) and its skull, which is numbered separately as BMNH 1947.3.6.13

**Type locality:** "neighbourhood of Shanghai", China [PRC]

**Distribution:** Known only from the Shanghai River and Tai Hu Lake, in the vicinity of Shanghai, China (PRC)

**Subspecies:** None

**Comment:** Removed from the synonymy of *Trionyx* [= *Pelodiscus*] *sinensis* by Meylan and Webb (1988:118); see also Boulenger (1889), Pritchard (1979), and Meylan (1987). Includes *Pelochelys taihuensis* Zhang (1984:71), according to R. Bour, P. A. Meylan, and R. G. Webb (pers. comm.).



## TRIONYCHIDAE

*Trionyx* Geoffroy Saint-Hilaire, 1809a:3  
African Softshell Turtles

**Type species:** *Trionyx egyptiacus* Geoffroy Saint-Hilaire (1809a) [= *Testudo triunguis* Forsskål (1775)]  
by designation of Bory de Saint-Vincent (1828:77)

**Distribution:** As for the single species

**Comment:** Reviewed by Meylan (1987).

*Trionyx triunguis* (Forsskål, 1775:ix)  
African Softshell Turtle

**Original name:** *Testudo triunguis*

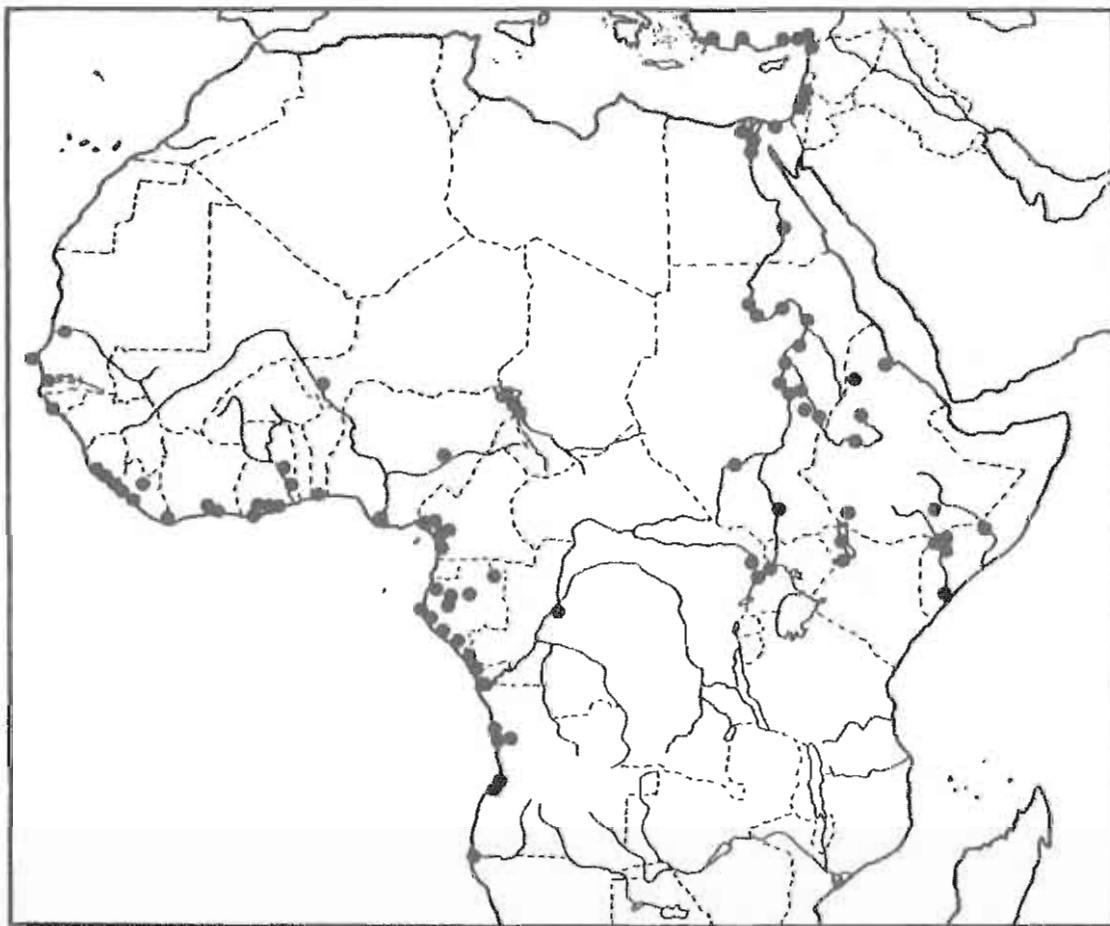
**Holotype:** Lost, according to R. G. Webb (pers. comm.)

**Type locality:** "In Nilo rarior" [= Nile River]

**Distribution:** southern Turkey south to Africa from Senegal to Angola to Somalia to Egypt

**Subspecies:** None

**Comment:** Reviewed by Loveridge and Williams (1957) and Meylan (1987).



## LITERATURE CITED

- Agassiz, L. 1857. Contributions to the natural history of the United States of America. Vol. I. Little, Brown and Co., Boston. 452p.
- Ahl, E. 1932. Beschreibung einer neuen Schildkröte aus Australien. Sitz. Ges. Naturf. Freunde Berlin 1932:127-129.
- Ahsan, M. F., M. N. Haque, and C. M. Fugler. 1991. Observations on *Aspideretes nigricans*, a semi-domesticated endemic turtle from eastern Bangladesh. *Amphibia-Reptilia* 12:131-136.
- Ahsan, M. F. and M. A. Saeed. 1989. The Bostami turtle, *Trionyx nigricans* Anderson: Population status, distribution, historical background and length-weight relationship. *J. Bombay Natur. Hist. Soc.* 86:1-6.
- Alarcon Pardo, H. 1969. Contribución al conocimiento de la morfología, ecología, comportamiento y distribución geográfica de *Podocnemis vogli*, Testudinata (Pelomedusidae). *Rev. Acad. Colombiana Cienc. Exact. Fis. Natur.* 13(51):303-326.
- Anderson, J. 1875. Description of some new Asiatic mammals and Chelonia. *Ann. Mag. Natur. Hist. London* (4)16:282-285.
- Anderson, J. 1878-79. Anatomical and zoological researches: Comprising an account of the zoological results of the two expeditions to western Yunnan in 1868 and 1875. London. Vol. I (985p); Vol. II (plates i - lxxxii)
- Andersson, L. G. 1900. Catalogue of Linnean type specimens of Linnaeus's Reptilia in the Royal Museum in Stockholm. *Bihang till Kongliga. Vetenskaps- Akademiens. Handlingar, Stockholm.* (4)26(1):1-29.
- Annandale, N. 1913. The tortoises of Chota Nagpur. *Rec. Indian Mus. (Calcutta)* 9:63-78.
- Annandale, N. 1915. Herpetological notes and descriptions. *Rec. Indian Mus. (Calcutta)* 11:341-347.
- Aoki, R. 1977. The occurrence of a short-necked chelid in the Palau Islands [in Japanese]. *Jap. J. Herpetol.* 7(2):32-33.
- Arnold, E. N. 1979. Indian Ocean giant tortoises: Their systematics and island adaptations. *Philos. Trans. Royal Soc. London* 286B:127-145.
- Arnold, E. N. and J. A. Burton. 1978. A field guide to the reptiles and amphibians of Britain and Europe. Collins, London. 272p.
- Auffenberg, W. 1963. *Testudo hypselonota* Bourret referred to *Geochelone radiata* (Shaw). *Misc. Note 11, J. Bombay Nat. Hist. Soc.* 60(2):462-265.
- Auffenberg, W. 1974. Checklist of fossil land tortoises (Testudinidae). *Bull. Florida State Mus. Biol. Sci.* 18(3):121-251.
- Auffenberg, W. 1976. The genus *Gopherus* (Testudinidae): Pt. I. Osteology and relationships of extant species. *Bull. Florida State Mus. Biol. Sci.* 20(2):47-110.
- Auffenberg, W. and R. Franz. 1978a. *Gopherus*. *Cat. Amer. Amphib. Rept.* 211:1-2.
- Auffenberg, W. and R. Franz. 1978b. *Gopherus agassizii*. *Cat. Amer. Amphib. Rept.* 212:1-2.
- Auffenberg, W. and R. Franz. 1978c. *Gopherus berlandieri*. *Cat. Amer. Amphib. Rept.* 213:1-2.
- Auffenberg, W. and R. Franz. 1978d. *Gopherus flavomarginatus*. *Cat. Amer. Amphib. Rept.* 214:1-2.
- Auffenberg, W. and R. Franz. 1978e. *Gopherus polyphemus*. *Cat. Amer. Amphib. Rept.* 215:1-2.
- Auffenberg, W. and R. Franz. 1982. The status and distribution of the gopher tortoise (*Gopherus polyphemus*). *USDI Wildl. Res. Rep.* 12:95-126.

- Baard, E. H. W. 1990. Biological aspects and conservation status of the geometric tortoise, *Psammobates geometricus* (Linnaeus, 1758) (Cryptodira: Testudinidae). Doctoral Dissertation, Univ. of Stellenbosch, South Africa.
- Baard, E. H. W. 1991. A review of the taxonomic history of and some literature on the geometric tortoise, *Psammobates geometricus* (Linnaeus, 1758). J. Herpeol. Assoc. Afr. 39:8-12.
- Babcock, H. L. 1937. A new subspecies of the red-bellied terrapin *Pseudemys rubriventris* (LeConte). Occ. Pap. Boston Soc. Natur. Hist. 8:293-294.
- Baird, S. F. and C. Girard. 1852. Descriptions of new species of reptiles collected by the U. S. Exploring Expedition under the command of Capt. Charles Wilkes, U.S.N. Proc. Acad. Natur. Sci. Philadelphia 6:174-177.
- Barbour, T. 1914a. On some Australasian Reptiles. Proc. Biol. Soc. Washington 27:201-206.
- Barbour, T. 1914b. Contribution to the zoogeography of the West Indies. Mem. Mus. Comp. Zool., Harvard, 44(2):209-347.
- Barbour, T. 1935. A new *Pseudemys* from Cat Island, Bahamas. Occ. Pap. Boston Soc. Natur. Hist. 8:205-206.
- Barbour, T. and A. F. Carr. 1938. Another Bahamian fresh-water tortoise. Proc. New England Zool. Club 17:75-76.
- Barbour, T. and A. F. Carr. 1940. Antillean terrapins. Mem. Mus. Comp. Zool., Harvard 54:381-415.
- Barbour, T. and A. F. Carr. 1941. Terrapin from Grand Cayman. Proc. New England Zool. Club 18:57-60.
- Barbour, T. and A. Loveridge. 1929. Typical reptiles and amphibians. Bull. Mus. Comp. Zool., Harvard 69(10):205-360.
- Batsch, A. J. G. C. 1788. Versuch einer Anleitung zur Kenntniss und Geschichte der Thiere und Mineralien. Vol.1. Akademische Buchhandlung, Jena. 529 p.
- Baur, G. 1888a. Notes on the American Trionychidae. Amer. Natur. 22:1121-22.
- Baur, G. 1888b. Osteologische Notizen über Reptilien. (Fortsetzung III). Zool. Anz. 11(285):417-424.
- Baur, G. 1888c. Osteologische Notizen über Reptilien. (Fortsetzung IV). Zool. Anz. 11(291):592-597.
- Baur, G. 1888d. Osteologische Notizen über Reptilien. (Fortsetzung V). Zool. Anz. 11(296):736-740.
- Baur, G. 1889a. Die systematische Stellung von *Dermochelys* Blainv. Biol. Centralbl. 9:149-153, 180-191.
- Baur, G. 1889b. The gigantic land tortoises of the Galapagos Islands. Amer. Natur. 23:1039-1057. [Published in 1890]
- Baur, G. 1889c. The relationship of the genus *Deirochelys*. Amer. Natur. 23:1099-1100.
- Baur, G. 1890a. Two new species of tortoises from the south. Science (1)16:262-263.
- Baur, G. 1890b. The genera of the Cheloniidae. Amer. Natur. 24:486-487.
- Baur, G. 1890c. On the classification of the Testudinata. Amer. Natur. 24:530-536.
- Baur, G. 1890d. An apparently new species of *Chelys*. Amer. Natur. 24:967-968.
- Baur, G. 1891a. American box-tortoises. Science 17:190-191.
- Baur, G. 1891b. Notes on the trionychian genus *Pelochelys*. Ann. Mag. Natur. Hist. London (6)7:445-446.
- Baur, G. 1892. On the taxonomy of the genus *Emys* C. Duméril. Proc. Amer. Philos. Soc. 30:40-44.
- Baur, G. 1893a. Two new species of North American Testudinata. Amer. Natur. 27(319):675-677.

- Baur, G. 1893b. Notes on the classification and taxonomy of the Testudinata. Proc. Amer. Philos. Soc. 31:210-225.
- Bell, T. 1825. A monograph of the tortoises having a moveable sternum, with remarks on their arrangement and affinities. Zool. J., London 2:299-310.
- Bell, T. 1827. On two new genera of land tortoises. Trans. Linn. Soc. London 15:392-401.
- Bell, T. 1828a. Descriptions of three new species of land tortoises. Zool. J., London 3:419-421.
- Bell, T. 1828b. Characters of the Order, Families, and Genera of the Testudinata. Zool. J., London 3(12):513-516.
- Bell, T. 1834. Characters of a new genus of freshwater tortoise (*Cyclemys*). Proc. Zool. Soc. London 1834:17.
- Bennett, E. T. 1836. p.361 *IN*: G. White. The Natural History and Antiquities of Selborne.
- Berry, J. F. 1978. Variation and systematics in the *Kinosternon scorpioides* and *K. leucostomum* complexes (Reptilia: Testudines: Kinosternidae) of Mexico and Central America. Doctoral Dissertation. Univ. Utah, Salt Lake City, Utah.
- Berry, J. F. and C. M. Berry. 1984. A reanalysis of geographic variation and systematics in the yellow mud turtle, *Kinosternon flavescens* (Agassiz). Ann. Carnegie Mus. 53(7):185-206.
- Berry, J. F. and J. B. Iverson. 1980a. *Kinosternon herrerae*. Cat. Amer. Amphib. Rept. 239:1-2.
- Berry, J. F. and J. B. Iverson. 1980b. A new species of mud turtle, genus *Kinosternon*, from Oaxaca, Mexico. J. Herpetol. 14:313-320.
- Berry, J. F. and J. M. Legler. 1980. A new turtle (genus *Kinosternon*) from Sonora, Mexico. Contrib. Sci. Natur. Hist. Mus. Los Angeles Co. 325:1-12.
- Bibron, G. and J. B. G. M. Bory de Saint-Vincent. 1832. Reptiles et Poissons (of the Morea). Fr. Exped. Sci. Moree. 3(1):1-209.
- Bickham, J. W. 1980. *Chrysemys decorata*. Cat. Amer. Amphib. Rept. 235:1-2.
- Bickham, J. W. and R. J. Baker. 1976a. Chromosome homology and evolution of emydid turtles. Chromosoma (Berlin) 54:201-219.
- Bickham, J. W. and R. J. Baker. 1976b. Karyotypes of some neotropical turtles. Copeia 1976:703-708.
- Bickham, J. W., J. J. Bull, and J. M. Legler. 1983. Karyotypes and evolutionary relationships of Trionychid turtles. Cytologia 48:177-183.
- Bickham, J. W., and J. L. Carr. 1983. Taxonomy and phylogeny of the higher categories of cryptodiran turtles based on a cladistic analysis of chromosomal data. Copeia 1983(4):918-932.
- Biswas, S., L. N. Acharjyo, and S. Mohapatra. 1978. Notes on distribution, sexual dimorphism and growth in captivity of *Geochelone elongata* (Blyth). J. Bombay Natur. Hist. Soc. 75:928-930.
- Blainville, H. M. D. de. 1816. Prodrome d'une nouvelle distribution systématique de règne animal. Reptiles. Bull. Sci. Soc. Philom. Paris 3(3):105-124. [The pages in this publication are misnumbered 105-112 and 121-124 according to Smith and Smith (1973:20)]
- Blyth, E. 1853. Notices and descriptions of various reptiles, new or little known. J. Asiat. Soc. Bengal, Calcutta 22:639-655.
- Blyth, E. 1856. Notabilia contained in the collections presented by Capt. Berdmore and Mr. Theobald. J. Asiat. Soc. Bengal, Calcutta 24:713-723. [Sometimes cited as 1855]
- Blyth, E. 1859. Proceedings of the Society. J. Asiatic. Soc. Bengal, Calcutta 27:281.
- Blyth, E. 1863. Report on the collections presented by Capt. Berdmore and Mr. Theobald. J. Asiat. Soc. Bengal, Calcutta 32:80-86.

- Bocourt, F. 1868. Description de quelques chéloniens nouveaux appartenant à la fauna Mexicaine. *Ann. Sci. Natur. Zool.*, Paris (5)10:121-122.
- Boddaert, P. 1770. III. Over de Kraakbeenige Schildpad. De Testudine cartilaginea. Kornelis van Tongerlo, Amsterdam. 40p.
- Boettger, O. 1893. Katalog der Reptilien-Sammlung im Museum der Senckenbergischen Naturforschenden Gesellschaft in Frankfurt-am-Main. I. Teil. (Rhynchocephalen, Schildkröten, Krokodile, Eidechsen, Chamaleons). Knauer, Frankfurt. 160p.
- Bogert, C. M. 1943. A new box turtle from southeastern Sonora, Mexico. *Amer. Mus. Novitates* 1226:1-7.
- Bonaparte, C. L. J. L. 1836. *Cheloniorum Tabula Analytica*. Rome.
- Bonhomme, F., S. Salvidio, A. LeBeau, and G. Pasteur. 1987. Comparaison génétique des tortues vertes (*Chelonia mydas*) des Océans Atlantique, Indien, et Pacifique: Une illustration apparente de la théorie mullerienne classique de la structure génétique des populations? *Genetica* 74:89-94.
- Bory de Saint-Vincent, J. B. G. M. 1828. Résumé d'erpétologie ou d'histoire naturelle des reptiles. Paris. 292p.
- Boulenger, G. A. 1886. On some South-African tortoises allied to *Testudo geometrica*. *Proc. Zool. Soc. London* 1886:540-542.
- ✓ Boulenger, G. A. 1887. On a new family of pleurodiran turtles. *Ann. Mag. Natur. Hist. London* (5)19:461-463.
- Boulenger, G. A. 1888a. On the chelydoid chelonians of New Guinea. *Ann. Mus. Civ. Storia Natur. Genova* (2a)6:449-452.
- Boulenger, G. A. 1888b. Description of a new land-tortoise from South Africa, from a specimen living in the Society's Gardens. *Proc. Zool. Soc. London* 1888(2):251.
- Boulenger, G. A. 1889. Catalogue of the Chelonians, Rhynchocephalians, and Crocodiles in the British Museum (Natural History). Taylor and Francis, London. 311p.
- Boulenger, G. A. 1902. Descriptions of new batrachians and reptiles from northwestern Ecuador. *Ann. Mag. Natur. Hist. London* (7)9:51-57.
- Boulenger, G. A. 1903. Report on the batrachians and reptiles. pp. 131-176. *IN: N. Annandale, and H. C. Robinson (eds.). Fasciculi Malayenseis, anthropological and zoological results of an expedition to Perak and the Siamese Malay States, 1901-1902, Undertaken by Nelson Annandale and Herbert C. Robinson. Vol 1, Zoology. Univ. Press, Liverpool.*
- Boulenger, G. A. 1906. Descriptions of new reptiles from Yunnan. *Ann. Mag. Natur. Hist. London* (7)17:567-568.
- Boulenger, G. A. 1907. A new tortoise from Travancore. *J. Bombay Natur. Hist. Soc.* 17:560-564.
- Boulenger, G. A. 1912. A vertebrate fauna of the Malay Peninsula from the Isthmus of Kra to Singapore, including the adjacent islands. Reptilia and Batrachia. Taylor and Francis, London. 294p.
- Boulenger, G. A. 1913. On a collection of batrachians and reptiles made by Dr. H. G. F. Spurrell, F.Z.S., in the Choco, Colombia. *Proc. Zool. Soc. London* 1913(4):1019-1038.
- Bour, R. 1973. Contribution à la connaissance de *Phrynops nasutus* (Schweigger: 1812) et *Phrynops tuberculatus* (Luederwaldt, 1926). Description d'une nouvelle sous-espèce originaire du Paraguay, *Phrynops tuberculatus vanderhaegei*. (Testudinata-Pleurodira-Chelidae). *Bull. Soc. Zool. France* 98(1):175-190.
- Bour, R. 1978. Les tortues actuelles de Madagascar (République malgache): Liste systématique et description de deux sous-espèces nouvelles (Reptilia-Testudines). *Bull. Soc. Etude. Sci. Anjou N.S.* 10:141-154. [Published in 1979]
- Bour, R. 1980a. Position systématique de *Geoclemys palaeannamitica* Bourret, 1941 (Reptilia-Testudines-Emydidae). *Amphibia-Reptilia* 1(2):149-159.

- Bour, R. 1980b. Essai sur la taxinomie des Testudinidae actuels (Reptilia, Chelonii). Bull. Mus. Natl. Hist. Natur. Paris (4)A(2):541-546.
- Bour, R. 1981. Etude systématique du genre endémique malgache *Pyxis* Bell, 1827 (Reptilia, Chelonii). Bull. Mens. Soc. Linn. Lyon 50(4/5):132-144, 154-176.
- Bour, R. 1982a. Etude systématique du genre endémique malgache. (Note complémentaire). Bull. Mens. Soc. Linn. Lyon 51(1): 28-31.
- Bour, R. 1982b. *Pelomedusa subrufa* (Lacepede, 1788), *Pelusios subniger* (Lacépède, 1788) (Reptilia, Chelonii) et le séjour de Philibert Commerson à Madagascar. Bull. Mus. Natl. Hist. Natur. Paris (4)A(4):531-39.
- Bour, R. 1982c. Contribution à la connaissance des tortues terrestres des Seychelles: Définition du genre endémique et description d'une espèce nouvelle probablement originaire des îles granitiques et au borde de l'extinction. Comptes Rendu. Hebd. Séan. Acad. Sci. Paris 195:117-122.
- Bour, R. 1983. Trois populations endémiques de genre *Pelusios* (Reptilia, Chelonii, Pelomedusidae) aux îles Seychelles; relations avec les espèces africaines et malgaches. Bull. Mus. Natl. Hist. Natur. Paris 4(5):343-382.
- Bour, R. 1984a. Note sur *Pelusios williamsi* Laurent. Revue Fr. Aquariol. 11(1):27-32.
- Bour, R. 1984b. L'identité de *Testudo gigantea* Schweigger, 1812 (Reptilia, Chelonii). Bull. Mus. Natl. Hist. Natur. Paris 4(6)1A:159-175.
- Bour, R. 1984c. Les tortues terrestres géantes des îles de l'Océan Indien Occidental: Données géographiques, taxinomiques et phylogénétiques. Studia Geologica Salmanticensia, Vol. Especial 1. Studia Palaeochelonologica 1:17-76. [Published in 1985]
- Bour, R. 1985a. Données sur la repartition géographique des tortues terrestres et d'eau douce aux Iles Maurice et Rodrigues. Mauritius Inst. Bull. 10(1):75-102.
- Bour, R. 1985b. Les tortues terrestres et d'eau douce de Madagascar et des îles voisines. Madagascar Recherches Sci. 18:54-80.
- Bour, R. 1986a. Note sur *Pelusios adansonii* (Schweigger, 1812) et sur une nouvelle espèce affine du Kenya (Chelonii, Pelomedusidae). Studia Geologica Salmanticensia. Studia Palaeochelonologica 2(2):23-54.
- Bour, R. 1986b. L'identité des Tortues terrestres européennes: spécimens-types et localités-types. Revue Fr. Aquariol. 13(4):111-122. [Published in 1987]
- Bour, R. 1987. Type specimen of the Alligator Snapper, *Macroclmlys temminckii* (Harlan, 1835). J. Herpetol. 21(4):340-343.
- Bour, R. 1988a. Taxonomic and nomenclatural status of *Homopus signatus* (Gmelin, 1789): Reptilia-Chelonii. J. Herpetol. Assoc. Afr. 35:1-6.
- Bour, R. 1988b. Tortues et insularité: Les tortues des Seychelles. Bull. Soc. Zool. France 112(3-4):401-418.
- Bour, R. 1988c. Caractères diagnostiques offerts par le crâne des tortues terrestres du genre *Testudo*. Mésogée 48:13-19.
- Bour, R. and A. Dubois. 1983a. Statut nomenclatural et specimens-types d'*Emys pseudogeographica* Gray 1831 et d'*Emys lesueuri* Gray 1831 (Reptilia, Chelonii, Emydidae). Bull. Mens. Soc. Linn. Lyon 52(2):42-46.
- Bour, R. and A. Dubois. 1983b. Nomenclatural availability of *Testydí ciruacea* Vandelli, 1761: A case against a rigid application of the rules to old, well-known zoological works. J. Herpetol. 17(4):356-361. [Published in 1984]
- Bour, R. and A. Dubois. 1984a. Comment on the application concerning *Sternotherus* Gray, 1825 and *Pelusios* Wagler, 1830. Z. N.(S) 2278. Bull. Zool. Nomencl. 41:198-205.
- Bour, R. and A. Dubois. 1984b. *Xerobates* Agassiz, 1857, synonyme plus ancien de *Scaptochelys* Bramble, 1982 (Reptilia, Chelonii, Testudinidae). Bull. Mens. Soc. Linn. de Lyon 53(1):30-32.



- Bour, R. and A. Dubois. 1984c. Nomenclature ordinale et familiale des tortues (Reptilia). *Studia Geologica Salmanticensia*, Vol. Especial I. *Studia Palaeochelonologica* 1:77-86. [Published in 1985]
- Bour, R. and I. Pauler. 1987. Identite de *Phrynops vanderhaegei* Bour, 1873, et des especes affines (Reptilia-Chelonii-Chelidae). *Mesogee* 47:3-23.
- Bourret, R. 1939. Notes herpétologiques sur l'Indochine française, XVIII. Reptiles et batraciens reçus au Laboratoire des Science Naturelles de l'Université au cours de l'année 1939. Descriptions de quatre espèces et d'une variété nouvelles. *Bull. Gen. Instr. Publ. Hanoi* 1939(4):5-39.
- Bourret, R. 1941. Les tortues de l'Indochine. *Inst. Océanograph. l'Indochine.* 38:1-235.
- Boycott, R. C., 1986. A review of *Homopus signata* (Schoepff) with notes on related species (Cryptodira: Testudinidae). *J. Herpetol. Assoc. Africa* 32:10-16.
- Boycott, R. C. and O. Bourquin. 1988. *The South African Tortoise Book: A Guide to South African Tortoises, Terrapins, and Turtles.* Southern Book, Johannesburg.
- Boycott, R.C. and N. H. G. Jacobsen. 1988. On the distribution habitat and identification of *Kinixys natalensis* Hewitt 1935 (Cryptodira:Testudinidea) in southern Africa. *Durban Mus. Novitates* 14(5):93-101.
- Bramble, D. M. 1974. Emydid shell kinesis: Biomechanics and evolution. *Copeia* 1974(3):707-727.
- Bramble, D. M. 1982. *Scaptochelys*: Generic revision and evolution of gopher tortoises. *Copeia* 1982(4):852-867.
- Bramble, D. M. and J. H. Hutchison. 1981. A reevaluation of plastral kinesis in African turtles of the genus *Pelusios*. *Herpetologica* 37:205-212.
- Bramble, D. M., J. H. Hutchison, and J. M. Legler. 1984. Kinosternid shell kinesis: Structure, function, and evolution. *Copeia* 1984:456-475.
- Branch, W. R. (ed.). 1988. *South African Red Data Book--Reptiles and Amphibians.* South Afr. Natur. Sci. Prog. Report. 15:1-241.
- Branch, W. R. 1989. The status of *Homopus bergeri*. *IUCN/SSC Newsletter* 20-21.
- Broadley, D. G. 1981a. A review of the populations of *Kinixys* (Testudinidae) occurring in south-eastern Africa. *Ann. Cape Prov. Mus. Natur. Hist.* 13:195-216.
- Broadley, D. G. 1981b. A review of the genus *Pelusios* Wagler in southern Africa (Pleurodira: Pelomedusidae). *Occ. Pap. Natl. Mus. Rhodesia, B, Natur. Sci.* 69:633-686.
- Broadley, D. G. 1983. Neural pattern--A neglected taxonomic character in the genus *Pelusios* Wagler (Pleurodira: Pelomedusidae). pp.159-168. *IN: A. G. J. Rhodin and K. Miyata. Advances in Herpetology and Evolutionary Biology.* Mus. Comp. Zool. Harvard, Cambridge, Massachusetts. 725p.
- Broadley, D. G. 1989. How many savanna species of *Kinixys*? *IUCN/SSC Newsletter* 10-11.
- Broadley, D. G. 1992. A review of the southern African species of *Kinixys* (Testudinidae). *Ann. Transvaal Mus.* (in press).
- Brongersma, L. D. 1961. Notes upon some sea turtles. *Zool. Verhand.* 51:1-46.
- Brongersma, L. D. 1972. *European Atlantic turtles.* E. J. Brill, Leiden. 318p.
- Brongniart, A. 1800. Essai d'une classification naturelle des reptiles. *Bull. Sci. Soc. Philomath., Paris* 2:81-82, 89-91.
- Brongniart, A. 1805. Essai d'une classification naturelle des reptiles. Baudouin, Paris. 53p.
- Brown, A. E. 1908. Generic types of Nearctic Reptilia and Amphibia. *Proc. Acad. Natur. Sci. Philadelphia* 60:112-127.

- Brown, W. 1974. Ecology of the aquatic box turtle, *Terrapene coahuila* (Chelonia, Emydidae) in northern Mexico. Bull. Florida State Mus. Biol. Sci. 19(1):1-67.
- Bull, J. J. and J. M. Legler. 1980. Karyotypes of side-necked turtles (Testudines: Pleurodira). Canadian J. Zool. 58:828-841.
- Burbidge, A. A. 1981. The ecology of the western swamp tortoise *Pseudemydura umbrina* (Testudines: Chelidae). Australian Wildl. Res. 8:203-223.
- Burbidge, A. A., J. A. W. Kirsch, and A. R. Main. 1974. Relationships within the Chelidae (Testudines: Pleurodira) of Australia and New Guinea. Copeia 1974(2):392-409.
- Bury, R. B. 1970. *Clemmys marmorata*. Cat. Amer. Amphib. Rept. 100:1-3.
- Bury, R. B. (ed.). 1982. North American tortoises: Conservation and ecology. U. S. Fish Wildl. Serv. Res. Rep. 12:1-126.
- Bury, R. B. and C. H. Ernst. 1977. *Clemmys*. Cat. Amer. Amphib. Rept. 203:1-2.
- Bury, R. B., D. J. Morafka and C. J. McCoy. 1988. Distribution, abundance and status of the Bolston tortoise. Ann. Carnegie Mus. Natur. Hist. 57(1):5-30.
- Busack, S. D. and C. H. Ernst. 1980. Variation in Mediterranean populations of *Mauremys* Gray 1869 (Reptilia, Testudines, Emydidae). Ann. Carnegie Mus. Natur. Hist. 49:251-264.
- Buskirk, J. R. 1985. The endangered Egyptian tortoise *Testudo kleinmanni*: Status in Egypt and Israel. pp. 35-52. *IN*: S. McKeown, F. Caparoso, and K. H. Peterson. Ninth Internatl. Herpetol. Sympos., Captive Propagation and Husbandry.
- Buskirk, J. R. 1988. The Indochinese box turtle: A perspective on captive management. Vivarium 1(1):22-25.
- Buskirk, J. R. 1989. A third specimen and neotype of *Heosemys leytenis* (Chelonia: Emydidae). Copeia 1989(1):224-227.
- Buskirk, J. R. 1991. The spiny-neck turtle (*Platemys spixii*) in and out of captivity. Vivarium 3(2): 16-17, 30-31.
- Buskirk, J. R. 1992. Distribution, status, and biology of the tortoise, *Geochelone chilensis*, in Rio Negro Province, Argentina. J. Stud. Neotrop. Fauna Environ. (in press).
- Cagle, F. R. 1952. The status of the turtles *Graptemys pulchra* Baur and *Graptemys barbouri* Carr and Marchand, with notes on their natural history. Copeia 1952(4):223-234.
- Cagle, F. R. 1953a. Two new subspecies of *Graptemys pseudogeographica*. Occ. Pap. Mus. Zool. Univ. Michigan 546:1-17.
- Cagle, F. R. 1953b. The status of the turtle *Graptemys oculifera* (Baur). Zoologica 38:137-144.
- Cagle, F. R. 1954. Two new species of the genus *Graptemys*. Tulane Stud. Zool. 1:167-186.
- Cann, J. 1978. Tortoises of Australia. Angus and Robertson, Sydney. 79p.
- Cantor, T. 1842. General features of Chusan, with remarks on the flora and fauna of that island. Ann. Mag. Natur. Hist. London 1(9):481-493.
- Capler, J. M. and E. O. Moll. 1990. Phylogenetic relationships of the *Batagur* complex of tropical Asian turtles. Abstract. Annual Meeting HL/SSAR, Tulane Univ., New Orleans, Louisiana.
- Carr, A. F. 1937a. A new turtle from Florida, with notes on *Pseudemys floridana mobiliensis* (Holbrook). Occ. Pap. Mus. Zool. Univ. Michigan 348:1-7.
- Carr, A. F. 1937b. The status of *Pseudemys scripta* and *Pseudemys troostii*. Herpetologica 1:75-77.
- Carr, A. F. 1938a. A new subspecies of *Pseudemys floridana*, with notes on the *floridana* complex. Copeia 1938:105-109.

- Carr, A. F. 1938b. Notes on the *Pseudemys scripta* complex. *Herpetologica* 1:131-135.
- Carr, A. F. 1938c. *Pseudemys nelsoni*, a new turtle from Florida. *Occ. Pap. Boston Soc. Natur. Hist.* 8:305-310.
- Carr, A. F. 1942a. A new *Pseudemys* from Sonora, Mexico. *Amer. Mus. Novitates* 1181:1-4.
- Carr, A. F. 1942b. Notes on sea turtles. *Proc. New England Zool. Club* 21:1-16.
- Carr, A. F. 1942c. The status of *Pseudemys floridana texana*, with notes on parallelism in *Pseudemys*. *Proc. New England Zool. Club* 21:69-76.
- Carr, A. F. 1952. Handbook of turtles. The Turtles of the United States, Canada, and Baja California. Cornell Univ. Press, Ithaca, New York. 542p.
- Carr, A. F. and L. T. Marchand. 1942. A new turtle from the Chipola River, Florida. *Proc. New England Zool. Club* 20:95-100.
- Carr, J. L. 1990. Phylogenetic analysis of the turtle genus *Rhinoclemmys*. Abstract. Annual Meeting HL/SSAR, Tulane Univ., New Orleans, Louisiana.
- Carr, J. L. and A. Almendáriz. 1990. Contribucion al conocimiento de la distribución geográfica de los quelonios del Ecuador occidental. *Politécnica (Ser. Biol. 2)* 14(3): 75-103.
- Carr, J. L. and J. W. Bickham. 1986. Phylogenetic implications of karyotypic variation in the Batagurinae (Testudines: Emydidae). *Genetica* 70:89-106.
- Carr, J. L., J. W. Bickham, and R. H. Dean. 1981. The karyotype and chromosomal banding patterns of the Central American river turtle *Dermatemys mawii*. *Herpetologica* 37:92-95.
- Castaño-Mora, O. V. and M. Lugo-R. 1981. Estudio comparativo del comportamiento de dos especies de morrocoy: *Geochelone carbonaria* y *Geochelone denticulata* y aspectos comparables de su morfología externa. *Cespedesia* 10:55-122.
- Cei, J. M. 1986. Reptiles del centro, centro oeste y sur de la Argentina: Herpetofauna de las zonas áridas y semiáridas. *Mus. Region. Sci. Natur. Torino, Monogr.* 4:1-527.
- Censky, E. J. 1988. *Geochelone carbonaria* (Reptilia: Testudines) in the West Indies. *Florida Sci.* 51(2):108-114.
- Chen, B.-Y., S.-H. Mao, and Y.-H. Ling. 1980. Evolutionary relationships of turtles suggested by immunological cross-reactivity of albumins. *Comp. Biochem. Physiol.* 66B:421-425.
- Cheyran, M. 1981. Biologie et ecologie de la Tortue d'Hermann *Testudo hermanni* Gmelin 1789: Contribution de l'espèce à la connaissance des climats quaternaires de la France. *Mem. Travaux Inst. Montpellier Ecol. Prat. Haut. Etud.* 13:1-404.
- Chkhikvadze, V. M. 1988. Systematic classification of contemporary land turtles of middle Asia and Khazachstan. *Acad. Sci. Georgian S. S. R., Biol. Ser.* 14(2):110-113. [In Russian]
- Chkhikvadze, V. M. 1989a. Neocene turtles of the USSR. *Metshiereba, Tbilisi.* 102p.
- Chkhikvadze, V. M. 1989b. On the systematic place of fossil and recent tortoises of the USSR. Abstract. First World Congress of Herpetology, Canterbury, England.
- Chkhvadze, V.M., H. G. Amiranashvili, and C. Ataev. 1990. A new subspecies of tortoise from southwestern Turkmenistan. *Izvest. Akad. Nauk Turkmenskoi S.S.R., Ser. Biol.* 1:72-75. [In Russian]
- Chkhikvadze, V. M. and B. S. Tunijev. 1986. On the taxonomic status of modern land tortoise of the western Transcaucasus. *Bull. Acad. Sci. Georgian S. S. R.* 124(3):617-620. [In Russian]
- Cliburn, J. W. 1971. The ranges of four species of *Graptemys* in Mississippi. *Mississippi Acad. Sci.* 16:16-19.
- Cochran, D. M. 1961. Type specimens of reptiles and amphibians in the United States National Museum. *Bull. U.S. Natl. Mus.* 220:1-291.

- Cocteau, J. T. and G. Bibron. 1843. Reptilia. p. 17. *IN: Ramon de la Sagra. Histoire physique, politique et naturelle de l'île de Cuba.* Paris.
- Cogger, H. G. 1979. Reptiles and Amphibians of Australia. Ralph Curtis Books, Hollywood, Florida. 608p.
- Cogger, H. G., E. E. Cameron, and H. M. Cogger. 1983. Zoological Catalogue of Australia, Vol. 1. Amphibia and Reptilia. Australian Govt. Printing Serv., Canberra. 313p.
- Collins, J. T. 1991. Viewpoint: A new taxonomic arrangement for some North American amphibians and reptiles. *Herp. Review* 22(2):42-43.
- Collins, J. T., J. E. Huheey, J. L. Knight and H. M. Smith. 1978. Standard Common and Current Scientific Names for North American Amphibians and Reptiles. *Soc. Stud. Amphib. Rept. Misc. Publ. Herpetol. Circ.* 7:1-36.
- Conant, R. 1975. A field guide to reptiles and amphibians of eastern and central North America. Houghton Mifflin, Boston. 429p.
- Conant, R. and J. T. Collins. 1991. A Field Guide to Reptiles and Amphibians: Eastern and Central North America. Houghton Mifflin, Boston. 450 p.
- Conant, R. and C. J. Goin. 1948. A new subspecies of soft-shelled turtle from the Central United States, with comments on the application of the name *Amyda*. *Occ. Pap. Mus. Zool. Univ. Michigan* 510:1-19.
- Cooper, J. G. 1863. Description of *Xerobates agassizii*. *Proc. California Acad. Sci.* 2:118-123.
- Cooper, M. R. and D. G. Broadley. 1990. A new species of fossil *Homopus* (Cryptodira: Testudinidae) from South Africa. *Studia Geologica Salmanticensia* 2:41-55.
- Cope, E. D. 1864. On the limits and relations of the Raniformes. *Proc. Acad. Natur. Sci. Philadelphia* 16:181-183.
- Cope, E. D. 1865. Third contribution to the herpetology of tropical America. *Proc. Acad. Natur. Sci. Philadelphia* 17:185-198.
- Cope, E. D. 1868a. An examination of the Reptilia and Batrachia obtained by the Orton expedition to Ecuador [sic] and the upper Amazon, with notes on other species. *Proc. Acad. Natur. Sci. Philadelphia* 20:96-140.
- Cope, E. D. 1868b. On the origin of genera. *Proc. Acad. Natur. Sci. Philadelphia* 20:242-300. [Published in 1869]
- Cope, E. D. 1869. Seventh contribution to the herpetology of tropical America. *Proc. Amer. Philos. Soc.* 11:147-169. [Published in 1870]
- Cope, E. D. 1870. Extinct Batrachia, Reptilia and Aves of North America. *Trans. Amer. Philos. Soc.* 14(2):1-252. [pp. 1-105 published in 1869; 105-252 in 1870]
- Cope, E. D. 1875a. Checklist of North American Batrachia and Reptilia. *Bull. U.S. Natl. Mus.* 1:1-104
- Cope, E. D. 1875b. On the Batrachia and Reptilia of Costa Rica with notes on the herpetology and ichthyology of Nicaragua and Peru. *J. Acad. Natur. Sci. Philadelphia* (2)8(4):93-154. [Published in 1876]
- Cope, E. D. 1885. A contribution to the herpetology of Mexico. *Proc. Amer. Philos. Soc.* 22:379-404
- Cope, E. D. 1887. Catalogue of batrachians and reptiles of Central America and Mexico. *Bull. U. S. Natl. Mus.* 32:1-98.
- Cornalia, E. 1849. Vertebratorum synopsis in Museo Mediolanense extantium quae per novum Orbem Cajetanas Osculati collegit Annis 1846-47-48. Speciebus novis vel minus cognitis adjectis, nec non Descriptionibus atque Iconibus Illustratis, curante Aemilio Cornalia. Mediolani. 16p.
- Crumly, C. R. 1982a. A cladistic analysis of *Geochelone* using cranial osteology. *J. Herpetol.* 16(3):215-234.
- Crumly, C. R. 1982b. The "parietal" foramen in turtles. *J. Herpetol.* 16:317-320.

- Crumly, C. R. 1983. An annotated checklist of the fossil tortoises of China and Mongolia. *Proc. Biol. Soc. Washington* 96:567-580.
- Crumly, C. R. 1984a. The cranial morphometry of Galápagos tortoises. *Proc. California Acad. Sci.* 43:111-121.
- Crumly, C. R. 1984b. The evolution of land tortoises (family Testudinidae). Doctoral Dissertation, Rutgers Univ., Newark, New Jersey.
- Crumly, C. R. 1984c. A hypothesis for the relationship of land tortoise genera (family Testudinidae). *Studia Geologica Salmanticensia*, Vol. Especial 1. *Studia Palaeochelonologica* 1:115-124. [Published in 1985]
- Crumly, C. R. 1986. The identity of *Testudo gigantea* Schweigger, 1812: Another interpretation. *Herpetologica* 42:237-241.
- Crumly, C. R. 1988. A nomenclatural history of tortoises (family Testudinidae). *Smithsonian Herpetol. Inform. Serv.* 75:1-17.
- Crumly, C. R. 1990. The phylogenetic systematics of gopher tortoises: Evidence for their classification. Abstract. Annual Meeting Amer. Soc. Ichthyol. Herpetol., Charleston, South Carolina.
- Crumly, C. R. and L. L. Grismer. 1990. *Xerobates lepidoccephalus* [sic] Ottley and Velázquez: A range extension of *Gopherus agassizii*. Abstract. Annual Meeting Amer. Soc. Ichthyol. Herpetol., Charleston, South Carolina.
- Cuvier, G. L. C. F. D. 1812. Recherches sur les ossemens fossiles de quadrupèdes, où l'on rétablit les caractères de plusieurs espèces d'animaux que les révolutions du globe paroissent avoir détruites. Deterville, Paris. ed. 1, 4 vols.
- Cuvier, G. L. C. F. D. 1817. Le Règne animal distribué d'après son Organisation, pour servir de Base à l'Histoire naturelle des Animaux et d'Introduction à l'Anatomie comparée. P.A. Latreille, Paris. :17.
- Cuvier, G. L. C. F. D. 1825. Recherches sur les ossemens fossiles de quadropèdes, où l'on rétablit les caractères de plusieurs espèces D'Ocagne, Paris. ed. 3, 5 vols.
- Cuvier, G. 1829. Le Règne animal distribué d'après son Oraganisation, pour servir de Base à l'Histoire naturelle des Animaux et d'Introduction à l'Anatomie comparée. Nouvelle Edition, revue et augmentée par P. A. Latreille. Deterville, Paris. ed. 2, Vol 2. 406p.
- da Cunha, O. R. 1970. Una nova subespécie de qualônio, *Kinosternon scorpioides carajasensis* da Serra dos Carajás, Pará. *Bol. Mus. Paraense Emilio Geoldi* 73:1-11.
- Darevsky, I. S. and R. Mertens. 1973. Zwei unveroeffentliche Schildkrötentafeln von Pallas. *Salamandra* 9:99-102.
- Das, I. 1991. Colour guide to the Turtles and Tortoises of the Indian Subcontinent. R&A, Publ., Avon, England.
- Daudin, F. M. 1802. Histoire naturelle, générale et particulière des reptiles. Dufart, Paris. 2:1-432. [actually published in 1801, according to Hemming, 1958:89]
- Dean, R. H. and J. W. Bickham. 1983. *Staurotypus salvinii*. *Cat. Amer. Amphib. Rept.* 327:1-2.
- de Broin, F. 1988. Les tortues et le Gondwana: Examen des rapports entre le fractionnement du Gondwana et la dispersion géographique des tortues pleurodires à partir du Crétacé. *Studia Geologica Salmanticensia. Studia Palaeochelonologica* 2(5):103-142.
- Deraniyagala, P. E. P. 1939. The Tetrapod Reptiles of Ceylon. Vol. 1. Testudinates and Crocodilians. Dulau and Co., London. 412p.
- de Rooij, N. 1915. The reptiles of the Indo-Australian Archipelago. Vol. 1. Lacertilia, Chelonia, Emydosauria. E. J. Brill, Leiden. 384p.
- Derr, J. N., J. W. Bickham, I. F. Greenbaum, A. G. J. Rhodin, and R. A. Mittermeier. 1987. Biochemical systematics and evolution in the South American turtle genus *Platemys* (Pleurodira: Chelidea). *Copeia* 1987(3):370-375.

- de Sola, R. 1930. The Liebespiel of *Testudo vandenburghi*, a new name for the mid-Albemarle Island Galapagos tortoise. *Copeia* 1930(3):79-80.
- de Vries, T. 1984. The giant tortoises: A natural history disturbed by man. pp. 145-156. *IN*: R. Perry (ed.). *Key environments: Galapagos*. Pergamon Press, New York. 321p.
- Dixon, J. R. 1987. *Amphibians and Reptiles of Texas*. Texas A&M Univ. Press, College Station. 434p.
- Dobie, J. L. 1981. The taxonomic relationship between *Mulaclemys* Gray, 1844 and *Graptemys* Agassiz, 1857 (Testudines: Emydidae). *Tulane Stud. Zool. Bot.* 23:85-102.
- Dodd, C. K. 1988. Synopsis of the biological data on the loggerhead sea turtle *Caretta caretta* (Linnaeus 1758). U. S. Fish Wildl. Serv. Biol. Rep. 88(14):1-110.
- Dodd, C. K. 1990a. *Caretta*. *Cat. Amer. Amphib. Rept.* 482:1-2
- Dodd, C. K. 1990b. *Caretta caretta*. *Cat. Amer. Amphib. Rept.* 483:1-7.
- Dodd, C. K., K. M. Enge, and J. N. Stuart. 1988. Aspects of the biology of the flattened musk turtle, *Sternotherus depressus*, in northern Alabama. *Bull. Florida State Mus. Biol. Sci.* 34(1):1-64.
- Dowler, R. C. and J. W. Bickham. 1982. Chromosomal relationships of the tortoises (family Testudinidae). *Genetica* 58:189-197.
- Dryden, L. S. 1985. Phylogenetic analysis of Emydine turtles. Abstract. Annual Meeting Amer. Soc. Ichthyol. Herpetol., Knoxville, Tennessee.
- Dryden, L. S. 1989. The evolution of fossil and recent turtles based on osteological data. Abstract. First World Congress of Herpetology, Canterbury, England.
- Duerden, J. E. 1906. South African tortoises of the genus *Homopus*, with description of a new species. *Rec. Albany Mus.* 1:405-411.
- Duméril, Andre M. C. 1806. *Zoologie analytique ou méthode naturelle de classification des animaux, rendue plus facile à l'aide de tableaux synoptiques*. Allais, Paris. 344p.
- Duméril, Andre M. C. and G. Bibron. 1834. *Erpétologie générale ou histoire naturelle complète des reptiles*, vol. 1. Librairie Encyclopédique de Roret, Paris. 447p.
- Duméril, Andre M. C. and G. Bibron. 1835. *Erpétologie générale ou histoire naturelle complète des reptiles*, vol. 2. Librairie Encyclopédique de Roret, Paris. 680p.
- Duméril, Andre M. C. and G. Bibron. 1836. *Erpétologie générale ou histoire naturelle complète des reptiles*, vol. 3. Librairie Encyclopédique de Roret, Paris. 517p.
- Duméril, Andre M. C. and Auguste H. A. Duméril. 1851. *Catalogue méthodique de la collection des reptiles du Muséum d'Histoire Naturelle de Paris*. Gide and Boudry, Paris. 224p.
- Duméril, Auguste H. A. 1852. Description des reptiles nouveaux ou imparfaitement connus de la collection du Muséum d'Histoire Naturelle, et remarques sur la classification et les caractères des reptiles. *Arch. Mus. Hist. Natur.* Paris 6:209-264.
- Duméril, Auguste H. A. 1856. Note sur les reptiles du Gabon. *Rev. Mag. Zool., Paris* (2)8:369-377.
- Duméril, Auguste H. A. and M. F. Bocourt. 1870. *Études sur les reptiles. Mission scientifique au Mexique et dans l'Amérique Centrale . . . recherches zoologiques. Part 3*. Imprimerie Impériale, Paris. 1012p.
- Dundee, H. A. 1989. Higher category name usage for the amphibians and reptiles. *Syst. Zool.* 38(4):398-406.
- Dundee, H. A. and D. A. Rossmann. 1989. *The Amphibians and Reptiles of Louisiana*. Louisiana State Univ. Press, Baton Rouge. 300p.
- Dunn, E. R. 1930. A new *Geoemyda* from Costa Rica. *Proc. New England Zool. Club* 12:31-34.

- Dunn, E. R. and L. C. Stuart. 1951. Comments on some recent restrictions of type localities of certain South and Central American amphibians and reptiles. *Copeia* 1951(1):55-61.
- Edwards, G. 1751. Natural History of Uncommon Birds and Some Other Rare Undescribed Animals, Quadrupedes, Reptiles, Fishes, Insects, Etc. Pt IV. Royal College of Physicians, London. 248p. [Part IV appeared as the last part of Vol. II in 1751 according to King and Burke (1989).]
- Eichwald, C. E. von. 1831. *Zoologia specialis quam expositis animalibus. Pars posterior.* J. Zawadzki, Vilna. 404p.
- Ernst, C. H. 1967. Intergradation between the painted turtles *Chrysemys picta picta* and *Chrysemys picta dorsalis*. *Copeia* 1967:131-136.
- Ernst, C. H. 1971. *Chrysemys picta*. *Cat. Amer. Amphib. Rept.* 106:1-4.
- Ernst, C. H. 1972a. *Clemmys guttata*. *Cat. Amer. Amphib. Rept.* 124:1-2.
- Ernst, C. H. 1972b. *Clemmys insculpta*. *Cat. Amer. Amphib. Rept.* 125:1-2.
- Ernst, C. H. 1974. *Kinosternon baurii*. *Cat. Amer. Amphib. Rept.* 161:1-2.
- Ernst, C. H. 1978. A revision of the Neotropical turtle genus *Callopsis* (Testudines: Emydidae: Batagurinae). *Herpetologica* 34(2):113-134.
- Ernst, C. H. 1980a. *Rhinoclemmys annulata*. *Cat. Amer. Amphib. Rept.* 250:1-2.
- Ernst, C. H. 1980b. *Rhinoclemmys areolata*. *Cat. Amer. Amphib. Rept.* 251:1-2.
- Ernst, C. H. 1980c. *Rhinoclemmys funerea*. *Cat. Amer. Amphib. Rept.* 263:1-2.
- Ernst, C. H. 1980d. *Rhinoclemmys nasuta*. *Cat. Amer. Amphib. Rept.* 264:1.
- Ernst, C. H. 1981a. *Rhinoclemmys*. *Cat. Amer. Amphib. Rept.* 274:1-2.
- Ernst, C. H. 1981b. *Rhinoclemmys pulcherrima*. *Cat. Amer. Amphib. Rept.* 275:1-2.
- Ernst, C. H. 1981c. *Rhinoclemmys punctularia*. *Cat. Amer. Amphib. Rept.* 276:1-2.
- Ernst, C. H. 1981d. *Rhinoclemmys subida*. *Cat. Amer. Amphib. Rept.* 277:1-2.
- Ernst, C. H. 1981e. *Phrynops gibbus*. *Cat. Amer. Amphib. Rept.* 279:1-2.
- Ernst, C. H. 1983a. *Platemys pallidipectoris*. *Cat. Amer. Amphib. Rept.* 325:1-2.
- Ernst, C. H. 1983b. *Platemys spixii*. *Cat. Amer. Amphib. Rept.* 326:1-2.
- Ernst, C. H. 1983c. *Platemys radiolata*. *Cat. Amer. Amphib. Rept.* 339:1-2.
- Ernst, C. H. 1983d. Geographic variation in the Neotropical turtle, *Platemys platycephala*. *J. Herpetol.* 17(4):345-355.
- Ernst, C. H. 1987. *Platemys*. *Cat. Amer. Amphib. Rept.* 405:1-4.
- Ernst, C.H. 1988a. Redescriptions of two Chinese *Cuora*. *Proc. Biol. Soc. Washington* 101(1):155-161.
- Ernst, C. H. 1988b. *Cuora mccordi*, a new Chinese box turtle from Guangxi Province. *Proc. Biol. Soc. Washington* 101:466-470.
- Ernst, C. H. 1988c. *Chrysemys*. *Cat. Amer. Amphib. Rept.* 438:1-8.
- Ernst, C. H. 1990a. *Pseudemys gorzugi*. *Cat. Amer. Amphib. Rept.* 461:1-2.
- Ernst, C. H. 1990b. Systematics, taxonomy, variation, and geographic distribution of the slider turtle. pp. 57-67. *IN: J. W. Gibbons (ed.). Life history and ecology of the Slider turtle.* Smithsonian Inst. Press., Washington, D. C.

- Ernst, C. H. and R. W. Barbour. 1972. *Turtles of the United States*. Univ. Press Kentucky, Lexington. 347p.
- Ernst, C. H. and R. W. Barbour. 1989. *Turtles of the World*. Smithsonian Inst. Press, Washington, D.C. 313p.
- Ernst, C. H. and R. B. Bury. 1977. *Clemmys muhlenbergii*. *Cat. Amer. Amphib. Rept.* 204:1-2.
- Ernst, C. H. and R. B. Bury. 1982. *Malaclemys, M. terrapin*. *Cat. Amer. Amphib. Rept.* 299:1-4.
- Ernst, C. H., W. A. Cox and K. R. Marion. 1989. The distribution and status of the flattened musk turtle *Sternotherus depressus*. *Tulane Stud. Zool. Bot.* 27(1):1-20.
- Ernst, C. H., W. Gibbons, and S. S. Novak. 1988. *Chelydra*. *Cat. Amer. Amphib. Rept.* 419:1-4.
- Ernst, C. H. and J. E. Lovich. 1990. A new species of *Cuora* (Reptilia: Testudines: Emydidae) From the Ryukyu Islands. *Proc. Biol. Soc. Washington* 103(1):26-34.
- Ernst, C. H. and J. F. McBreen. 1991. *Terrapene*. *Cat. Amer. Amphib. Rept.* 511:1-6.
- Ernst, C. H. and J. F. McBreen. 1991. *Terrapene carolina*. *Cat. Amer. Amphib. Rept.* 512:1-13.
- Ernst, C. H. and W. P. McCord. 1987. Two new turtles from southeast Asia. *Proc. Biol. Soc. Washington* 100(3):624-628.
- Eschscholtz, J. F. 1829. Zoologischer Atlas, enthaltend Abbildungen und Beschreibungen neuer Thierarten während des Flottcapitains von Kotzebue zweiter Reise um die Welt, auf den russischdaskaiserlichen Kriegsschupp Predpriacté in den Jahren 1823-1826. G. Reimer, Berlin 1:1-28.
- Etchberger, C. R. and J. B. Iverson. 1990. *Pseudemys texana*. *Cat. Amer. Amphib. Rept.* 485:1-2.
- Fahey, K. M. 1980. A taxonomic study of the cooter turtles, *Pseudemys floridana* (LeConte) and *Pseudemys concinna* (LeConte), in the Lower Red River, Atchafalaya River, and Mississippi River basins. *Tulane Stud. Zool. Bot.* 22:49-66.
- Fan, T. 1931. Preliminary report of reptiles from Yuoshan, Kwangsi, China. *Bull. Dept. Biol. Coll. Sci. Sun Yatsen Univ.* 11:1-154.
- Fang, P. W. 1930. Notes on chelonians of Kwangsi, China. *Sinensia* 1(8):95-135.
- Fang, P. W. 1934. Notes on some chelonians of China. *Sinensia* 4(7):145-199.
- Felix, J. 1965. [Turtles of Vietnam]. *Ziva* 13:227-229. [Original in Czech].
- Feuer, R. C. 1971. Intergradation of the snapping turtles *Chelydra serpentina* (Linnaeus, 1758) and *Chelydra serpentina osceola* Stejneger, 1918. *Herpetologica* 27(4):379-384.
- Fitzinger, L. J. F. J. 1826. Neue Classification der Reptilien nach ihren Natürlichen Verwandtschaften nebst einer Verwandtschafts-Tafel und einem Verzeichnisse der Reptilien-Sammlung des k. k. Zoologischen Museum zu Wien. J. G. Hübner, Wien. 66p.
- Fitzinger, L. J. F. J. 1835. Entwurf einer systematischen Anordnung der Schildkröten nach den Grundsätzen der natürlichen Methode. *Ann. Natur. Mus. Wien* 1:103-128.
- Fitzinger, L. J. F. J. 1843. Systema reptilium. Fasciculus primus, Amblyglossae. Vindobonae, Apud Braumüller and Seidel, Vienna. 106p. [Smith and Grant, 1958, discuss publication date]
- FitzSimons, V. F. 1932. Preliminary descriptions of new forms of South African Reptilia and Amphibia, from the Vernay-Lang Kalahari Expedition, 1930. *Ann. Transvaal Mus.* 15:35-40.
- Flower, S. S. 1925. Contributions to our knowledge of the duration of life in vertebrate animals. III. Reptiles. *Proc. Zool. Soc. London* 1925:911-981.
- Folkerts, G. W. and R. H. Mount. 1969. A new subspecies of the turtle *Graptemys nigrinoda* Cagle. *Copeia* 1969:677-682.



- Forsskål, P. 1775. Descriptiones Animalium, avium, amphibiorum, Piscium, Insectorum, Vermium; quae in itinere Orientali observavit Petrus Forskal . . . post mortem anotoris edidit Carsten Niebuhr. Möller, Copenhagen. 164p.
- Fowler, H. W. 1906. Some cold blooded vertebrates from the Florida Keys. Proc. Acad. Natur. Sci. Philadelphia 58:77-113.
- Frair, W. 1979. Taxonomic relations among sea turtles elucidated by serological tests. Herpetologica 35(3):239-244.
- Frair, W. 1980. Serological survey of pleurodiran turtles. Comp. Biochem. Physiol. 65B:505-511.
- Frair, W. 1982a. Serum electrophoresis and sea turtle classification. Comp. Biochem. Physiol. 72B:1-4.
- Frair, W. 1982b. Serological studies of the red turtle, *Phrynops rufipes*. HERP, Bull. New York Herpetol. Soc. 17(2):4-9.
- Frair, W. 1982c. Serological studies of *Emys*, *Emydoidea* and some other testudinid turtles. Copeia 1982(4):976-978.
- Frair, W. 1983. Serological survey of softshells with other turtles. J. Herpetol. 17(1):75-79.
- Frair, W. 1985. The enigmatic Plateless River Turtle, *Carettochelys*, in serological survey. J. Herpetol. 19(4):515-523.
- Frair, W., R. A. Mittermeier, and A. G. J. Rhodin. 1978. Blood biochemistry and relations among *Podocnemis* turtles (Pleurodira, Pelomedusidae). Comp. Biochem. Physiol. 61B:139-143.
- Frazier, J. 1985. Misidentifications of sea turtles in the east Pacific: *Caretta caretta* and *Lepidochelys olivacea*. J. Herpetol. 19(1):1-11.
- Freiberg, M. A. 1936. Una nueva tortuga del norte Argentino. Physis 12:169-171.
- Freiberg, M. A. 1945. Una nueva especie de tortuga del genero *Platemys* Wagler. Physis 20:19-23.
- Freiberg, M. A. 1969. Una nueva subespecie de *Pseudemys dorbignyi* (Duméril et Bibron) (Reptilia, Chelonia, Emydidae). Physis 28(77):299-314.
- Freiberg, M. A. 1973. Dos nuevas tortugas terrestres de Argentina. Bol. Soc. Biol. Concepción 46:81-93.
- Fretey, J. 1977. Les Chéloniens de Guyane Francaise. 1. Etude préliminaire. Thesis, University of Paris. 201p.
- Fretey, J. and R. Bour. 1980. Redécouverte du type de *Dermochelys coriacea* (Vandelli) (Testudinata, Dermochelyidae). Boll. Zool. 47:193-205.
- Fretey, J., M. S. Hoogmoed, and J. Lescure. 1977. Etude taxinomique de *Rhinoclemmys punctularia punctularia* (Daudin) (Testudinata, Emydidae). Zool. Med. Leiden 52(6):63-80.
- Fritts, T. H. 1983. Morphometrics of Galapagos tortoises: Evolutionary implications. pp. 107-122. IN: R.J. Bowman, M. Berson, and A. Leviton (eds.). Patterns of evolution in Galapagos organisms. Pacific Div. Amer. Assoc. Adv. Sci., San Francisco, California.
- Fritts, T. H. 1984. Evolutionary divergence of giant tortoises in Galapagos. Biol. J. Linn. Soc. 21:165-176.
- Fritz, U. 1981a. Synonymie von *Chrysemys concinna* (LeConte 1830) mit *Chrysemys floridana* (LeConte 1830) mit Berücksichtigung von *Chrysemys rubriventris* (LeConte 1830). Herpetofauna (Ludwigsburg) 3(11):31-33.
- Fritz, U. 1981b. Zwei interessante mexikanische Schmuckschildkröten der Gattung *Chrysemys* Gray 1844. Herpetofauna (Ludwigsburg) 3(14):25-32.
- Fritz, U. 1989. Zur innerartlichen Variabilität von *Emys orbicularis* (Linnaeus, 1758). 1. Eine neue Unterart Europäischen Sumpfschildkröte aus Kleinasien. Salamandra 25(3/4):143-168.

- Fritz, U. and H.-D. Bienert. 1981. Übersicht über die neuweltliche Sumpfschildkröten-Gattung *Chrysemys* Gray (*Pseudemys* Gray = Synonym für *Chrysemys* Gray). *Herpetofauna* (Ludwigsburg) 3(10):17-22.
- Fry, D. B. 1915. On a new *Chelodina* from Australia, with a key to the genus. *Proc. Royal Soc. Queensland, Brisbane* 27(4):88-90.
- Fu, J. and E. Zhao. 1990. The validity of *Sacalia quadriocellata*. *Asiatic Herpetol. Res.* 3:120-122.
- Gaffney, E. S. 1975a. Phylogeny of the chelydrid turtles: A study of shared derived characters in the skull. *Fieldiana Geol.* 33(9):157-178.
- Gaffney, E. S. 1975b. A phylogeny and classification of the higher categories of turtles. *Bull. Amer. Mus. Natur. Hist.* 155(5):387-436.
- Gaffney, E. S. 1977. The sidenecked turtle family Chelidae: A theory of relationships using shared derived characters. *Amer. Mus. Novitates* 2620:1-28.
- Gaffney, E. S. 1984. Historical analysis of theories of chelonian relationship. *Syst. Zool.* 33(3):283-301.
- Gaffney, E. S. 1988. A cladogram of the pleurodiran turtles. *Acta Zool. Cracov* 30(15):487-492.
- Gaffney, E. S. and P. A. Meylan. 1988. A phylogeny of turtles. pp. 157-219. *IN: M. J. Benton (ed.). The Phylogeny and Classification of the Tetrapods. Vol. 1. Clarendon Press, Oxford, England.*
- Gaffney, E. S., P. A. Meylan, and A. R. Wyss. 1991. A computer assisted analysis of the higher categories of turtles. *Cladistics* 7:in press.
- Gans, C. 1985. Comments on two checklists. *Herp. Rev.* 16(1):6-7.
- Garden, A. 1772. *IN: T. Pennant. An account of two new tortoises: in a letter to Matthew Maty M.D. Sci. Philos. Trans. Royal Soc. London* 1771(61):266-273.
- Gannan, S. 1880. On certain species of Chelonioidae. *Bull. Mus. Comp. Zool. Harvard* 6:123-126.
- Garman, S. 1891. On a tortoise found in Florida and Cuba, *Cinosternum baurii*. *Bull. Essex Inst.* 23:141-144.
- Garrett, J. M. and D. G. Barker. 1987. A field guide to reptiles and amphibians of Texas. *Texas Monthly Press, Austin, Texas.* 225p.
- Geoffroy St. Hilaire, E. F. 1809a. Sur les tortues molles, nouveau genre sous le nom de *Trionyx* et sur la formation des carapaces. *Ann. Mus. Hist. Natur. Paris* 14:1-20.
- Geoffroy St. Hilaire, E. F. 1809b. Memoire sur les tortues molles. *Nouv. Bull. Soc. Philom. Paris* 22:363-367.
- Georges, A. 1988. The warradjan *Carettochelys insculpta* Ramsay (Testudinata: Carettochelyidae): A literature review and annotated bibliography. *Water Res. Centre, Cauberra, Australia.* 38p.
- Georges, A. and M. Adams. 1989. Biochemical systematics of Australian Chelid turtles. Abstract. *First World Congress of Herpetology, Canterbury, England.*
- Georges, A. and M. Adams. 1992. A phylogeny for the Australian chelid turtles based on allozyme electrophoresis. *Syst. Zool.* (Submitted).
- Gibbons, J. W. (ed.). 1990. Life history and ecology of the Slider turtle. *Smithsonian Inst. Press., Washington, D. C.* 368p.
- Gibbons, J. W., S. S. Novak, and C. H. Ernst. 1988. *Chelydra serpentina*. *Cat. Amer. Amphib. Rept.* 420:1-4.
- Gilmore, C. W. 1922. A new fossil turtle, *Kinosternon arizonense*, from Arizona. *Proc. U. S. Natl. Mus.* 62(2451):1-8.
- Glass, B. P. and N. Hartweg. 1951. *Kinosternon murrayi*, a new musk turtle of the *hirtipes* group from Texas. *Copeia* 1951(1):50-52.

- Glenn, J. L., R. C. Straight, and J. W. Sites, Jr. 1990. A plasma protein marker for population genetic studies of the desert tortoise (*Xerobates agassizi*). *Great Basin Natur.* 50(1):1-8.
- Gmelin, J. F. 1789. *IN: C. Linnaeus. Systema Naturae per Regna tria Naturae, secundum Classes, Ordines, Genera, Species cum Characteribus Differentiis, Synonymis, Locis.* G.E. Beer, Leipzig. Ed. 13, 1(3):1038-1516.
- Gmelin, S. G. 1774. *Reise durch Russland zur Untersuchung der drey Natur-Reiche Gedruckt bey der Kayserliche Academie der Wissenschaften.* 4 vols. St. Pétersbourg.
- Goode, J. 1967. *Freshwater tortoises of Australia and New Guinea (in the family Chelidae).* Lansdowne Press, Melbourne. 154p.
- Graham, T. E. 1991. *Pseudemys rubriventris.* *Cat. Amer. Amphib. Rept.* 510:1-4.
- Grandidier, A. 1867. Liste des reptiles nouveaux découverts, en 1866, sur la côte sud-ouest de Madagascar. *Rev. Mag. Zool. Paris* (2)19:232-234.
- Grandidier, A. 1869. Description de quelques animaux nouveaux découverts, pendant l'année 1869, sur la cote ouest de Madagascar. *Rev. Mag. Zool. Paris* (2)21:257.
- Gray, J. E. 1825. A synopsis of the genera of Reptiles and Amphibia, with a description of some new species. *Ann. Philos. (new ser.)* 10:193-217.
- Gray, J. E. 1830-35. *Illustrations of Indian Zoology, chiefly selected from the collection of Major-General Hardwicke.* Vols. 1 and 2. London. [Vol. 1 published in 1831; vol. 2 in 1835]
- Gray, J. E. 1831a. A synopsis of the species of the Class Reptilia. pp. 1-110 *IN: E. Griffith and E. Pidgeon (eds.). The Class Reptilia, arranged by the Baron Cuvier, with specific descriptions.* Vol. 9. Whittaker, Treacher and Co., London. 481p. [Webb (1980) discusses pagination and publication date for parts of this paper]
- Gray, J. E. 1831b. Synopsis Reptilium or short descriptions of the species of reptiles. Part 1. Cataphracta, tortoises, crocodiles, and enaliosaurians. Treuttel, Wurtz & Co., London. 85p.
- Gray, J. E. 1831c. Characters of a new genus of freshwater tortoise from China. *Proc. Zool. Soc. London* 1831:106-107.
- Gray, J. E. 1834a. Characters of several new species of freshwater tortoises (*Emys*) from India and China. *Proc. Zool. Soc. London* 1834:53-54.
- Gray, J. E. 1834b. Characters of two new genera of reptiles (*Geoemyda* and *Gehyra*). *Proc. Zool. Soc. London.* 1834:99-100.
- Gray, J. E. 1841. A catalogue of the species of reptiles and amphibia hitherto described as inhabiting Australia, with a description of some new species from Western Australia. Appendix E, pp. 422-449. *IN: G. Grey. Journals of Two Expeditions of Discovery in North-western and Western Australia, during the years 1837, 38, and 39, under the authority of Her Majesty's Government.* T. and W. Boone, London. Vol. 2.
- Gray, J. E. 1842a. Description of some hitherto unrecorded species of Australian reptiles and batrachians. pp51-56. *IN: J. E. Gray, The Zoological Miscellany.* Part 2. Treuttel, Würtz & Co., London.
- Gray, J. E. 1842b. Description of two hitherto unrecorded species of reptiles from New Zealand; presented to the British Museum by Dr. Diffenbach. pp. 57-72. *IN: J. E. Gray, The Zoological Miscellany.* Part 2. Treuttel, Würtz & Co., London.
- Gray, J. E. 1844. Catalogue of the tortoises, crocodiles, and amphibia in the Collection of the British Museum. *British Mus. Natur. Hist., London.* 80p.
- Gray, J. E. 1847. Description of a new genus of Emydidae. *Proc. Zool. Soc. London* 1847:55-56.
- Gray, J. E. 1849. Description of a new species of box tortoise from Mexico. *Proc. Zool. Soc. London* 1848(17):16-17.

- Gray, J. E. 1852. Descriptions of a new genus and some new species of tortoises. Proc. Zool. Soc. London 1852:133-135. [Published in 1854]
- Gray, J. E. 1855. Catalogue of shield reptiles in the collection of the British Museum. Part I. Testudinata (tortoises). Taylor and Francis, London. 79p.
- Gray, J. E. 1857. Description of a new species of *Chelodina* from Australia. Proc. Zool. Soc. London 1856:369-371.
- Gray, J. E. 1859. Description of a new species of freshwater tortoise from Siam. Proc. Zool. Soc. London 1859:478-79
- Gray, J. E. 1860a. On some new species of Mammalia and tortoises from Cambodia. Ann. Mag. Natur. Hist. London (3)6:217-218.
- Gray, J. E. 1860b. Description of a new species of *Geoclemmys* from Ecuador. Proc. Zool. Soc. London 1860:231-232.
- Gray, J. E. 1860c. Description of a new species of *Emys* lately living in the gardens of the Zoological Society. Proc. Zool. Soc. London 1860:232-233.
- Gray, J. E. 1861. On a new species of water-tortoise (*Geoclemmys melanosterna*) from Darien. Proc. Zool. Soc. London 1861:204-205.
- Gray, J. E. 1862. Notice of a new species of *Cyclemys* from the Lao Mountains, in Siam. Ann. Mag. Natur. Hist. London (3)10:157.
- Gray, J. E. 1863a. Observations on the box tortoises, with the descriptions of three new Asiatic species. Proc. Zool. Soc. London 1863:173-177.
- Gray, J. E. 1863b. On the species of *Chelymys* from Australia, with the description of a new species. Ann. Mag. Natur. Hist. London 3(12):98-99.
- Gray, J. E. 1863c. Note on a new species of *Pelomedusa* from Natal. Ann. Mag. Natur. Hist. London 3(12):99-100.
- Gray, J. E. 1863d. Note on American Emydidae, and Professor Agassiz's observations on my catalogue of them. Ann. Mag. Natur. Hist. London (3)12:176-183.
- Gray, J. E. 1863e. Notice of a new species of *Batagur* from North-Western India. Proc. Zool. Soc. London 1863:253.
- Gray, J. E. 1863f. Notice of a new species of *Kinixys* and other tortoises from Central Africa. Ann. Mag. Natur. Hist. London 3(12):381-382.
- Gray, J. E. 1864a. Revision of the species of Trionychidae found in Asia and Africa, with the descriptions of some new species. Proc. Zool. Soc. London 1864:76-98.
- Gray, J. E. 1864b. Description of a new species of *Staurotypus* (*S. salvinii*) from Guatemala. Proc. Zool. Soc. London 1864:127-128.
- Gray, J. E. 1867. Description of a new Australian tortoise (*Elseya latisternum*). Ann. Mag. Natur. Hist. London (3)20:43-45.
- Gray, J. E. 1869a. Notes on the families and genera of tortoises (Testudinata), and on the characters afforded by the study of their skulls. Proc. Zool. Soc. London 1869:165-225.
- Gray, J. E. 1869b. Description of *Mauremys lanjaria*, a new freshwater tortoise. Proc. Zool. Soc. London 1869:499-500.
- Gray, J. E. 1870a. Notice of a new Chilean tortoise (*Testudo chilensis*). Ann. Mag. Natur. Hist. London (4)6:190-191.
- Gray, J. E. 1870b. Notes on three species of tortoises living in the Society's gardens. Proc. Zool. Soc. London 1870:706-708.

- Gray, J. E. 1870c. Supplement to the Catalogue of Shield Reptiles in the Collection of the British Museum. Part I. Testudinata (Tortoises). Taylor and Francis, London. 120p.
- Gray, J. E. 1871a. On *Euchelymys*, a new genus and two new species of Australian freshwater tortoises. *Ann. Mag. Natur. Hist. London* (4)8:117-118.
- Gray, J. E. 1871b. Notes on Australian freshwater tortoises. *Ann. Mag. Natur. Hist. London* (4)8:366.
- Gray, J. E. 1872a. Appendix to the Catalogue of Shield Reptiles in the Collection of the British Museum. Part I. Testudinata (Tortoises). British Museum, London. 28p.
- Gray, J. E. 1872b. Catalogue of Shield Reptiles in the Collection of the British Museum. Part II. Emydosaurians, Rhynchocephalia, and Amphisbaenians. Taylor and Francis, London. 41p.
- Gray, J. E. 1872c. Notes on the mud-tortoises of India (*Trionyx*, Geoffroy). *Ann. Mag. Natur. Hist. London* (4)10:326-340.
- Gray, J. E. 1873a. Hand-list of the specimens of shield reptiles in the British Museum. British Museum, London. 124p.
- Gray, J. E. 1873b. Notes on tortoises. *Ann. Mag. Natur. Hist. London* (4)11:143-149.
- Gray, J. E. 1873c. On a new freshwater tortoise from Borneo (*Oritia borneensis*). *Ann. Mag. Natur. Hist. London* (4)11:156-157.
- Gray, J. E. 1873d. Observations on chelonians, with descriptions of new genera and species. *Ann. Mag. Natur. Hist. London* (4)11:289-308.
- Gray, J. E. 1873e. Notes on the tortoises of the 'Zoology of Mexico' of MM A. Duméril and Bocourt. *Ann. Mag. Natur. Hist. London* (4)12:109-114.
- Gray, J. E. 1873f. Notes on Chinese mud-tortoises (Trionychidae), with the description of a new species sent to the British Museum by Mr. Swinhoe, and observations on the male organ of this family. *Ann. Mag. Natur. Hist. London* (4)12:156-161.
- Greig, J. C. and P. D. Burdett. 1976. Patterns in the distributions of Southern African terrestrial tortoises (Cryptodira: Testudinidae). *Zool. Africana* 11:249-273.
- Grigg, G. and R. Shine. 1985. An open letter to all herpetologists. *Herp. Rev.* 16(4):96-97.
- Groombridge, B. 1982. The IUCN Amphibia-Reptilia Red Data Book, Testudines, Crocodylia, Rhynchocephalia Part 1. IUCN, Gland, Switzerland. 426p.
- Groombridge, B. and R. Luxmoore. 1989. The green turtle and hawkbill (Reptilia: Cheloniidae): World status, exploitation and trade. CITES, Lausanne, Switzerland. 601 pp.
- Groombridge, B., E. O. Moll, and J. Vijaya. 1983. Rediscovery of a rare Indian turtle. *Oryx* 17:130-134.
- Grumwaldt, P.-H. 1980. Liste der Schildkröten in der herpetologischen Sammlung des Zoologischen Instituts und Zoologischen Museums der Universität Hamburg (Testudines, Reptilia). *Best. Herp. Samml. Zool. Inst. Zool. Mus. Univ. Hamburg* 1:1-19.
- Günther, A. 1864. Reptiles of British India. Robert Hardwicke, London. 452p.
- Günther, A. 1875. Description of the living and extinct races of gigantic land-tortoises. Parts I and II. Introduction, and the tortoises of the Galapagos Islands. *Philos. Trans. Royal Soc. London* 165:251-284.
- Günther, A. 1877. The gigantic land tortoises (living and extinct) in the collections of the British Museum. *British Mus. Natur. Hist., London*. 96p. [Published in 1878]
- Günther, A. 1882. Description of a new species of tortoise (*Geoemyda impressa*) from Siam. *Proc. Zool. Soc. London* 1882:343-346.

- Günther, A. 1885. Reptilia and Batrachia. pp. 1-326. *IN*: O. Salvin and F. D. Godman. *Biologia Centrali-Americana*. Porter, and Dulau & Co., London. [According to Smith and Smith (1973:112), this publication was published in 40 parts; Part 1, pages 1-56 appeared in 1885.]
- Haiduk, M. W. and J. W. Bickham. 1982. Chromosomal homologies and evolution of testudinoid turtles with emphasis on the systematic placement of *Platysternon*. *Copeia* 1982(1):60-66.
- Harlan, R. 1827. Description of a land tortoise, from the Galapagos Islands, commonly known as the "Elephant Tortoise." *J. Acad. Natur. Sci. Philadelphia* 5:284-292.
- Harlan, R. 1835. Genera of North American reptilia, and a synopsis of the species. *Med. Phys. Res.* 1835:84-163. [see Troost, G., 1835]
- Harless, M. and H. Morlock (eds.). 1979. *Turtles: Perspectives and research*. John Wiley & Sons, New York. 695p.
- Harper, F. 1940. Some works of Bartram, Daudin, Latreille, and Sonnini, and their bearing upon North American herpetological literature. *Amer. Midl. Natur.* 23(3):692-723.
- Hartweg, N. 1934. Description of a new kinosternid from Yucatan. *Occ. Pap. Mus. Zool., Univ. Michigan* 277:1-2.
- Hartweg, N. 1939a. A new American *Pseudemys*. *Occ. Pap. Mus. Zool., Univ. Michigan* 397:1-4.
- Hartweg, N. 1939b. Further notes on the *Pseudemys scripta* complex. *Copeia* 1939(1):55.
- Hay, O. P. 1904. On the existing genera of the Trionychidae. *Proc. Amer. Philos. Soc.* 42:268-274.
- Hay, W. P. 1904. A revision of *Malaclemmys*, a genus of turtles. *Bull. U. S. Bur. Fish.* 24:1-20.
- Haynes, D. 1976. *Graptemys caglei*. *Cat. Amer. Amphib. Rept.* 184:1-2.
- Haynes, D. and R. R. McKown. 1974. A new species of map turtle (genus *Graptemys*) from the Guadalupe River system in Texas. *Tulane Stud. Zool. Bot.* 18(4):143-152.
- Heatwole, H. 1985. Letter to the Editor. *Herp. Rev.* 16(1):6.
- Heimann, E. 1990. *Testudo graeca* Linnaeus. *Amphib./Rept.-Kartei, SAURIA Suppl., Berlin* 12(1-4):187-192.
- Hemming, F. 1958. I.C.Z.N. Direction 97 (name and spelling of *Alligator mississippiensis*). *Opinions and Declarations Rendered by the International Commission on Zoological Nomenclature* 1F(F.8):87-126.
- Henderson, J. R. 1912. Preliminary note on a new tortoise from South India. *Rec. Indian Mus., Calcutta* 7(21):217-218.
- Hewitt, J. 1927. Further descriptions of reptiles and batrachians from South Africa. *Rec. Albany Mus.* 3:371-415.
- Hewitt, J. 1931. Descriptions of some African tortoises. *Ann. Natal Mus.* 6:461-506.
- Hewitt, J. 1935. Some new forms of batrachians and reptiles from South Africa. *Rec. Albany Mus.* 4:283-357.
- Highfield, A. C. 1990. Tortoises of North Africa: Taxonomy, nomenclature, phylogeny, and evolution with notes on field studies in Tunisia. *J. Chelon. Herpetol.* 1(2):1-56.
- Highfield, A. C. and J. Martin. 1989a. A revision of the Testudines of North Africa, Asia and Europe. *J. Chelon. Herpetol.* 1(1):1-12.
- Highfield, A. C. and J. Martin. 1989b. *Testudo whitei* Bennett 1836: New light on an old carapace- Gilbert White's Selborne tortoise re-discovered. *J. Chelon. Herpetol.* 1(1):13-22.
- Hirayama, R. 1984. Cladistic analysis of batagurine turtles (Batagurinae: Emydidae: Testudinoidea): A preliminary result. *Studia Geologica Salmanticensia, Vol. Especial 1. Studia Palaeocheloniologica* 1:141-157. [Published in 1985]
- Hirth, H. F. 1971. Synopsis of biological data on the green turtle, *Chelonia mydas* (Linnaeus) 1758. *FAO Fish. Synopsis* 85:1-8, 19.

- Hirth, H. F. 1980a. *Chelonia*. Cat. Amer. Amphib. Rept. 248:1-2.
- Hirth, H. F. 1980b. *Chelonia mydas*. Cat. Amer. Amphib. Rept. 249:1-4.
- Hirth, H. F. and E. M. A. Latif. 1981. Morphometrics of the spurred tortoise, *Geochelone sulcata*, in the Sudan. J. Herpetol. 15(1):120-121.
- Holbrook, J. E. 1836. North American Herpetology; or a description of the reptiles inhabiting the United States. Vol. 1. J. Dobson and Son, Philadelphia. 120p.
- Holbrook, J. E. 1838. North American Herpetology; or a description of the reptiles inhabiting the United States. Ed. 1, Vol. 3. J. Dobson and Son, Philadelphia. 122p.
- Holbrook, J. E. 1840. North American Herpetology; or a description of the reptiles inhabiting the United States. Ed. 1, Vol 4. J. Dobson and Son, Philadelphia. 126p.
- Holbrook, J. E. 1842. North American herpetology; or a description of the reptiles inhabiting the United States. Ed. 2, Vol 2. J. Dobson and Son, Philadelphia. 142p.
- Holman, J. A. 1977. Comments on the turtles of the genus *Chrysemys* Gray. Herpetologica 33:274-276.
- Hoogmoed, M. S. and C. R. Crumly. 1984. Land tortoise types in the Rijksmuseum van Natuurlijke Historie with comments on nomenclature and systematics (Reptilia: Testudines: Testudinidae). Zool. Med. Leiden 58(15):241-259.
- Hoogmoed, M. S. and U. Gruber. 1983. Spix and Wagler type specimens of reptiles and amphibians in the Natural History Museum in Munich (Germany) and Leiden (The Netherlands). Spixiana Suppl. 9:319-415.
- Houseal, T. W., J. W. Bickham, and M. D. Springer. 1982. Geographic variation in the yellow mud turtle, *Kinosternon flavescens*. Copeia 1982(3):567-580.
- Hsu, H. E. 1930. Preliminary note on a new variety of *Cyclemys flavomarginata* from China. Contr. Biol. Lab. Sci. Soc. China, Zool. Ser. 6(1):1-7.
- Hutchison, J. H. and D. M. Bramble. 1981. Homology of the plastral scales of the Kinosternidae and related turtles. Herpetologica 37(2):73-85.
- Hutchison, J. H. 1991. Early Kinosterninae (Reptilia: Testudines) and their phylogenetic significance. J. Vertebrate Paleo. 11(2):145-167.
- Iverson, J. B. 1976a. *Kinosternon sonoriense*. Cat. Amer. Amphib. Rept. 176:1-2.
- Iverson, J. B. 1976b. The genus *Kinosternon* in Belize (Testudines: Kinosternidae). Herpetologica 32:258-262.
- Iverson, J. B. 1977a. *Kinosternon subrubrum*. Cat. Amer. Amphib. Rept. 193:1-4.
- Iverson, J. B. 1977b. *Sternotherus depressus*. Cat. Amer. Amphib. Rept. 194:1-2.
- Iverson, J. B. 1977c. *Sternotherus minor*. Cat. Amer. Amphib. Rept. 195:1-2.
- Iverson, J. B. 1977d. Geographic variation in the musk turtle, *Sternotherus minor*. Copeia 1977:502-517.
- Iverson, J. B. 1978a. Variation in striped mud turtles, *Kinosternon bairii* (Reptilia, Testudines, Kinosternidae). J. Herpetol. 12(2):135-142.
- Iverson, J. B. 1978b. Distributional problems of the genus *Kinosternon* in the American southwest. Copeia 1978(3):476-479.
- Iverson, J. B. 1979a. A taxonomic reappraisal of the yellow mud turtles, *Kinosternon flavescens* (Testudines: Kinosternidae). Copeia 1979(2):212-225.
- Iverson, J. B. 1979b. *Sternotherus carinatus*. Cat. Amer. Amphib. Rept. 226:1-2.

- Iverson, J. B. 1980a. *Kinosternon acutum*. Cat. Amer. Amphib. Rept. 261:1-2. [Published in 1981]
- Iverson, J. B. 1980b. *Kinosternon angustipons*. Cat. Amer. Amphib. Rept. 262:1-2. [Published in 1981]
- Iverson, J. B. 1981a. *Kinosternon dunni*. Cat. Amer. Amphib. Rept. 278:1-2.
- Iverson, J. B. 1981b. Biosystematics of the *Kinosternon hirtipes* species group (Testudines: Kinosternidae). Tulane Stud. Zool. Bot. 23:1-74.
- Iverson, J. B. 1982a. *Terrapene coahuila*. Cat. Amer. Amphib. Rept. 288:1-2.
- Iverson, J. B. 1982b. *Terrapene nelsoni*. Cat. Amer. Amphib. Rept. 289:1-2.
- Iverson, J. B. 1983a. *Kinosternon creaseri*. Cat. Amer. Amphib. Rept. 312:1-2.
- Iverson, J. B. 1983b. *Staurotypus triporcatus*. Cat. Amer. Amphib. Rept. 328:1-2.
- Iverson, J. B. 1983c. *Kinosternon oaxacae*. Cat. Amer. Amphib. Rept. 338:1-2.
- Iverson, J. B. 1985a. *Kinosternon hirtipes*. Cat. Amer. Amphib. Rept. 361:1-4.
- Iverson, J. B. 1985b. *Staurotypus*. Cat. Amer. Amphib. Rept. 362:1-2.
- Iverson, J. B. 1985c. Checklist of the turtles of the world with English common names. SSAR Herp. Circ. 14:1-14.
- Iverson, J. B. 1986a. Notes on the natural history of the Oaxaca mud turtle, *Kinosternon oaxacae*. J. Herpetol. 20(1):119-123.
- Iverson, J. B. 1986b. A Checklist with Distribution Maps of the Turtles of the World. Iverson, Richmond, Indiana. 283p.
- Iverson, J. B. 1988. Neural bone patterns and the phylogeny of the turtles of the subfamily Kinosterninae. Milwaukee Publ. Mus. Contrib. Biol. Geol. 75:1-12.
- Iverson, J. B. 1989a. Natural history of the Alamos mud turtle *Kinosternon alamosae* (Kinosternidae). Southwest. Natur. 34(1):134-142.
- Iverson, J. B. 1989b. Distribution and status of Creaser's mud turtle (*Kinosternon creaseri*). Herpetol. J. 1:285-291.
- Iverson, J. B. 1989c. The Arizona mud turtle *Kinosternon flavescens arizonense* (Kinosternidae) in Arizona and Mexico. Southwest. Natur. 34(3):356-368.
- Iverson, J. B. 1990. *Kinosternon alamosae*. Cat. Amer. Amphib. Rept. 460:1-3.
- Iverson, J. B. 1991. Phylogenetic hypotheses for the evolution of modern kinosternine turtles. Herpetol. Monogr. 5:1-27.
- Iverson, J. B. and J. F. Berry. 1979. The mud turtle genus *Kinosternon* in northeastern Mexico. Herpetologica 35:318-324.
- Iverson, J. B. and J. F. Berry. 1980. *Claudius, C. angustatus*. Cat. Amer. Amphib. Rept. 236:1-2.
- Iverson, J. B., C. H. Ernst, S. Gotte, and J. E. Lovich. 1989. The validity of *Chinemys megaloccephala* (Testudines: Batagurinae). Copeia 1989(2):502-505.
- Iverson, J. B. and C. R. Etchberger. 1989. The distributions of the turtles of Florida. Florida Sci. 52(2):119-144.
- Iverson, J. B. and T. E. Graham. 1990. Geographic variation in the redbelly turtle, *Pseudemys rubriventris* (Reptilia:Testudines). Ann. Carnegie Mus. 59(1):1-13.
- Iverson, J. B. and W. P. McCord. 1989. The proper taxonomic allocations of *Emys nigricans* Gray, *Emys muticus* Cantor, and *Geoclemys kwangtungensis* Pope. Amphibia-Reptilia 10:23-33.



- Iverson, J. B. and W. P. McCord. 1992a. A new Chinese eyed turtle of the genus *Sacalia* (Batagurinae: Testudines). Proc. Biol. Soc. Washington. Submitted.
- Iverson, J. B. and W. P. McCord. 1992b. A new subspecies of *Cuora galbinifrons* (Testudines: Batagurinae) from Hainan Island, China. Proc. Biol. Soc. Washington. Submitted.
- Iverson, J. B. and W. P. McCord. 1992c. A new species of *Ocadia* (Testudines: Batagurinae) from northern Vietnam. Proc. Biol. Soc. Washington. Submitted.
- Iverson, J. B. and R. A. Mittermeier. 1980. Dermatemydidae, *Dermatemys*, *D. mawii*. Cat. Amer. Amphib. Rept. 237:1-4.
- Jackson, D. R. 1978a. *Chrysemys nelsoni*. Cat. Amer. Amph. Rept. 210:1-2.
- Jackson, D. R. 1978b. Evolution and fossil record of the chicken turtle *Deirochelys*, with a re-evaluation of the genus. Tulane Stud. Zool. Bot. 20:35-55.
- Jerdon, T. C. 1870. Notes on Indian Herpetology. Proc. Asiatic Soc. Bengal, Calcutta 1870:66-85.
- Juvik, J. O. 1975. The radiated tortoise of Madagascar. Oryx 13(2):145-148.
- Juvik, J. O., A. J. Andrianarivo, and C. Blanc. 1981. The ecology and status of *Geochelone yniphora*: A critically endangered tortoise in northwestern Madagascar. Biol. Conserv. 19:297-316.
- Khan, M. A. R. 1982. Chelonians of Bangladesh and their conservation. J. Bombay Natur. Hist. Soc. 79(1):110-116.
- Khozatsky, L. K. and M. Mlynarski. 1966. *Agrionemys* - nouveau genre de tortue terrestres (Testudinidae). Bull. Acad. Polonaise Sci. 14(2):123-125.
- King, F. W. and R. L. Burke. 1989. Crocodilian, Tuatara, and Turtle Species of the World: A Taxonomic and Geographic Reference. Assoc. Syst. Coll., Washington, D.C. 216p.
- King, M. and I. Miller. 1985. Letter to the Editor. Herp. Rev. 16(1):4-5.
- Kirsche, W. 1984. Bastardierung von *Testudo horsfieldii* (Gray) und *Testudo h. hermanni* Gmelin. Amphibia-Reptilia 5(3/4):311-322.
- Kizirian, D. A. and R. G. Webb. 1990. A reassessment of the phylogenetic relationships of soft-shelled turtles (Testudines: Trionychidae). Abstract. Annual Meeting HL/SSAR, Tulane, Univ. New Orleans.
- Kluge, A. 1984. Type-specimens of reptiles in the University of Michigan Museum of Zoology. Misc. Publ. Mus. Zool. Univ. Michigan 167:1-85.
- Kock, D. and G. Storch. 1979. *Testudo marginata* Schoepff, 1792 auf den Nördlichen Sporaden, Ägäis (Reptilia: Testudines: Testudinidae). Salamandra 15(2):101-105.
- Kofron, C. P. 1991. Aspects of ecology of the threatened ringed sawback turtle, *Graptemys oculifera*. Amphibia-Reptilia 12(2):161-168.
- Kou, Z. 1989. *Cyclemys* from Yunnan, a description of a new species and a new record to China (Testudinata: Emydidae). Curr. Herpetol. East Asia 1989:193-197.
- Kreffft, G. 1876. Notes on Australian animals in New Guinea with description of a new species of fresh water tortoise belonging to the genus *Euchelymys* (Gray). Ann. Mus. Civ. Stor. Natur. Genova 8:390-394.
- Kuchling, G. and J. P. DeJoso. 1989. A captive breeding operation to rescue the critically endangered western swamp turtle *Pseudemys unbrina* from extinction. Internat. Zoo Yrbk. 28:103-109.
- Kuhl, H. 1820. Beiträge zur Zoologie und vergleichenden Anatomie. Hermann, Frankfurt am Main 1:1-151.
- Lacépède, B. G. E. 1788. Histoire naturelle des quadrupèdes ovipaires et des serpens. Vol. 1. Imprimerie du Roi, Paris. 668p.

- Lahanas, P. N. 1986. *Graptemys nigrinoda*. Cat. Amer. Amphib. Rept. 396:1-2
- Lamar, W. W. and F. Medem. 1984. Notes on the chelid turtle *Phrynops rufipes* in Colombia (Reptilia: Testudines: Chelidae). *Salamandra* 18(3/4):305-321.
- Lamb, T., J. C. Avise, and J. W. Gibbons. 1989. Phylogeographic patterns in mitochondrial DNA of the desert tortoise (*Xerobates agassizii*), and evolutionary relationships among the North American gopher tortoises. *Evolution* 43(1):76-87.
- Lamb, T. and J. E. Lovich. 1990. Morphometric validation of the striped mud turtle (*Kinosternon baurii*) in the Carolinas and Virginia. *Copeia* 1990(3):613-618.
- Lambert, M. R. K. 1983. Some factors influencing the Moroccan distribution of the western Mediterranean spur-thighed tortoise, *Testudo graeca graeca* L., and those precluding its survival in NW Europe. *Zool. J. Linn. Soc.* 79:149-179.
- Landry, J. L. 1979. A bibliography of the bog turtle, *Clemmys muhlenbergii* (Biology, ecology, and distribution). *Smithson. Herpetol. Inform. Serv.* 44:1-21.
- Lataste, F. 1886. Description d'une tortue nouvelle de Haut-Senegal (*Homopus nogueyi*). *Le Naturaliste* (2)8:286-287.
- Latreille, P. A. 1801. *IN: C. N. S. Sonnini de Manoncourt and P. A. Latreille. Histoire Naturelle des Reptiles, avec Figures Dessinées, d'après Nature. Détéville, Paris. Vol. 1, 280p. [See Harper 1940:692-723, for discussion of publication date.]*
- Laurent, R. F. 1956. Contribution à l'Herpétologie de la Région des Grandes Lacs de l'Afrique centrale. I. Généralités. II. Cheloniens, III. Ophidiens. *Ann. Mus. Royal Congo Belge, Zool.* 48:1-390.
- Laurent, R. F. 1965. A contribution to the knowledge of the genus *Pelusios* (Wagler). *Ann. Mus. Royal Afr. Cent. Zool.* (8)135:1-33.
- LeConte, J. 1829. Description of the species of North American tortoises. *Ann. Lyceum Natur. Hist. New York* 3:91-131. [Published in 1830]
- LeConte, J. 1854. Description of four new species of *Kinosternum*. *Proc. Acad. Natur. Sci. Philadelphia* 7:180-190.
- Legler, J. M. 1959. A new tortoise, genus *Gopherus*, from north-central Mexico. *Univ. Kansas Publ. Mus. Natur. Hist.* 11(5):335-343.
- Legler, J. M. 1960a. Natural history of the ornate box turtle, *Terrapene ornata ornata* Agassiz. *Univ. Kansas Publ. Mus. Natur. Hist.* 11:527-669.
- Legler, J. M. 1960b. A new subspecies of slider turtle (*Pseudemys scripta*) from Coahuila, Mexico. *Univ. Kansas Publ. Mus. Natur. Hist.* 13(3):73-84.
- Legler, J. M. 1965. A new species of turtle, genus *Kinosternon* from Central America. *Univ. Kansas Publ. Mus. Natur. Hist.* 15(13):615-625.
- Legler, J. M. 1966. Notes on the natural history of a rare Central American turtle, *Kinosternon angustipons* Legler. *Herpetologica* 22(2):118-122.
- Legler, J. M. 1981. The taxonomy, distribution, and ecology of Australian freshwater turtles (Testudines: Pleurodira: Chelidae). *Natl. Geogr. Soc. Res. Rep.* 13:391-404.
- Legler, J. M. 1985. Australian chelid turtles: Reproductive patterns in wide-ranging taxa. pp. 117-123. *IN: G. Grigg, R. Shine, and H. Ehmann (eds.). The Biology of Australasian Frogs and Reptiles. Surrey Beatty and Sons, Chipping North, New South Wales.*
- Legler, J. M. 1990. The genus *Pseudemys* in Mesoamerica: Taxonomy, distribution and origins. pp. 82-105. *IN: J. W. Gibbons (ed.). Life history and ecology of the slider turtle. Smithsonian Institution Press. Washington, D. C.*

- Legler, J. M. and J. Cann. 1980. A new genus and species of chelid turtle from Queensland, Australia. *Contrib. Sci. Natur. Hist. Mus. Los Angeles Co.* 324:1-18.
- Legler, J. M. and R. G. Webb. 1970. A new slider turtle (*Pseudemys scripta*) from Sonora, Mexico. *Herpetologica* 26(2):157-168.
- Lenglet, G. and E. Depiereux. 1986. Note sur les sous-espèces de *Pelusios williamsi* Laurent, 1965: Apport de l'analyse discriminante. *Bull. Inst. Royal Sci. Natur. Belgique Biol.* 56:75-82.
- Lescure, J. and J. Fretey. 1975. Étude taxinomique de *Phrynops (Batrachemys) nasutus* (Schweigger) (Testudinata, Chelidae). *Bull. Mus. Natl. Hist. Natur. Paris* 337:1317-1328.
- Lesson, R. P. 1830. *Centurie zoologique*. F. G. Levrault, Paris. 235p.
- Lesson, R. P. 1831. Catalogue des Reptiles qui font partie d'une Collection zoologique recueillie dans l'Inde continentale ou en Afrique, et apportée en France par M. Lamare-Piquot. *Bull. Sci. Natur. Géol., Paris* (25):119-123.
- LeSueur, C. A. 1817. An account of the American species of tortoise, not noticed in the systems. *J. Acad. Natur. Sci. Philadelphia* 1:86-88.
- LeSueur, C. A. 1827. Note sur deux espèces de tortues du genre *Trionyx* Geoffrey-Saint Hilaire. *Mém. Mus. Hist. Natur. Paris* 15:257-268.
- Leviton, A. E., R. H. Gibbs, E. Heal, and C. E. Dawson. 1985. Standards in herpetology and ichthyology: Part I. Standard symbolic codes for institutional resource collections in herpetology and ichthyology. *Copeia* 1985(3):802-832.
- Leviton, A. E. and R. H. Gibbs. 1988. Standards in herpetology and ichthyology: Standard symbolic codes for institution resource collections in herpetology and ichthyology. Supplement No. 1: Additions and Corrections. *Copeia* 1988(1):280-282.
- Li, Z. Y. 1958. Report on the investigation of reptiles of Hainan Island. *Chinese J. Zool.* 2(4):234-239.
- Linpus, C. J., E. Gyuris, and J. D. Miller. 1988. Reassessment of the taxonomic status of the sea turtle genus *Natator* McCulloch 1908 with a redescription of the genus and species. *Trans. Royal Soc. S. Australia* 112(1/2):1-10.
- Lindholm, W. A. 1906. Beschreibung einer neuen Schildkrötenart aus Deutsch-Sudwestafrika nebst Bemerkungen über die Gattung *Homopus* D. et B. *Jahrb. Nassau. Ver. Naturk., Wiesbaden* 59:345-357.
- Lindholm, W. A. 1929. Revidiertes Verzeichnis der Gattungen der rezenten Schildkröten nebst Notizen zur Nomenklatur einiger Arten. *Zool. Anz.* 81(11/12):275-295.
- Lindholm, W. A. 1931. Über eine angebliche *Testudo*-Art aus Südchina. *Zool. Anz.* 97:27-30.
- Linnaeus, C. 1754. *Museum S:ae R:ae M:tis Adolphi Friderici*. Part I. Kongliga Tryckeriet, Stockholm.
- Linnaeus, C. 1758. *Systema Naturae per Regna tria Naturae secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis*. Salvii, Stockholm. 10th ed. Holmiae. Vol. 1. 824p.
- Linnaeus, C. 1766. *Systema Naturae per Regna tria Naturae secundum Classes, Ordines, Genera, Species, cum Characteribus, Differentiis, Synonymis, Locis*. 12th ed. Halae Magdeburgicae. Vol. 1. 532p.
- Lönnerberg, E. 1896. Linnean type-specimens of birds, reptiles, batrachians, and fishes in the Zoological Museum of the Royal University of Upsala. *Bihang Svenska Vetenskaps-Akad. Handl., Stockholm* 22(4):1-45.
- Lorenz, W. 1984. Die asiatischen Schildkröten der Family Emydidae. Part 2. Die Gattung *Cyclemys* Bell 1834 and *Notochelys* Gray 1863. *Die Schildkrote* 6(1):4-20.
- Lortet, L. 1883. Etudes zoologiques sur la faune du Lac de Tibernade. *Arch. Mus. Hist. Natur., Lyon* 3:99-189.
- Loveridge, A. 1934. Australian reptiles in the Museum of Comparative Zoology, Cambridge, Massachusetts. *Bull. Mus. Comp. Zool., Harvard* 77(6):243-283.

- Loveridge, A. 1935. Scientific results of an expedition to rain forest regions in eastern Africa. I. New reptiles and amphibians from East Africa. *Bull. Mus. Comp. Zool. Harvard* 79:1-19.
- Loveridge, A. 1941. Revision of the African terrapins of the family Pelomedusidae. *Bull. Mus. Comp. Zool. Harvard* 88:467-524.
- Loveridge, A. and E. E. Williams. 1957. Revision of the African tortoises and turtles of the suborder Cryptodira. *Bull. Mus. Comp. Zool. Harvard* 115(6):163-557.
- Lovich, J. E. 1985. *Graptemys pulchra*. *Cat. Amer. Amphib. Rept.* 360:1-2.
- Lovich, J. E., C. H. Ernst, and S. W. Gotte. 1985. Geographic variation in the Asiatic turtle *Chinemys reevesii* (Gray), and the status of *Geoclemmys grangeri* Schmidt. *J. Herpetol.* 19(2):238-245.
- Luederwaldt, H. 1926. Os chelonios brasileiros com a lista dos especies do Museu Paulista. *Rev. Mus. Paulista* 14:404-468.
- Luo, B. and Y. Zong. 1988. A new species of *Cuora-Cuora aurocapitata*. *Acta Herpetologica Sinica* 3:13-15.
- Lydekker, R. 1876-1887. Indian Tertiary and Post-Tertiary Vertebrata. *Palaeont. Indica* 10(4):9-65.
- Lydekker, R. 1889. Catalogue of the fossil Reptilia and Amphibia in the British Museum (Natural History). Part III. Chelonia. *British Mus. Natur. Hist., London.* 239p.
- MacFarland, C. G., J. Villa, and B. Toro. 1974a. The Galapagos giant tortoises (*Geochelone elephantopus*). Part I: Status of the surviving populations. *Biol. Conserv.* 6:118-133.
- MacFarland, C. G., J. Villa, and B. Toro. 1974b. The Galapagos giant tortoises (*Geochelone elephantopus*). Part II: Conservation methods. *Biol. Conserv.* 6:198-217.
- Mao, S. H. 1971. Turtles of Taiwan. *Comm. Press, Taipei.* 128p.
- Mao, S. H., W. Friar, F. Y. Yin, and Y. W. Guo. 1987. Relationships of some cryptodiran turtles as suggested by immunological cross-reactivity of serum albumens. *Biochem. Syst. Ecol.* 15(5):621-624.
- Marlow, R. W. and J. L. Patton. 1981. Biochemical relationships of the Galapagos giant tortoises (*Geochelone elephantopus*). *J. Zool. (London)* 195:413-422.
- Marquez M., R., A. Villanueva O., and C. Peñaflores S. 1976. Sinopsis de datos biológicos sobre la tortuga golfina *Lepidochelys olivacea* (Eschscholtz, 1829). *INP Sinopsis Sobre La Pesca* 2:1-61.
- Maslin, T. P. 1959. An annotated check list of the amphibians and reptiles of Colorado. *Univ. Colorado Stud. Ser. Biol.* 6:1-98.
- McBee, K., J. W. Bickham, A. G. J. Rhodin, and R. A. Mittermeier. 1985. Karyotypic variation in the genus *Platemys* (Testudines: Pleurodira). *Copeia* 1985(2):145-149.
- McCord, W. P. and J. B. Iverson. 1991. A new box turtle of the genus *Cuora* (Testudines: Emydidae) with taxonomic notes and a key to the species. *Herpetologica* 47(4):407-420.
- McCord, W. P. and J. B. Iverson. 1992. A new turtle of the genus *Ocadia* (Testudines: Batagurinae) from Hainan Island, China. *Proc. Biol. Soc. Washington* 105(1):13-20.
- McCoy, C. J. 1973. *Emydoidea, E. blandingii*. *Cat. Amer. Amphibia Reptilia* 136:1-4.
- McCoy, C. J. and R. C. Vogl. 1985. *Pseudemys alabamensis*. *Cat. Amer. Amphib. Rept.* 371:1-2.
- McCoy, C. J. and R. C. Vogl. 1987. *Graptemys flavimaculata*. *Cat. Amer. Amphib. Rept.* 403:1-2.
- McCoy, C. J. and R. C. Vogl. 1988. *Graptemys oculifera*. *Cat. Amer. Amphib. Rept.* 422:1-2.
- McCoy, C. J. and R. C. Vogl. 1990. *Graptemys geographica*. *Cat. Amer. Amphib. Rept.* 484:1-4.

- McCulloch, A. R. 1908. A new genus and species of turtle from North Australia. *Rec. Austral. Mus. Sydney* 7:126-128.
- McDiarmid, R. W. and M. S. Foster. 1987. Additions to the reptile fauna of Paraguay with notes on a small herpetological collection from Amambay. *Stud. Neotrop. Fauna Environ.* 22(1):1-10.
- McDowell, S. B. 1964. Partition of the genus *Clemmys* and related problems in the taxonomy of the aquatic Testudinidae. *Proc. Zool. Soc. London* 143(2):239-279.
- McDowell, S. B. 1983. The genus *Emydura* (Testudines: Chelidae) in New Guinea with notes on the penial morphology of Pleurodira, pp. 169-189. *IN: A. G. J. Rhodin and K. Miyata (eds.). Advances in herpetology and evolutionary biology, Mus. Comp. Zool. Harvard, Cambridge, Mass.* 725p.
- McKeown, S. and R. G. Webb. 1982. Softshell turtles in Hawaii. *J. Herpetol.* 16(2):107-111.
- McMorris, J. R. 1976. The generic reassignment of *Geoemyda tcheponensis* Bourret. *Chelonia* 3(2):10-11.
- Medem, F. 1958. Informe sobre reptiles Colombianos. (II). El conocimiento actual sobre la distribución geográfica de los Testudinata en Colombia. *Bol. Mus. Cienc. Natur., Caracas* 2/3(1-4):13-45.
- Medem, F. 1966. Contribuciones al conocimiento sobre la ecología y distribución geográfica de *Phrynops (Batrachemys) dahli* (Testudinata, Pleurodira, Chelidae). *Caldasia* 9:467-489.
- Medem, F. 1977. Contribución al conocimiento sobre la taxonomía, distribución geográfica y ecología de la tortuga "Bache" (*Chelydra serpentina acutirostris*). *Caldasia* 12(56):41-101.
- Melville, R. V. 1985. Opinion 1343: *Kinosternon ulamosae* Berry and Legler, 1980 and *Kinosternon oaxacae* Berry and Iverson, 1980 (Reptilia, Testudines): Conserved. *Bull. Zool. Nomencl.* 42(3):266-268.
- Melville, R. V. 1989. Opinion 1534: *Sternotherus* Gray, 1825 and *Pelusios* Wagler, 1830 (Reptilia, Testudines): Conserved. *Bull. Zool. Nomencl.* 46(1):81-82.
- Merkle, D. A. 1975. A taxonomic analysis of the *Clemmys* complex (Reptilia: Testudines) using starch gel electrophoresis. *Herpetologica* 31(2):162-166.
- Merrem, B. 1820. Versuch eines Systems der Amphibien. Tentamen Systematic Amphibiorum. Krieger, Marburg. 199p.
- Mertens, R. 1937. Bemerkungen über die Rassen von *Pelomedusa subrufa* (Lacépède). *Zool. Anz.* 117:139-142.
- Mertens, R. 1946. Über einige Mediterrane Schildkröten-Rassen. *Senckenbergiana* 27:111-118.
- Mertens, R. 1954a. Zur Kenntnis der Schildkrötenfauna Venezuelas. *Senck. Biol.* 35(1/2):3-7.
- Mertens, R. 1954b. Bemerkenswerte Schildkröten aus Süd- und Zentralamerika. *Aquar. Terr. Zeit.* 7(9):239-242.
- Mertens, R. 1967a. Bemerkenswerte Süßwasserschildkröten aus Brasilien. *Senck. Biol.* 48:71-82.
- Mertens, R. 1967b. Die herpetologische Sektion des Natur-Museums und Forschungs-Institutes Senckenberg im Frankfurt am M. nebst einem Verzeichnis ihrer Typen. *Senck. Biol.* 48(suppl. A.):1-106.
- Mertens, R. 1969a. Eine neue Rasse der Dachschildkröte, *Kachuga tecta*. *Senck. Biol.* 50(1/2):23-30.
- Mertens, R. 1969b. Bemerkungen über einige Halswender-Schildkröten. *Senck. Biol.* 50(1/2):31-38.
- Mertens, R. 1969c. Eine neue Halswender-Schildkröte aus Peru. *Senck. Biol.* 50:132.
- Mertens, R. 1972. Eine oft verkannte Unterart der australischen Schlangenhals-Schildkröte *Chelodina longicollis*. *Salamandra* 8(1):27-31.
- Mertens, R. 1979. Die Amphibien und Reptilien West-Pakistans. *Stuttgart Beitr. Naturk.* 197:1-96.
- Mertens, R. and L. Müller. 1928. Liste der Amphibien und Reptilien Europa. *Abh. Senck. Naturf. Gesell.* 41:1-62.

- Mertens, R. and L. Müller. 1940. Die Amphibien und Reptilien Europas. Abh. Senck. Naturf. Gesell. 45:1-56.
- Mertens, R. and H. Wermuth. 1955. Die rezenten Schildkröten, Krokodile und Brückenechsen. Zool. Jb. Abt. Allg. Syst. 83(5):323-440.
- Meyer, A. B. 1874. *Platemys novaequineae* sp. nov. Dr. W. H. Peters legte vor: Eine mittheilung von Hrn. Adolf Bernhard Meyer über die von ihm auf Neu-Guinea under den Inseln Jobi, Mysore und Mafoor im Jahre 1873 gesammelten Amphibien. Monatsber. König. Preuss. Akad. Wiss. Berlin 39:128-140.
- Meylan, P. A. 1984. Evolutionary relationships of Recent trionychid turtles: evidence from skull morphology. *Studia Geologica Salmanticensia*. Vol. Especial I. *Studia Palaeocheloniologica* 1:169-188. [Published in 1985]
- Meylan, P. A. 1987. The phylogenetic relationships of soft-shelled turtles (Family Trionychidae). *Bull. Amer. Mus. Natur. Hist.* 186(1):1-101.
- Meylan, P. A. 1989. The skeletal morphology of the Cretaceous cryptodiran turtle, *Adocus*, and the relationships of the Trionychoidea. *Amer. Mus. Novitates* 294:1-60.
- Meylan, P. A. and W. Auffenberg. 1987. The chelonians of the Laetoli Beds. pp. 62-78. *IN: M. D. Leakey and J. M. Harris (ed.). The Pliocene site of Laetoli, northern Tanzania.* Oxford Univ. Press, Oxford, England.
- Meylan, P. A. and R. G. Webb. 1988. *Rafetus swinhoei* (Gray) 1873, a valid species of living soft-shelled turtle (Family Trionychidae) from China. *J. Herpetol.* 22(1):118-119.
- Meylan, P. A., B. S. Weig, and R. C. Wood. 1990. Fossil soft-shelled turtles (family Trionychidae) of the Lake Turkana Basin, Africa. *Copeia* 1990(2):508-528.
- Mikan, J. C. 1820. *Delectus Florae et Faunae Brasiliensis.* Antoinii Strauss, Wien. 54p.
- Miller, J. F. 1779. *Icones animalium et plantarum* (Various subjects of natural history, wherein are delineated birds, animals and many curious plants. . .). Letterpress, London. 10p.
- Milstead, W. W. 1967. Fossil box turtles (*Terrapene*) from central North America, and box turtles of eastern Mexico. *Copeia* 1967(1):168-179.
- Milstead, W. W. 1969. Studies on the evolution of box turtles (genus *Terrapene*). *Bull. Florida State Mus. Biol. Sci.* 14(1):1-113.
- Milstead, W. W. and D. W. Tinkle. 1967. *Terrapene* of western Mexico, with comments on the species groups in the genus. *Copeia* 1967(1):180-187.
- Minton, S. A., Jr. 1966. A contribution to the herpetology of West Pakistan. *Bull. Amer. Mus. Natur. Hist.* 134:27-184.
- Mittermeier, R. A., A. Rhodin, F. Medem, P. Soini, M. S. Hoogmoed, and N. Carillo de Espinoza. 1978. Distribution of the South American chelid turtle *Phrynops gibbus*, with observations on habitat and reproduction. *Herpetologica* 34(1):94-100.
- Mittermeier, R. A. and R. A. Wilson. 1974. Redescription of *Podocnemis erythrocephala* (Spix, 1824), an Amazonian pelomedusid turtle. *Pap. Avul. Zool. S. Paulo* 28:147-162.
- Mittleman, M. B. 1945. Type localities of two American turtles. *Copeia* 1945(3):171.
- Mlynarski, M. 1976. *Handbuch der Palaeoherpetologie*. Part 7. Testudines. Fischer Verlag, Stuttgart. 130p.
- Mojsisovics, A. V. 1889. Zoogeographische Notizen über Süd-Ungarn aus den Jahren 1886-1888. Zugleich ein III. Nachtrag zur "Fauna von Bélye und Darda." *Mitt. Naturwiss. Ver. Steiermark, Graz* 25(1888):233-269.
- Moll, D. 1986. The distribution, status, and level of exploitation of the freshwater turtle *Dermatemys mawei* in Belize, Central America. *Biol. Conserv.* 35:87-96.
- Moll, E. O. 1980. Natural history of the river terrapin, *Batagur baska* (Gray) in Malaysia (Testudines: Emydidae). *Malaysian J. Sci.* 6A:23-62.

- Moll, E. O. 1985. Relationship and biology of the chelonian genus *Kachuga* in India. Abstract. Annual meetings SSAR/HL. Univ. South Florida, Tampa.
- Moll, E. O. 1986. Survey of the freshwater turtles of India. Part I: The genus *Kachuga*. J. Bombay Natur. Hist. Soc. 83:538-552.
- Moll, E. O. 1987. Survey of the freshwater turtles of India. Part II: The genus *Kachuga*. J. Bombay Natur. Hist. Soc. 84:7-25.
- Moll, E. O., B. Groombridge, and J. Vijaya. 1987. Redescription of the cane turtle with notes on its natural history and classification. J. Bombay Natur. Hist. Soc. 83:112-116.
- Moll, E. O. and J. M. Legler. 1971. The life history of a neotropical slider turtle, *Pseudemys scripta* (Schoepff), in Panama. Bull. Los Angeles Co. Mus. Natur. Hist. Sci. 11:1-102.
- Moll, E. O., K. E. Matson, and E. B. Krehbiel. 1981. Sexual and seasonal dichromatism in the Asian river turtle *Callagur borneoensis*. Herpetologica 37(4):181-194.
- Moll, E. O. and J. Vijaya. 1986. Distributional records for some Indian turtles. J. Bombay Natur. Hist. Soc. 83(1):57-62.
- Morařka, D. J. 1982. The status and distribution of the Bolson tortoise (*Gopherus flavomarginatus*). U. S. Fish Wildl. Serv. Res. Rep. 12:71-94.
- Morařka, D. J. and C. J. McCoy (eds.). 1988. The ecogeography of the Mexican Bolson tortoise (*Gopherus flavomarginatus*): Derivation of its endangered status and recommendations for its conservation. Ann. Carnegie Mus. 57(1):1-72.
- Mosimann, J. E. and G. B. Rabb. 1953. A new subspecies of the turtle *Geoemyda rubida* (Cope) from western Mexico. Occ. Pap. Mus. Zool., Univ. Michigan 548:1-7.
- Mount, R. H. 1975. The reptiles and amphibians of Alabama. Auburn Univ. Agric. Exp. Stat., Auburn, Alabama. 347p.
- Müller, L. 1935. Über eine neue *Podocnemis*-Art (*Podocnemis vogli*) aus Venezuela, nebst ergänzenden Bemerkungen über die systematischen Merkmale der ihr nächstverwandten Arten. Zool. Anz. 110(5/6):97-109.
- Müller, L. 1936. Beiträge zur Kenntnis der Schildkrötenfauna von Mexiko. Zool. Anz. 113(5/6):97-114.
- Müller, L. 1940. Über *Pseudemys callirostris* (Gray). Ibero-amerikanische Stud. 13:108-126.
- Müller, L. and W. Hellmich. 1936. Wissenschaftliche Ergebnisse der Deutschen Gran Chaco-Expedition (Leiter: Professor Dr. Hans Krieg, München). Amphibien und Reptilien. I. Teil: Amphibia, Chelonia, Loricata. Strecker and Schroder, Stuttgart. 120p.
- Murray, J. A. 1884. Additions to the reptilian fauna of Sind. Ann. Mag. Natur. Hist. London (5)14:106-111.
- Nakamura, K. 1934. On *Clemmys mutica* (Cantor) with special reference to its variations. Annot. Zool. Japan 14:425-435.
- Neill, W. T. 1951. The taxonomy of North American soft-shelled turtles, genus *Amyda*. Publ. Res. Div. Ross Allen's Rept. Inst. 1(2):7-24.
- Newbery, R. 1984. The American Red-eared Terrapin in South Africa. African Wildl. 38(5):186-189.
- Nicholson, H. A. and R. Lydekker. 1889. A Manual of Paleontology for the use of Students. Third edition. Two volumes. W. Blackwood and Sons, Edinburgh. 1624p.
- Nikolsky, A. M. 1896. Diagnosis reptilium et amphibiorum novorum in Persia orientali a N. Zarudny Collectorum. Ann. Mus. Zool. Acad. Imp. Sci. St. Pétersbourg 4:369-372.

- Nikolsky, A. M. 1897. Les reptiles, amphibiens et poissons recueillis par Mr. N. Zaroudny dans la Perse orientale. *Ann. Mus. Zool. Acad. Imp. Sci. St. Pétersbourg* 4:306-348.
- Nikolsky, A. M. 1915. Fauna of Russia and adjacent countries. Reptiles. Vol. I. Chelonia and Sauria. Petrograd. 352p. [1963 translation by Israel program for scientific translations, Jerusalem. 352p.]
- Obst, F. J. 1976. Über den Holotypus von *Platemys novaeguineae* Meyer, 1874 (Reptilia, Chelonia). *Zool. Abh. Mus. Tierk. Dresden* 34(3):43-46.
- Obst, F. J. 1978. Beiträge zur Kenntnis der Testudiniden Madagaskars (Reptilia, Chelonia, Testudinidae). *Zool. Abh. Mus. Tierk. Dresden* 35:31-54.
- Obst, F. J. 1980. Ergänzende Bemerkungen zu den Testudiniden Madagaskars (Reptilia, Chelonia, Testudinidae). *Zool. Abh. Mus. Tierk. Dresden* 36:229-232.
- Obst, F. J. 1983a. Beiträge zur Kenntnis der Landschildkröten-Gattung *Manouria* Gray, 1852 (Reptilia, Testudines, Testudinidae). *Zool. Abh. Mus. Tierk. Dresden* 38(15):247-256.
- Obst, F. J. 1983b. Schmuckschildkröten, die Gattung *Chrysemys*. A. Ziemsen Verlag, Wittenberg Lutherstadt, Germany. 112p.
- Obst, F. J. 1985. Die Welt der Schildkröten. Druckerei Fortschritt Erfurt, Leipzig. 235p.
- Obst, F. J. 1986. Turtles, tortoises and terrapins. Druckerei Fortschritt Erfurt, Leipzig. 231p.
- Obst, F. J. and W. Meusel. 1963. Die Landschildkröten Europas und der Mittelmeerlande. A. Ziemsen Verlag, Wittenberg Lutherstadt, Germany. 52p.
- Ogilby, J. B. 1890. Description of a new Australian tortoise. *Rec. Australian Mus.* 1:56-59.
- Ogilby, J. B. 1905. Catalogue of the Emydosaurian and Testudinian reptiles of New Guinea. *Proc. Royal Soc. Queensland, Brisbane* 19:1-31.
- Oppel, M. 1811. Die Ordnungen, Familien, und Gattungen der Reptilien, als Prodrum einer Naturgeschichte derselben. J. Lindauer, München. 87p.
- Ottley J. R. and V. M. Velázquez-Salis. 1989. An extant, indigenous tortoise population in Baja California Sur, Mexico, with the description of a new species of *Xerobates* (Testudines: Testudinidae). *Great Basin Natur.* 49(4):496-502.
- Owen, R. 1853. Descriptive catalogue of the osteological series contained in the Museum of the Royal College of Surgeons. Vol. 1. Pisces, Reptilia, Aves, Marsupialia. Taylor and Francis, London. 350p.
- Pallas, P. S. 1814. *Animalia monocardia seu frigidi sanguines. Imperii Russo-Asiatici* 3:1-428.
- Paolillo, O. A. 1985. Description of a new subspecies of the turtle *Rhinoclemmys punctularia* (Daudin) (Testudines: Emydidae) from southern Venezuela. *Amphibia-Reptilia* 6(3):293-305.
- Pennant, T. 1772. An account of two tortoises: In a letter to Matthew Maty M. D. *Sci. Philos. Trans. Royal Soc. London* 61(1771):266-273.
- Perez-Higareda, G. and H. M. Smith. 1987. Comments on geographic variation in *Rhinoclemmys areolata* (Testudines). *Bull. Maryland Herpetol. Soc.* 23(3):113-118.
- Peters, W. K. H. 1854. Übersicht der auf seiner Reise nach Mossambique beobachteten Schildkröten. *Monatsber. Acad. Wiss. Berlin* 1854:215-216.
- Peters, W. K. H. 1862. (No title). *Monatsber. Acad. Wiss. Berlin* 1862:626-627.
- Peters, W. K. H. 1868. Eine Mittheilung über eine neue Nagergattung, *Chiropodomys pencillatus*, so wie über einige neue oder weniger bekannte Amphibien und Fische. *Amphibien. Monatsber. Akad. Wiss. Berlin* 1868:448-453.



- Peters, W. K. H. 1870. Über *Platemys tuberosa*, eine neue Art von Schildkröten aus British-Guiana. Sitz. Akad. Wiss. Wien 1870:311-313.
- Philippen, H. D. and P. Grossmann. 1990. Eine neue Schlangenhalschildkröte von Neuguinea: *Chelodina reimanni* sp. n. (Reptilia, Testudines, Pleurodira: Chelidae). Zool. Abh. Staat. Mus. Tierk. Dresden 46(5):95-102.
- Piso, W. 1658. *Historiae Naturalis and Medicae Indiae Occidentalis. Libri Quinque.* pp. 105-106. *IN:* W. Piso. *De Indiae Utriusque re naturali et medica. Libri Quatordecim.* Amstelaedami. 327p.
- Pope, C. H. 1934. A new emydid turtle of the genus *Geoclemys* from Kwangtung Province, China. Amer. Mus. Novitates 691:1-2.
- Pope, C. H. 1935. Natural History of Central Asia. Vol. X. The reptiles of China. Amer. Mus. Natur. Hist., New York. 604p.
- Power, J. H. 1927. On the herpetological fauna of the Lobatski-Linokana area. Part I. Trans. Royal Soc. South Africa 14:405-422.
- Power, J. H. 1932. *Testudo verreauxii* Smith: A study in variation. S. Afr. J. Sci. 29:466-472.
- Price, A. H. and D. M. Hillis. 1989. Biochemical genetics and taxonomic status of *Trachemys gaigeae* and of the *Trachemys scripta* complex. Abstract. First World Congress of Herpetology, Canterbury, England.
- Pritchard, P. C. H. 1967. Living Turtles of the World. T. F. H. Publ., Jersey City, New Jersey. 288p.
- Pritchard, P. C. H. 1979. Encyclopedia of Turtles. T. F. H. Publ., Neptune, New Jersey. 895p.
- Pritchard, P. C. H. 1980. *Dermochelys, D. coriacea*. Cat. Amer. Amphib. Rept. 238:1-4.
- Pritchard, P. C. H. 1983. Conserving sea turtles, by N. Mrosovsky. (book review). Copeia 1983(4):1108-1111.
- Pritchard, P. C. H. 1984. Further thoughts on "Lonesome George". Noticias de Galapagos 39:20-23.
- Pritchard, P. C. H. 1986. A reinterpretation of *Testudo gigantea* Schweigger, 1912. J. Herpetol. 20(4):522-534.
- Pritchard, P. C. H. 1987. *Phrynops zuliae*. Cat. Amer. Amphib. Rept. 404:1-2.
- Pritchard, P. C. H. 1989. The Alligator Snapping Turtle: Biology and Conservation. Milwaukee Publ. Mus., Milwaukee, Wisconsin. 104p.
- Pritchard, P. C. H. 1990. Several New Tortoise Species Described. IUCN/SSC Spec. Group, Tortoises and Turtles Newsletter 5:4.
- Pritchard, P. C. H. and W. P. McCord. 1991. A new emydid turtle from China. Herpetologica 47(2):139-147.
- Pritchard, P. C. H. and P. Trebbau. 1984. The turtles of Venezuela. Soc. Stud. Amphib. Rept., Contrib. Herpetol. 2:1-403.
- Quoy, J. R. and J. P. Gaimard. 1824. Voyage Autor du Monde, Entrepris par le ministère et conformément aux instructions de s. exc. M. le Vicomte du Bouchage, Secrétaire d'état au Department de la Marine, Exécuté sur les corvettes de S. M. l'Uranie et la Physicienne, pendant les années 1817-1820. Zoologie. M.L. de Freycinet, Paris. 712p.
- Rafinesque, C. S. 1814. Prodrôme di Erpetologia siciliana. 2(9):65-68, 102-104. *IN:* Specchio della Scienze o giornale Enciclopedico di Sicilia, Deposito letterario delle moderne cognizioni, scoperte et osservazioni sopra le scienze ed arti. Privately printed. Palermo. 2 vols.
- Rafinesque, C. S. 1815. Analyse de la Nature ou Tableau de l'Univers et des Corps Organisés. Privately printed. Palermo. 224p.
- Rafinesque, C. S. 1832. Description of two new genera of soft shell turtles of North America. Atlantic J. Friend Knowl. Philadelphia 1(2):64-65.

- Ramo, C. 1982. Biología de Galápago (*Podocnemis vogli* Müller, 1935) en el Hato El Frio, llanos de Apure, Venezuela. Doñana Acta Vert. 9-3:1-161.
- Ramsay, E. P. 1886. On a new genus and species of fresh water tortoise from the Fly River, New Guinea. Proc. Linn. Soc. New South Wales (2)1:158-162. [Published in 1886, not 1887 as indicated on title page of the bound volume; see King and Burke, 1989:176]
- Rau, R. 1971. Weitere Angaben über die geometrische Landschildkröte, *Testudo geometrica*. Salamandra 7(3/4):123-136.
- Rau, R. 1976. Weitere Angaben über die geometrische Landschildkröte, *Testudo geometrica*, 2. Salamandra 12(4):165-175.
- Rautert, H. 1982. Bemerkenswerte Haltungen bei *Chelodina longicollis* Shaw als Indizien gegen die Gültigkeit des Taxon *Chelodina l. sulcifera* Gray. Herpetofauna (Ludwigsburg) 4(17):6-10.
- Raw, L. R. G. 1978. Taxonomic notes on the hinged terrapins, genus *Pelusios*, of Natal (Testudinata, Pelomedusidae). Durban Mus. Novit. 11(17):287-294.
- Reed, K. M., B. G. Hanks, J. W. Bickham, A. G. J. Rhodin, I. F. Greenbaum, R. A. Mittermeier and L. P. Fedullo. 1991. Cytogenetic analysis of the pleurodine turtle *Phrynops hoguei* and its taxonomic implications. Amphibia-Reptilia 12(2):203-212.
- Reynolds, S. and M. E. Seidel. 1982. *Sternotherus odoratus*. Cat. Amer. Amphib. Rept. 287:1-4.
- Reynolds, S. and M. E. Seidel. 1983. Morphological homogeneity in the turtle *Sternotherus odoratus* (Kinosternidae) throughout its range. J. Herpetol. 17(1):113-120.
- Rhodin, A. G. J. 1989. Phylogenetic relationships of the side-necked turtle family Chelidae. Abstract. First World Congress of Herpetology, Canterbury, England.
- Rhodin, A. G. J., R. da Rocha e Silva, and R. A. Mittermeier. 1984. Distribution of the South American chelid turtles *Platemys radiolata* and *P. spixii*. Copeia 1984(3):780-786.
- Rhodin, A. G. J. and R. A. Mittermeier. 1976. *Chelodina parkeri*, a new species of chelid turtle from New Guinea, with a discussion of *Chelodina siebenrocki* Werner, 1901. Bull. Mus. Comp. Zool. Harvard 147(11):465-488.
- Rhodin, A. G. J. and R. A. Mittermeier. 1983. Description of *Phrynops williamsi*, a new species of chelid turtle of the South American *P. geoffroanus* complex. pp. 58-73. IN: A. G. J. Rhodin and K. Miyata (eds.). Advances in Herpetology and Evolutionary Biology. Mus. Comp. Zool. Harvard, Cambridge, Mass. 725p.
- Rhodin, A. G. J., R. A. Mittermeier, and J. R. Buskirk. 1988. *Phrynops williamsi*. Cat. Amer. Amphib. Rept. 439:1-2.
- Rhodin, A. G. J., R. A. Mittermeier, and R. da Rocha e Silva. 1982. Distribution and taxonomic status of *Phrynops hoguei*, a rare chelid turtle from southeastern Brazil. Copeia 1982(1):179-181.
- Rhodin, A. G. J., R. A. Mittermeier, and C. H. Ernst. 1990. *Acanthochelys macrocephala*. Cat. Amer. Amphib. Rept. 481:1-2.
- Rhodin, A. G. J., R. A. Mittermeier, and J. R. McMorris. 1984. *Platemys macrocephala*, a new species of chelid turtle from central Bolivia and the Pantanal region of Brazil. Herpetologica 40(1):38-46.
- Rhodin, A. G. J. and H. M. Smith. 1982. The original authorship and type specimen of *Dermochelys coriacea*. J. Herpetol. 16(3):316-317.
- Richard, E. 1988. Las "Yataché" (*Chelonoidis donosobarrosi*: Chelonii, Testudinidae) de la región del Nevado (Mendoza: Argentina): Apuntes sobre su historia natural. Amphib. Rept. (Conserv.) 1(4):79-92.
- Richard, E. P. E. Belmonte, and J. C. Chébez. 1990. Nombres vernáculos y distribución geográfica de las totugas argentinas. Univ. Nac. Tucuman Ser. Monogr. Didact. 7:7-30.

- Richard, E. and M. S. de la Fuente. 1988. Lista sistemática y distribución de las tortugas argentinas (Reptilia: Chelonii). Acta Zool. Lilloana. In press.
- Ritgen, F. A. 1828. Versuch einer Natürlichen Eintheilung der Amphibien. Nova Acta Physico-Medica Acad. Caes. Leopold.-Carol. Natur. Curio. 14(1):246-284.
- Rödel, M.-O. 1985. Zum Verhalten von *Sacalia bealei* (Gray, 1831). Salamandra 21(2/3):123-131.
- Rödel, M. O. and G. Praedicow. 1988. Die Chinesische Vieraugenchildkröte, *Sacalia bealei* (Gray 1831). Sauria 10(4):3-8.
- Rojas, A. C. and R. A. Acuña Mesén. 1986. Filogenia de *Geochelone costarricensis* y la familia Testudinidae (Reptilia: Testudines) en el continente americano. Rev. Biol. Trop. 34(2):199-208.
- Ross, C. A. and C. R. Crumly. 1983. A range extension of *Geochelone elongata*. J. Bombay Natur. Hist. Soc. 79(2):429-430.
- Rothschild, W. 1901. On a new land-tortoise from the Galapagos Islands. Novitates Zool. 8:372.
- Rothschild, W. 1915b. On the gigantic land tortoises of the Seychelles and Aldabra-Madagascar group with some notes on certain forms of the Mascarene Group. Novitates Zool. 22:418-442.
- Runmler, H. J. and U. Fritz. 1991. Geographische Variabilität der Amboina-Schermierschildkröte *Cuora amboinensis* (Daudin 1802), mit Beschreibung einer neuen Unterart, *C. a. kamaroma* subsp. nov. Salamandra 27:17-45.
- Ruppell, E. 1835. Neue Wirbelthiere zu der Fauna von Abyssinien gehörig. III. Amphibien. Schmerber, Frankfurt am Main, 18p.
- Sachsse, W. 1975. *Chinemys reevesii* var. *unicolor* und *Clemmys bealei* var. *quadriocellata*: Ausprägungen von Sexualdimorphismus der beiden "Nominatformen". Salamandra 11(1):20-26.
- Sanderson, R. A. and J. E. Lovich. 1988. *Graptemys harbauri*. Cat. Amer. Amphib. Rept. 421:1-2.
- Savage, J. M. 1953. Remarks on the Indo-chinese turtle *Annamemys merklei*; with special reference to the status of *Cyclemys annamensis*. Ann. Mag. Natur. Hist. London (12)6:468-472.
- Schlegel, H. and S. Müller. 1844. Over de Schildpadden van den Indischen Archipel, beschrijving einer nieuwe soort van Sumatra. pp. 29-36. IV: C. J. Temminck (ed.), Verhandelingen over de Natuurlijke Geschiedenis der Nederlandsche Overzeesche Bezittingen, 1839-44. Part 3. Zoologie, Schildpadden.
- Schleich, H.-H. and U. Gruber. 1984. Eine neue Grosskopfschildkröte, *Platysternon megacephalum tristernalis* nov. ssp., aus Yunnan, China. Spixiana 7:67-73.
- Schmidt, K. P. 1928. Scientific survey of Porto Rico and the Virgin Islands. New York Acad. Sci., New York, 160p.
- Schmidt, K. P. 1941. The amphibians and reptiles of British Honduras. Field Mus. Natur. Hist. Zool. Ser. 22(8):475-510.
- Schmidt, K. P. 1947. A new kinosternid turtle from Colombia. Fieldiana Zool. 31(13):109-112.
- Schmidt, K. P. 1953. A check list of North American amphibians and reptiles. Sixth ed. Univ. Chicago Press, Chicago. 280p.
- Schmidt, K. P. and D. W. Owens. 1944. Amphibians and reptiles of northern Coahuila, Mexico. Field Mus. Natur. Hist. Zool. Ser. 29:97-115.
- Schneider, J. G. 1783. Allgemeine Naturgeschichte der Schildkröten, nebst einem Systematischen Verzeichnisse der einzelnen Arten und zwei Kupfern. Müller, Leipzig. 364p.
- Schneider, J. G. 1792. Beschreibung und Abbildung einer neun Art von Wasserschildkröte nebst Bestimmungen einiger bisher wenig bekannten fremden Arten. Schrift. Ges. Naturf. Freunde Berlin 10:259-283.

- Schoepff, J. D. 1792-1801. *Historia Testudinum iconibus Illustrata*. Palmii, Erlangae[= Erlangen]. 160p. [1792:1-32; 1793:33-88; 1794:89-136; 1801:137-160]
- Schwartz, A. F. 1955. The diamondback terrapins (*Malaclemys terrapin*) of peninsular Florida. *Proc. Biol. Soc. Washington* 68:157-164.
- Schwartz, A. F. 1956a. Geographic variation in the chicken turtle *Deirochelys reticularia* Latreille. *Fieldiana: Zool.* 34(41):461-503.
- Schwartz, A. F. 1956b. The relationships and nomenclature of the soft-shelled turtles (genus *Trionyx*) of the southeastern United States. *Charleston Mus. Leaflet* 26:1-21.
- Schwartz, A. F. and R. W. Henderson. 1985. *Guide to the Identification of the Amphibians and Reptiles of the West Indies, Exclusive of Hispaniola*. Milwaukee Public Museum, Milwaukee, Wisconsin. 165p.
- Schwartz, A. F. and R. W. Henderson. 1991. *Amphibians and Reptiles of the West Indies: Descriptions, Distributions, and Natural History*. Univ. Florida Press, Gainesville. 720p.
- Schwartz, A. F. and R. Thomas. 1975. A checklist of West Indian amphibians and reptiles. *Carnegie Mus. Natur. Hist. Spec. Publ.* 1:1-216.
- Schweigger, A. F. 1812. *Prodomus Monographiae Cheloniorum*. Königsberg. *Arch. Naturwiss. Math.* 1:271-368, 406-458.
- Seeliger, L. M. 1945. Variation in the Pacific mud turtles. *Copeia* 1945(3):150-159.
- Seidel, M. E. 1978. *Kinosternon flavescens*. *Cat. Amer. Amphib. Rept.* 216:1-4.
- Seidel, M. E. 1981. A taxonomic analysis of pseudemyd turtles (Testudines: Emydidae) from the New River and phenetic relationships in the subgenus *Pseudemys*. *Brimleyana* 6:25-44.
- Seidel, M. E. 1984. Revision of the West Indian Trachemyd turtles (Testudines: Emydidae). *Abstract. Annual Meeting Amer. Soc. Ichthyol. Herpetol., Univ. Oklahoma, Norman.*
- Seidel, M. E. 1988. Revision of the West Indian Emydid turtles (Testudines). *Amer. Mus. Novitates* 2918:1-41.
- Seidel, M. E. 1989. *Trachemys dorbigni*. *Cat. Amer. Amphib. Rept.* 486:1-3. [Published in 1990]
- Seidel, M. E. and M. D. Adkins. 1987. Biochemical comparisons among West Indian *Trachemys* (Emydidae: Testudines). *Copeia* 1987(2):485-489.
- Seidel, M. E. and M. D. Adkins. 1989. Variation in turtle myoglobins (subfamily Emydinae; Testudines) examined by isoelectric focusing. *Comp. Biochem. Physiol.* 94B(3):569-573.
- Seidel, M. E. and S. J. Inchaustegui Miranda. 1984. Status of the trachemyd turtles (Testudines: Emydidae) in Hispaniola. *J. Herpetol.* 18(4):468-479.
- Seidel, M. E., I. B. Iverson, and M. D. Adkins. 1986. Biochemical comparisons and phylogenetic relationships in the family Kinosternidae (Testudines). *Copeia* 1986:285-294.
- Seidel, M. E. and D. R. Jackson. 1990. Evolution and fossil relationships of slider turtles. pp. 68-73. *IN: J. W. Gibbons (ed.). Life history and ecology of the slider turtle*. Smithsonian Institution Press. Washington, D. C.
- Seidel, M. E. and R. V. Lucchino. 1981. Allozymic and morphological variation among the musk turtles *Sternotherus carinatus*, *S. depressus*, and *S. minor* (Kinosternidae). *Copeia* 1981(1):119-128.
- Seidel, M. E., S. L. Reynolds, and R. V. Lucchino. 1981. Phylogenetic relationships among musk turtles (Genus *Sternotherus*) and genic variation in *Sternotherus odoratus*. *Herpetologica* 37(3):161-165.
- Seidel, M. E. and H. M. Smith. 1986. *Chrysemys, Pseudemys, Trachemys* (Testudines: Emydidae): Did Agassiz have it right? *Herpetologica* 42(2):242-248.
- Sengoku, S. 1979. [Color--Amphibians and Reptiles]. Japan. 206p. [In Japanese].

- Shaffer, J. C. and C. H. Ernst. 1979. The giant land tortoise of Aldabra, *Geochelone gigantea*. Bull. Maryland Herpetol. Soc. 15(2):46-55.
- Shaw, G. 1794. Zoology of New Holland. Vol. I. Davis, London. 33p.
- Shaw, G. 1802. General zoology, or Systematic Natural History. Vol. III. Part I. Amphibia. T. Davidson, London. 312p. [According to King and Burke (1989), published in 14 vols. from 1800 to 1826, each volume is in two parts, and volume 3 appeared in 1802]
- Shea, G. M. 1987. Comment on the proposed suppression for nomenclature purposes of three works by Richard W. Wells and C. Ross Wellington. Bull. Zool. Nomencl. 44(4):257-261.
- Shealy, R. M. 1976. The natural history of the Alabama map turtle, *Graptemys pulchra* Baur, in Alabama. Bull. Florida State Mus. Biol. Sci. 21(2):47-111.
- Shine, R. 1984. Report on the 1984 Australasian Herpetological Conference, and the 1984 Annual General Meeting of the Australian Society of Herpetologists held at Sydney and Springwood, 28 August to 2 September 1984. Herp. Rev. 15(4):103-104.
- Siebenrock, F. 1901. Beschreibung einer neuen Schildkrötengattung aus der Familie Chelydidae von Australien: *Pseudemydura*. Anz. Akad. Wiss. Wien Math.-natur. 38(22):248-250.
- Siebenrock, F. 1903a. Schildkröten des östlichen Hinterindien. Sitz. Akad. Wiss. Wien Math.-natur. Kl. 112(1):333-353.
- Siebenrock, F. 1903b. Über zwei seltene und eine neue Schildkröte des Berliner Museums. Sitz. Acad. Wiss. Wien Math.-natur. Kl. 112(1):439-445.
- Siebenrock, F. 1906a. Schildkröten von Ostafrika and Madagaskar. 2:1-40. *IV*: A. Voeltzkow, 1906-1910, Reise in Ost-Afrika in den Jahren 1903-1905 mit Mitteln der Hermann und Elise geb. Heckmann-Wentzel-Stiftung. Wissenschaftliche Ergebnisse, Systematischen Arbeiten. Stuttgart.
- Siebenrock, F. 1906b. Zur Kenntnis der Schildkrötenfauna der Insel Hainan. Zool. Anz. 30:578-586.
- Siebenrock, F. 1906c. Eine neue *Cinosternum*-Art aus Florida. Zool. Anz. 30:727-728.
- Siebenrock, F. 1907a. Die Schildkrötenfamilie Cinosternidae. Sitz. Akad. Wiss. Wien Math.-natur. Kl. 116(1):527-599.
- Siebenrock, F. 1907b. Über einige, zum Teil seltene Schildkröten aus Südchina. Sitz. Acad. Wiss. Wien. Math.-natur. Kl. 116(1):1741-1776.
- Siebenrock, F. 1909a. Synopsis der rezenten Schildkröten, mit Berücksichtigung der in historischer Zeit ausgestorbenen Arten. Zool. Jahrb., Suppl. 10:427-618.
- Siebenrock, F. 1909b. Über die Berechtigung der Selbständigkeit von *Sternotherus nigricans seychellensis* Siebenrock. Zool. Anz. 34(11/12):359-362.
- Siebenrock, F. 1914. Eine neue *Chelodina* Art aus Westaustralien. Anz. Akad. Wiss. Wien Math.-natur. Kl. (1)17:386-387.
- Sites, J. W., J. W. Bickham, B. A. Pytel, I. F. Greenbaum, and B. A. Bates. 1984. Biochemical characters and the reconstruction of turtle phylogenies: Relationships among batagurine genera. Syst. Zool. 33(2):137-158.
- Smith, A. 1838-1849. Illustrations of the Zoology of South Africa, consisting chiefly of Figures and Descriptions of the Objects of Natural History collected during an Expedition into the Interior of South Africa, in the years 1834, 1835 and 1836. Vol. 3. Reptilia. Smith, Elder & Co., London. 28p. [This series was published in 28 parts; see Waterhouse (1880) for publication dates and content.]
- Smith, H. M. 1955. The generic name of the alligator snapper turtle. Herpetologica 11:16.
- Smith, H. M. and B. P. Glass. 1947. A new musk turtle from southeastern United States. J. Washington Acad. Sci. 37:22-24.

- Smith, H. M. and R. Brandon. 1968. Data nova herpetologica Mexicana. Trans. Kansas Acad. Sci. 71:49-61.
- Smith, H. M., C. H. Ernst, and R. B. Smith. 1980. *Geoemyda* Gray, 1834, and *Rhinoclemmys* Fitzinger, 1835 (Reptilia, Testudines): Proposed conservation. Bull. Zool. Nomencl. 37(4):233-239.
- Smith, H. M. and C. Grant. 1958. Noteworthy herptiles from Jalisco, Mexico. Herpetologica. 14:18-23.
- Smith, H. M. and L. W. Ramsey. 1952. A new turtle from Texas. Wasmann J. Biol. 10:45-54.
- Smith, H. M. and A. G. J. Rhodin. 1986. Authorship of the scientific name of the leatherback sea turtle. J. Herpetol. 20(3):450-451.
- Smith, H. M. and R. B. Smith. 1973. Synopsis of the Herpetofauna of Mexico. Volume II. Analysis of the literature exclusive of the Mexican axolotl. Johnson, North Bennington, Vermont. 367p.
- Smith, H. M. and R. B. Smith. 1979. Synopsis of the herpetofauna of Mexico. Vol. VI. Guide to Mexican turtles. Johnson, North Bennington, Vermont. 1044p. [published in 1980]
- Smith, H. M., R. B. Smith and D. Chizar. 1980. *Sternothernus* Gray, 1825, correct spelling; and *Pelusios* Wagler, 1830, proposed conservation (Reptilia, Testudines). Bull. Zool. Nomencl. 37(2):124-127.
- Smith, H. M. and E. H. Taylor. 1950a. Type localities of Mexican reptiles and amphibians. Univ. Kansas. Sci. Bull. 33(8):313-380.
- Smith, H. M. and E. H. Taylor. 1950b. An annotated checklist and key to the reptiles of Mexico exclusive of snakes. Bull. U.S. Natl. Mus. 199:1-253.
- Smith, M. A. 1916. A list of the crocodiles, tortoises, turtles and lizards at present known to inhabit Siam. J. Natur. Hist. Soc. Siam 2:48-57.
- Smith, M. A. 1931. The fauna of British India, including Ceylon and Burma. Reptilia and Amphibia. Vol. 1. Loricata and Testudines. Taylor and Francis, London. 185p.
- Smith, P. W. 1951. A new frog and a new turtle from the western Illinois sand prairies. Bull. Chicago Acad. Sci. 9:189-199.
- Song, Ming-Tao. 1984. A new species of the turtle genus *Cuora* (Testudoformes:Testudinidae). Acta Zootaxonomica Sinica 9(3):330-332. [In Chinese with English summary].
- Spix, J. B. von. 1824. Animalia nova, species novae Testudinum et Ranarum quas in itinere per Brasiliam annis 1817-1820 collegit et descripsit. Hübschmann, München. 53p.
- Spratt, D. M. J. 1989. Operation Curieuse: A conservation programme for the Aldabra giant tortoise *Geochelone gigantea* in the Republic of Seychelles. Internat. Zoo Yb. 28:66-69.
- Stebbins, R. 1985. A field guide to western reptiles and amphibians. Second edition. Houghton Mifflin, Boston. 336p.
- Stejneger, L. H. 1902a. [title unknown]. Proc. Biol. Soc. Washington 15:216.
- Stejneger, L. H. 1902b. Some generic names of turtles. Proc. Biol. Soc. Washington 15:235-238.
- Stejneger, L. H. 1907. Herpetology of Japan and adjacent territory. Bull. U. S. Natl. Mus. 58:1-577.
- Stejneger, L. H. 1918. Description of a new snapping turtle and a new lizard from Florida. Proc. Biol. Soc. Washington 31:89-92.
- Stejneger, L. H. 1925. New species and subspecies of American turtles. J. Washington Acad. Sci. 15(20):462-463.
- Stejneger, L. H. and T. Barbour. 1917. A check list of North American amphibians and reptiles. Harvard Univ. Press, Cambridge. 125p.

- Stejneger, L. H. and T. Barbour. 1923. A check list of North American amphibians and reptiles. Second edition. Harvard Univ. Press, Cambridge. 171p.
- Stejneger, L. H. and T. Barbour. 1943. A check list of North American amphibians and reptiles. Fifth edition. Bull. Mus. Comp. Zool. Harvard 93(1):1-260.
- Stimson, A. F. 1986. On the correct zoological name of the Australasian turtle genus *Emydura* Bonaparte. J. Herpetol. 20(2):279-280.
- Stoddart, D. R., D. Cowx, C. Peet, and J. R. Wilson. 1982. Tortoises and tourists in the western Indian Ocean: The Curieuse Experiment. Biol. Conserv. 24:67-80.
- Strauch, A. 1862. Chelonogische Studien, mit besonderer Beziehung auf die Schildkrötensammlung der kaiserlichen Akademie der Wissenschaften zu St. Petersburg. Mém. Acad. Imp. Sci. St.-Petersbourg 7(5)7:1-196.
- Street, D. 1979. The reptiles of northern and central Europe. B. T. Baisford Ltd., London. 268p.
- Stuart, L. C. 1963. A checklist of the herpetofauna of Guatemala. Misc. Publ. Mus. Zool. Univ. Michigan 122:1-150.
- Stubbs, D. 1989. Tortoises and freshwater turtles: An action plan for their conservation. IUCN/SSC Tortoise and Freshwater Turtle Specialist Group, Canterbury, England. 48p.
- Swingland, I. R. and M. W. Klemens (eds.). The Conservation Biology of Tortoises. Occ. Pap. IUCN Species Surv. Comm. 5:1-202.
- Taylor, E. H. 1920. Philippine turtles. Philippine J. Sci. 16(2):111-144.
- Taylor, E. H. 1944. Present location of certain herpetological and other type specimens. Univ. Kansas Sci. Bull. 30(1):117-187.
- Taylor, E. H. 1970. The turtles and crocodiles of Thailand and adjacent waters with synoptic herpetological bibliography. Univ. Kansas. Sci. Bull. 49:87-179.
- Taylor, W. E. 1895. The box turtles of North America. Proc. U. S. Natl. Mus. 17:573-588.
- Temminck, C. J. and H. Schlegel. 1835. Vol. III Reptilia, pp. 1-144. [Chelonii, pp. 1-80] *IN*: P.F. Von Siebold. Fauna Japonica sive Descriptio animalium, quae in itinere per Japonicum, jussu et auspiciis superiorum, qui summum in India Batava Imperium tenent, suscepto, annis 1823-1830 colleget, notis observationibus et adumbrationibus illustratis. J. G. Latua, Leiden. [King and Burke](1989:182) and Stejneger (1907:542-543) discuss publication dates of the various parts of Siebold's work.]
- Theobald, W. 1876. Descriptive catalogue of the reptiles of British India. Thacher, Spink, & Co., Calcutta. 238p.
- Thunberg, C. P. 1785-1788. Svenska Vetenskap-Akademien, Stockholm. Museum naturalium Academiae Upsaliensis. Kongl. Svenska Vetensk. Akad. Handl. Stockholm 8:178-180. [33 total parts; see Auffenberg (1974) for clarification of pagination and dates]
- Tikader, B. K. and R. C. Sharma. 1985. Handbook Indian Testudines. Zool. Surv. India, Calcutta. 156p.
- Tinkle, D. W. 1958. The systematics and ecology of the *Sternotherus carinatus* complex (Testudinata, Chelydridae). Tulane Stud. Zool. 6:1-56.
- Tinkle, D. W. and R. G. Webb. 1955. A new species of *Sternotherus* with a discussion of the *Sternotherus carinatus* complex (Chelonia, Kinosternidae). Tulane Stud. Zool. 3(3):53-67.
- Tronc, E. and S. Vuillemin. 1974. Contribution a l'étude de la faune endémique Malgache: Étude ostéologique de *Erymnochelys madagascariensis* Grandidier, 1867 (Chelonien, Pelomedusidae). Bull. Acad. Malgache 51(1):189-224.
- Troost, G. 1835. [Footnote asterisked from *Chelydra serpentina* species account, dated 11 February 1835, on pages 157-158.] *IN*: R. Harlan. Medical and Physical Researches or Original Memoires in Medicine, Surgery, Physiology, Geology, Zoology, and Comparative Anatomy. L. R. Bailey, Philadelphia. 653p.

- Troschel, F. H. 1848. Amphibien. pp. 645-661. *IN*: M. R. Schomburgk (ed.). Reisen in Britisch-Guiana in den Jahren 1840-44. Im Auftrage Sr. Majestät des Königs von Preussen ausgeführt. Theil 3. Versuch einer Zusammenstellung der Fauna und Flora von Britisch-Guiana. Leipzig.
- Tyler, M. J. 1985. Nomenclature of the Australian herpetofauna: Anarchy rules. *Herp. Rev.* 16(3):69.
- Vaillant, L. 1885. Sur une tortue terrestre d'espèce nouvelle, rapportée par M. Humbolt au Muséum d'Histoire naturelle. *Comptes. Rendus Hebd. Séanc. Acad. Sci., Paris* 101(6):440-441.
- Valenciennes, A. 1833. *IN*: G. Bibron, and J. B. G. M. Bory de Saint-Vincent. Reptiles et Poissons (of the Morea). *Fr. Expéd. Sci. Morée* 3(1):1-209.
- Vandelli, D. 1761. Epistola de Holothurio, et Testudine coriacea ad celeberrimum Carolum Linnaeum Equitem Naturae Curiosum Dioscoreidem II. Conzatti, Patavii (Padova). 12p.
- Van Denburgh, J. 1895. A review of the herpetology of Lower California. Part I - Reptiles. *Proc. California Acad. Sci.* (2)5:77-162.
- Van Denburgh, J. 1907. Expedition of the California Academy of Sciences to the Galapagos Islands 1905-1906. I. Preliminary descriptions of four new races of gigantic land tortoises from the Galapagos Island. *Proc. California Acad. Sci.* (4)1:1-6.
- Van Denburgh, J. 1914. Expedition of the California Academy of Sciences to the Galapagos Islands 1905-1906. X. The gigantic land tortoises of the Galapagos Archipelago. *Proc. California Acad. Sci.* (4)2(1):203-374.
- van Lidth de Jeude, T. W. 1895. Reptiles from Timor and the neighboring islands. *Leyden Mus.* 16:119-127.
- Vanzolini, P. E. 1981. The scientific and political contexts of the Bavarian expedition to Brasil. pp. ix-xxvii. *IN*: J. B. Spix and J. G. Wagler. 1824-1825. Herpetology of Brazil. Facsimile Reprints in Herpetology, Soc. Study Amphib. Rep. 400p.
- Vijaya, J. 1982a. Rediscovery of the forest cane turtle (*Heosemys silvatica*) of Kerala. *Hamadryad* 7(3):2-3.
- Vijaya, J. 1982b. Rediscovery of the forest cane turtle *Heosemys (Geomyda) silvatica* (Reptilia, Testudinata, Emydidae) from Chelakudy forests of Kerala. *J. Bombay Natur. Hist. Soc.* 79(3):676-677.
- Vijaya, J. 1982c. Rediscovery of a rare turtle from Kerala forest. *Hornbill* 1982(4):25-26.
- Villiers, A. 1958. Tortues et crocodiles de l'Afrique Noire Française. *Inst. Franc. D'Afrique Noire Initiat. Afric.* 15:1-354.
- Vogt, R. C. 1978. Systematics and ecology of the false map turtle complex *Graptemys pseudogeographica*. Doctoral Dissertation. Univ. Wisconsin, Madison.
- Vogt, R. C. 1980. Natural history of the map turtles *Graptemys pseudogeographica* and *G. ouachitensis* in Wisconsin. *Tulane Stud. Zool. Bot.* 22:17-48.
- Vogt, R. C. 1981. *Graptemys versa*. *Cat. Amer. Amphib. Rept.* 280:1-2.
- Vogt, R. C. and C. J. McCoy. 1980. Status of the emydine turtle genera *Chrysemys* and *Pseudemys*. *Ann. Carnegie Mus.* 49:93-102.
- Vuillemin, S. 1972. Note on *Testudo morondavaensis* sp. nov. *Ann. Univ. Madagascar. Ser. Sci. Natur. Math.* 9:127-134.
- Vuillemin, S. and C. Domergue. 1972. Contribution à l'étude de la faune de Madagascar: Description de *Pyxoides brygooi* n. gen. n. sp. (Testudinidae). *Ann. Univ. Madagascar. Ser. Sci. Natur. Math.* 9:193-200.
- Vyas, R. and B. H. Patel. 1990. A survey of freshwater turtles of Gujarat. *J. Bombay Natur. Hist. Soc.* 87:152-155.
- Wagler, J. 1830. Natürliches System der Amphibien, mit Vorangehender Classification der Säugthiere und Vögel. J. G. Cotta'schen Buchhandlung, München. 354p.



- Walbaum, J. J. 1782. Chelonographia oder Beschreibung einiger Schildkröten nach natürlichen Urbildern. Johann Friedrich Gleditsch, Lubeck and Leipzig. 132p.
- Walbaum, J. J. 1785. Beschreibung der Ipenglerischen Schildkröte. Schrift. Berl. Gesellsch. Freunde, Berlin 6:122-131.
- Waller, T. 1986. Distribucion, habitat y registro de las localidades para *Geochelone chilensis* (Gray, 1870) (Syn. *donosobarrosi*, *petersi*) (Testudines: Testudinidae). Amphib. y Rept. (Conserv.) 1(2):36-48.
- Waller, T. 1988. Notas sobre la distribución de *Acanthochelys spixii* (D. y. B., 1835) y *Acanthochelys pallidipectoris* (Freiberg, 1945) en la Argentina (Testudines: Chelidae). Amphib. y Rept. (Conserv.) 1(5):93-98.
- Wallin, L. 1977. The Linnean type-specimen of *Testudo geometrica*. Zoon 5:77-78.
- Wallin, L. 1985. A survey of Linnaeus's material of *Chelone mydas*, *Caretta caretta* and *Eretmochelys imbricata* (Reptilia, Cheloniidae). Zool. J. Linn. Soc. 85:121-130.
- Ward, J. P. 1978. *Terrapene ornata*. Cat. Amer. Amphib. Rept. 217:1-4.
- Ward, J. P. 1980. Comparative cranial morphology of the freshwater turtle subfamily Emydinae: An analysis of the feeding mechanisms and systematics. Doctoral Dissertation. North Carolina State Univ., Raleigh.
- Ward, J. P. 1984. Relationships of the Chrysemyd turtles of North America (Testudines: Emydidae). Spec. Publ. Mus. Texas Tech. Univ. 21:1-50.
- Warner, J. L. 1981. A monograph of the Bog turtle, *Clemmys mühlenbergii* (Schoepff). Senior Thesis. Western Connecticut State College. Danbury, Connecticut. 68p.
- Waterhouse, C. O. 1880. [title unknown]. Proc. Zool. Soc. London 1880:489-491.
- Weaver, W. G. and F. L. Rose. 1967. Systematics, fossil history, and evolution of the genus *Chrysemys*. Tulane Stud. Zool. 14:63-73.
- Webb, R. G. 1959. Description of a new softshell turtle from the southeastern United States. Univ. Kansas Publ. Mus. Natur. Hist. 11(9):517-525.
- Webb, R. G. 1960. Type and type locality of the Gulf Coast spiny softshell turtle, *Trionyx spinifer asper* (Agassiz). Breviora 129:1-8.
- Webb, R. G. 1962. North American Recent soft-shelled turtles (Family Trionychidae). Univ. Kansas Pub. Mus. Natur. Hist. 13(10):429-611.
- Webb, R. G. 1973a. *Trionyx ater*. Cat. Amer. Amphib. Rept. 137:1.
- Webb, R. G. 1973b. *Trionyx ferox*. Cat. Amer. Amphib. Rept. 138:1-3.
- Webb, R. G. 1973c. *Trionyx muticus*. Cat. Amer. Amphib. Rept. 139:1-2.
- Webb, R. G. 1973d. *Trionyx spiniferus*. Cat. Amer. Amphib. Rept. 140:1-4.
- Webb, R. G. 1975. Types of two names of African softshell turtles of the genus *Cyclanorbis* (Testudines: Trionychidae). Herpetologica 31(3):348-350.
- Webb, R. G. 1980a. Gray, Hardwicke, Buchanan-Hamilton, and drawings of Indian softshell turtles (Family Trionychidae). Amphibia-Reptilia 1(1):61-74.
- Webb, R. G. 1980b. The identity of *Testudo punctata* Lacépède, 1788 (Testudines, Trionychidae). Bull. Mus. Natl. Hist. Natur. Paris (4)2A:547-557.
- Webb, R. G. 1981. The narrow-head softshell turtle, *Chitra indica* (Testudines: Trionychidae), in peninsular India. Rec. Zool. Surv. India 79:203-204.

- Webb, R. G. 1982. Taxonomic notes concerning the trionychid turtle *Lissemys punctata* (Lacépède). *Amphibia-Reptilia* 3(2/3):179-184.
- Webb, R. G. 1984. Herpetogeography in the Mazatlan-Durango region of the Sierra Madre Occidental, Mexico. pp. 217-241. *IN: R. A. Seigel, L. E. Hunt, J. L. Knight, L. Malaret, and N. L. Zuschlag (eds.). Vertebrate Ecology and Systematics: A Tribute to Henry S. Fitch. Univ. Kansas Mus. Natur. Hist. Spec. Publ. 10:1-278.*
- Webb, R. G. 1985. Taxonomic status of *Testudo rostrata* Thunberg, 1787 (Testudines, Trionychidae). *Herpetologica* 41(1):84-88.
- Webb, R. G. 1990a. *Trionyx sinensis* Wiegmann, 1834 (Reptilia, Testudines): Proposed conservation of the specific names. *Bull. Zool. Nomencl.* 47(2):122-123.
- Webb, R. G. 1990b. *Trionyx*. *Cat. Amer. Amphib. Rept.* 487:1-7.
- Webb, R. G. and J. M. Legler. 1960. A new softshell turtle (genus *Trionyx*) from Coahuila, Mexico. *Univ. Kansas Sci. Bull.* 40(2):21-30.
- Weiss, M. 1989. A chelonian puzzle: The Indo-Chinese box turtle in captivity. *Plastron Papers* 18(5):20-23.
- Weissing, H. 1987. *Testudo graeca anamurensis* ssp. nov. aus Kleinasien. *ÖGH-Nachr., Wien* 10/11:14-18.
- Wells, R. W. and C. R. Wellington. 1983. A synopsis of the Class Reptilia in Australia. *Australian J. Herpetol.* 1(3-4):73-129.
- Wells, R. W. and C. R. Wellington. 1985. A classification of the Amphibia and Reptilia of Australia. *Australian J. Herpetol., Suppl. Ser.* 1:1-98.
- Wermuth, H. 1952. *Testudo hermanni robertmertensi* n. subsp. und ihr vorkommen in Spanien. *Senckenbergiana* 33(1-3):157-164.
- Wermuth, H. 1958. Status und Nomenklatur der Maurischen Landschildkröte, *Testudo graeca*, in SW-Asien und NO-Afrika. *Senck. Biol.* 39(3/4):149-153
- Wermuth, H. 1969. Eine neue Grosskopfschildkröte, *Platysternon megacephalum vogeli*, n. ssp. *D. Aquar.-Terr. Zeitsch. (DATZ)* 22(12):372-374.
- Wermuth, H. and R. Mertens. 1961. Schildkröten, Krokodile, Brückenechsen. *G. Fischer, Jena.* 422p.
- Wermuth, H. and R. Mertens. 1977. Liste der rezenten Amphibien und Reptilien. Testudines, Crocodylia, Rhynchocephalia. *Das Tierreich, Berlin* 100:1-174.
- Werner, F. 1901a. Neue Reptilien des Königsberger zoologischen Museums. *Zool. Anz.* 24:297-301.
- Werner, F. 1901b. Über Reptilien und Batrachier aus Ecuador und Neu-Guinea. *Verh. Zool. Bot. Ges. Wien* 51:593-603.
- Whetstone, K. N. 1978. A new genus of cryptodiran turtles (Testudinata, Chelydridae) from the Upper Cretaceous Hell Creek Formation of Montana. *Univ. Kansas Sci. Bull.* 51(17):539-563.
- Wied, M. A. P. 1839. *Reise in das innere Nörd-America in den Jahren 1832 bis 1834.* Hoelscher, Coblenz. 653p.
- Wied, M. A. P. 1865. Verzeichniss der Reptilien, welche auf einer Reise im nördlichen America beobachtet wurden. *Nova Acta Acad. Leopold.-Carol.* 32:1-146.
- Wiegmann, A. F. A. 1828. Beiträge zur Amphibienkunde. *Isis von Oken* 21:364-383.
- Wiegmann, A. F. A. 1835. Beiträge zur Zoologie, gesammelt auf einer Reise um die Erde, von Dr. F. J. F. Meyen. Amphibien. *Nova Acta Acad. Leopold.-Carol.* 17:185-268. [Published in 1834 (Crombie, pers. comm); see also Webb (1990a)]
- Williams, E. E. 1950a. Variation and selection of the cervical central articulations of living turtles. *Bull. Amer. Mus. Natur. Hist.* 94:505-562.

- Williams, E. E. 1950b. *Testudo cubensis* and the evolution of Western Hemisphere tortoises. Bull. Amer. Mus. Natur. Hist. 95(1):1-36.
- Williams, E. E. 1952. A new fossil tortoise from Mona Island, West Indies, and a tentative arrangement of the tortoises of the world. Bull. Amer. Mus. Natur. Hist. 99:541-560.
- Williams, E. E. 1954a. A key and description of the living species of the genus *Podocnemis* (*sensu* Boulenger) (Testudines, Pelomedusidae). Bull. Mus. Comp. Zool. Harvard 111(8):279-295.
- Williams, E. E. 1954b. A new Miocene species of *Pelusios* and the evolution of that genus. Breviora 25:1-7.
- Williams, E. E. 1956. *Pseudemys scripta callirostris* from Venezuela with a general survey of the *scripta* series. Bull. Mus. Comp. Zool. Harvard 115(5):145-160.
- Williams, E. E. 1958. Rediscovery of the Australian chelid genus *Pseudemydura* Siebenrock (Chelidae, Testudines). Breviora 84:1-11.
- Williams, E. E. 1960. Two species of tortoises in northern South America. Breviora 120:1-13.
- Williams, E. E., A. G. C. Grandison, and A. F. Carr. 1967. *Chelonia depressa* Garman re-investigated. Breviora 271:1-15.
- Wilson, R. V. and G. R. Zug. 1991. *Lepidochelys kempii*. Cat. Amer. Amphib. Rept. 509:1-8.
- Wirot, N. 1979. The Turtles of Thailand. Siamfarn Zool. Garden, Bangkok. 222p.
- Witzell, W. N. 1983. Synopsis of biological data on the hawksbill turtle, *Eretmochelys imbricata* (Linnaeus, 1766). FAO Fish. Synop. 137:1-78.
- Wood, R. C. 1977. Evolution of the emydine turtles *Graptemys* and *Malaclemys* (Reptilia, Testudines, Emydidae). J. Herpetol. 11(4):415-421.
- Wood, R. C. 1984. Field studies of the side-necked turtle *Pelusios adansonii* in Lake Turkana, Kenya. Abstract. Annual Meeting Amer. Soc. Ichthyol. Herpetol., Univ. Oklahoma, Norman.
- Yin, F. Y., W. Frair, and S.-H. Mao. 1989. Physical and chemical properties of some turtle blood albumins with taxonomic implications. Comp. Biochem. Physiol. 93B(2):283-289.
- Zangerl, R., L. P. Hendrickson, and J. R. Hendrickson. 1988. A redescription of the Australian flatback sea turtle, *Natator depressus*. Bishop Mus. Bull. Zool. 1:1-69.
- Zangerl, R. and F. Medem. 1958. A new species of chelid turtle, *Phrynops (Batrachemys) dahl*, from Colombia. Bull. Mus. Comp. Zool. Harvard 119:375-390.
- Zhang, M. 1984. A new species of *Pelochelys* from Zhejiang, with subfossil description. Acta Herpetologica Sinica 3(4):71-76.
- Zhao E. and K. Adler. 1992. Herpetology of China. Soc. Stud. Amphib. Rept., Oxford, and Chinese Soc. Stud. Amphib. Rept., Chengdu. In press.
- Zhao, E., T. Zhou, and P. Ye. 1990. A new Chinese box turtle (Testudinata: Emydidae)--*Cuora zhoui*. pp. 213-216. IN: E. Zhao (ed.), From Water Onto Land. Chinese Soc. Stud. Amphib. Rept., Beijing.
- Zug, G. R. 1986. *Sternotherus*. Cat. Amer. Amphib. Rept. 397:1-3.
- Zug, G. R. and A. Schwartz. 1971. *Deirochelys, D. reticularia*. Cat. Amer. Amphib. Rept. 107:1-3.

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ERRATA

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