

BIOLOGIA CENTRALI-AMERICANA.

ZOOLOGIA.

Class REPTILIA.

Order CHELONIA.

Fam. TESTUDINIDÆ.

CISTUDO.

Cistudo, Gray, Cat. Shield Rept. p. 39.

1. *Cistudo mexicana*.

Cistudo mexicana, Gray, P. Z. S. 1849, p. 16, t. ii.; Bocourt, Miss. Sc. Mex., Rept. p. 17.

Hab. MEXICO, Tampico and Mexico city (*Bocourt*).

Gray was the first who specifically separated from the common type of North-American Box-Tortoise a form whose hind feet are armed with three large claws instead of four. However, in examining the value of this character, Agassiz (*Contr. Nat. Hist. Amer.* i. p. 444) came to a different conclusion, stating that the outer toe of the hind foot fades away gradually; and, whilst he distinguished not less than four different species of *Cistudo*, these species included three- as well as four-toed specimens.

In a case in which one naturalist, though he has examined many hundred specimens, does not feel justified in expressing a decided opinion, it would be most hazardous for another to do so who has much less material at hand. Yet, having seen specimens of Agassiz's four species, I may be allowed to say that I incline to the belief that there is, in fact, one species of Box-Tortoise only, and that one of its hind toes becomes aborted in the south-western and southern range of its distribution. Nevertheless, I have considered it best to retain the name given by Gray, the more so as both the typical specimens are singularly distinguished by having a small additional scute intercalated between the fourth and fifth, so that there are six vertebrales altogether. This, of

course, may be an abnormal condition peculiar to the locality where the specimens were obtained, and which unfortunately is not known. They are simply marked "Mexico."

The species seems to penetrate rather far southwards into Mexico, as Bocourt mentions it from Tampico and the city of Mexico.

EMYS.

Emys, Duméril, Elém. d'Hist. Nat.

α. CLEMMYS.

In Mexico two freshwater Turtles occur (*Emys ornata* and *E. cataspila*) in considerable abundance, which are distinguished by a short head, a short and obtuse snout, and a more or less depressed shell, which is only slightly and indistinctly rugose, and in which the costal scutes are ornamented each by a large ocellated spot more or less distinctly surrounded by yellow and darker concentric rings. The sternum is marked by symmetrical figures formed by black lines arranged in pairs. These figures never form rings on the front part of the sternum, as is the case in an allied species from the United States, to which the names of *Emys holbrookii* and *E. elegans* have been given. On the anal scutes this sternal ornamentation terminates with a more or less straight double transverse line. The markings on the sternum are most distinct in the young, become pale with age, and may disappear altogether.

In the adult stage these two Turtles differ merely by the position of the ocellus on the two middle costal scutes; if each of the scutes be imagined to be divided into four quadrangles, in one species the spot occupies the postero-inferior quadrangle, in the other the postero-superior. Gray (Cat. Shield Rept. p. 25) has already noticed this distinction; but unfortunately he referred the young of one of the species to the adult of the other, so that his *Emys venusta* is synonymous with his *E. ornata*.

Some herpetologists may be inclined to consider both forms as variations; but, until the true relations between the two forms are clearly ascertained, it will be better to distinguish them by separate names. Most probably *Emys ornata* will prove to be the more southern form.

1. *Emys ornata*. (Tab. I.)

Emys ornata, Gray, Syn. Rept. p. 30 (1831); ? Dum. & Bibr. Erp. Gen. ii. p. 286 (1835); Gray, Zool. Beech. Voy. p. 93, t. 29. fig. 2 (1839); Dum. & Boc. Miss. Sc. Mex. p. 13, t. 3. fig. 1 (1870); Sowerby and Lear, Tort. t. 44.

Emys ornata (part.), Gray, Cat. Tort. B. M. 1844, p. 22; Gray, Cat. Shield Rept. 1855, p. 24 (not fig.).

Emys venusta, Gray, Cat. Shield Rept. p. 24, t. 12 A.

? *Emys valida*, Leconte, Proc. Ac. N. Sc. Philad. 1859, p. 7.

Callichelys ornata (part.), Gray, Ann. & Mag. Nat. Hist. 1863, xii. p. 176; Suppl. Cat. Shield Rept. 1870, p. 48.

Callichelys venusta (part.), Gray, Ann. & Mag. Nat. Hist. 1863, xii. p. 181; Suppl. Cat. Shield Rept. p. 49.

Pseudemys ornata, Cope, Journ. Ac. N. Sc. Philad. viii. p. 153.

Hab. MEXICO, Mazatlan (*coll. Brit. Mus., Colley, Forrer*), Presidio (*Forrer*); HONDURAS (*Dyson*); COSTA RICA (*Cope*); PANAMA, Chiriqui (*Druce*).

Of this species we have a tolerably complete series, and, fortunately, from the same locality, namely Mazatlan, so that there is not the least doubt about the pertinence of old and young specimens to the same species. Two of the Mazatlan specimens are the original types of Gray's first description.

In the young (2-3 inches long) each costal scute is ornamented by yellow, green, and blackish concentric rings, which form a large ocellus occupying the greater part of the surface of the scute; a minute yellow spot occupies the centre of the ocellus. The sternum is ornamented by more or less symmetrical black lines placed in pairs, and forming along the middle of the sternum a rather irregular pattern without complete rings in front, and with a more or less straight double transverse line behind.

The longitudinal stripes and bands of the head form an extremely pretty pattern, and are much multiplied by each yellow or green streak having blackish borders; the band along the temple is broad in the middle, becoming narrower in front and behind, and is of a bright orange colour. The ornamental band on the chin is generally interrupted on the throat by a transverse blackish border.

As the specimens grow older, the principal yellow ring of the costal plates appears smaller in proportion to the size of the scute, and the black spot is moved towards the hinder and upper part of the scute.

Beside a number of specimens which have the locality indicated in a more or less vague manner, I have examined the two young specimens collected by Colley at Mazatlan (one of which has been coarsely figured in Capt. Beechey's 'Voyage'), two adult specimens with the shell 10 and 12 inches long (from the same locality, collected by Mr. Forrer), an adult (stuffed) and two young specimens in spirits respectively 2 and 5 inches in length, collected by Forrer at Presidio: the young are figured on Tab. I. A young specimen obtained by Mr. Herbert Druce from Chiriqui, and two specimens from Honduras collected by Mr. Dyson, which are the types of Gray's *Emys venusta*. Cope records the species from Costa Rica.

It would appear that the specific name of *ornata* was suggested to Gray by Bell, who, however, has forfeited the authorship by never having published either a figure or a description. Gray was the first who described the species under that name in the 'Synopsis Reptilium,' 1831, p. 30. Duméril and Bibron described it under the same name from a specimen given to them by Bell; they erroneously refer to it *Emys annulifera* of Gray, which is quite a distinct species. Bell's specimen in the Paris Museum is that also figured by Aug. Duméril and Bocourt in 'Mission Scientifique au Mexique.'

2. ***Emys cataspila***, sp. n. (Tab. VI. fig. B, young.)

Emys ornata (part.), Gray, Cat. Tort. B. M. 1844, p. 22; Gray, Cat. Shield Rept. 1855, p. 24, t. 12 (not good).

Callichelys ornata (part.), Gray, Ann. & Mag. Nat. Hist. 1863, xii. p. 176; Suppl. Cat. Shield Rept. p. 48 (1870).

Hab. MEXICO (*coll. Brit. Mus.*).

Although our series of specimens of this form is pretty complete, it is far from being satisfactory, inasmuch as they are derived from different sources, with no more precise information as to locality than the term "Mexico" in about half of their number.

The young (2 inches long) shows very much the same pattern and style of coloration of the head, back, and sternum as *Emys ornata*; but the principal ocellus, with its yellow border, is small, occupying only a small part in the postero-inferior portion of each of the costal scutes. This position and size of the ocellus is not greatly changed in three other specimens from 5 to 7 inches in length; in larger specimens the ocellus is advanced more towards the dorsal line, but never occupies the upper half of the costal scutes as in *Emys ornata*. The ocellus consists now of a brownish oval spot with a deep black pupil and a broad yellowish border (see figure given by Gray).

The largest of our specimens has a shell 13 inches in length.

3. ***Emys salvini***, sp. n. (Tabb. II. & III.)

Callichelys venusta (part.), Gray, Suppl. Cat. Shield Rept. p. 49.

Hab. GUATEMALA (*Salvin*).

This species is closely allied to *Emys ornata* and *E. cataspila*, but differs in the shape of the costal ocellus and of the figure on the sternum. The shape and coloration of the head seem to be the same as in those two species.

The principal yellow ring on the costal scutes is of a suboval shape, and occupies nearly the whole of the depth of the scute. There are several similar, but less distinct concentric rings within and without the principal ring. The ornamentation on the sternum is very symmetrical, ending behind in a pointed angle, and not in a straight and transverse line as in the other two species.

Of this species I have seen only one specimen, the shell of which is 9 inches long. It was obtained by Mr. Salvin in Guatemala, and was referred by Gray to his *Emys venusta*.

The specimen is figured on Tabb. II. and III. of the natural size; and separate figures are given of the vertebral and second costal scutes, which in the main figure are very much foreshortened.

4. *Emys mobiliensis*.

Emys mobiliensis, Holbr. N.-Am. Herp. i. p. 71, t. 9.

Ptychemys mobiliensis, Agass. Nat. Hist. U. S. Amer. i. p. 433.

? *Emys ventricosa*, Gray, Cat. Shield Rept. p. 28, t. 14.

Hab. NORTH AMERICA, Pensacola, Texas.—MEXICO, Nuevo Leon.

Agassiz (*l. c.*) mentions that he had received specimens of this species from Pensacola, Texas, and from Nuevo Leon, near Cadereita, Mexico. I have not seen an example of the species, unless the type of *Emys ventricosa*, the origin of which is unknown, belongs to it.

5. *Emys callirostris*.

Emys callirostris, Gray, Cat. Shield Rept. p. 25, t. 12 B.

Callichelys callirostris, Gray, Ann. & Mag. Nat. Hist. 1863, xii. p. 181.

Hab. West coast of CENTRAL AMERICA.

This, perhaps the most beautiful, species of this section of *Emys*, has been well figured by Gray, so that a further description seems to be unnecessary. Only the typical specimen is known, and there is every reason to believe that it came into the collection of Haslar Hospital with a number of other objects from the west coast of Central America; at any rate, it will be well to include it provisionally in the present list, as it has been confounded with the following species.

6. *Emys umbra*. (Tabb. IV., V., & VI. fig. A).

Emys grayi, Aug. Dum. & Boc. Miss. Sc. Mex., Rept. p. 13, t. 3. fig. 2 (not Günth.).

Emys callirostris, Bocourt, Journ. Zool. 1876, p. 387 (not Gray).

Emys concinna, Gray, Ann. & Mag. N. H. 1873, xii. p. 110.

Emys umbra, (Bocourt,) O'Shaughnessy, Zool. Record, xiii., Rept. p. 6*.

Callichelys callirostris, Sumichrast, Bull. Soc. Zool. France, 1880, p. 166.

Hab. MEXICO (*coll. Brit. Mus.*), Tapana and San Mateo near Tehuantepec (*Sumichrast, coll. B. M.*); GUATEMALA, Rio Nagualate (*Bocourt*).

This species differs from all the preceding species by the acutely-pointed snout, which is conspicuously longer than the eye. The hind feet, as well as the fore feet, are broadly webbed; the claws sharp and long. The shell is much depressed, slightly rugose or smooth, and generally very similar to that of *Emys ornata*. The type of the coloration of the soft parts also very much resembles that of the latter species, but the

* The author of the Record on Reptiles for 1876 refers to p. 26 of the 'Journal de Zoologie.' This is incorrect; he merely used a separate copy of M. Bocourt's paper, which cannot legitimately be considered a publication, and at the end of which a note is added in which the change of name from *grayi* to *umbra* is proposed. As this note does not occur in the really published paper in the 'Journal de Zoologie,' 1876, p. 411, the publication of the name *umbra* rests solely with the notice in the 'Zoological Record' as quoted above.

longitudinal bands on the upper part of the head are less numerous and less distinct, the lateral band over the temple is not dilated in the middle, and the band on the chin is bifurcate behind and continued as one of the lateral bands of the throat. The shell of the adult is brownish horn-coloured, each costal scute being marked with an oblong blackish spot situated high above, and very close to the vertebral scutes; sometimes a yellowish ring passes at some distance round the spot. The last vertebral scute bears also a small blackish spot in the middle of its suture with the costal scutes. The sternum is marbled with black, and only now and then faint traces of symmetrical markings may be discerned.

I have not seen the young of this species; it is probably much more brightly ornamented than the adult, and there are indications of the sternum having similar symmetrical markings at this age as are observed in the other allied species.

We have received six specimens, from 10 to 14 inches in length, through Mr. Sumichrast, who obtained them at Tapaná and San Mateo, near Tehuantepec. A seventh specimen from "Mexico" has been in the British Museum for many years, and was referred by Dr. Gray to his *Emys venusta*.

I have not the least doubt that the specimen from Rio Nagualate on the west coast of Guatemala, described by Duméril and Bocourt as *Emys grayi*, belongs to the same species, the costal spots having become obsolete. Specimens sent by Sumichrast to M. Bocourt were confounded by the latter with *Emys callirostris*, a short-snouted totally distinct species.

This species is aquatic, but herbivorous.

β. RHINOCLEMMYS OR CHELOPUS.

7. *Emys pulcherrima*. (Tabb. VII. & VIII. fig. A.)

Emys pulcherrima, Gray, Cat. Shield Rept. p. 25, t. 25. figg. 1, 2 (this figure is faulty in representing six longitudinal bands on the neck instead of five).

Callichelys pulcherrima, Gray, Ann. & Mag. N. H. 1863, xii. p. 181 (and Suppl. Cat. Shield Rept. p. 49, where the species is confounded with a specimen said to come from South Africa).

Rhinoclemmys pulcherrima, Gray, Ann. & Mag. N. H. 1873, xi. p. 145.

Hab. MEXICO, Presidio (*Forrer*).

The neck is ornamented with five parallel rather narrow red bands edged with blackish; occipital region with some detached spots of similar coloration. A narrow stripe, similarly coloured, runs along the edge of the upper part of the snout and stops behind the supraciliary region. Two similar bands from the eye, round the snout, *above* the nostrils, and finally another round the upper jaw. A short stripe along the median line of the upper part of the snout. Sides of the neck and throat finely punctulated with black. Each scute with some short, curved, yellow, dark-edged bands. Central parts of the sternum blackish or black. Shell depressed, oblong, with the

lateral edges sharp, strongly curved upwards; subcircular and dentated behind in the young. Nuchal narrow; vertebrals distinctly keeled. Toes very slightly webbed.

This species was hitherto known from a very young stuffed example only, 2 inches long, and occupied a very precarious position in systematic works. However, Herr Forrer rediscovered it at Presidio, in Western Mexico, the youngest of the three specimens collected by him being absolutely identical with the type. The largest specimen, an adult female, is 7 inches long.

8. *Emys incisa*.

Emys incisa, Bocourt, Ann. Sc. Nat. 1868, x. p. 121; Miss. Sc. Mex., Rept. p. 11, tt. 1. & 2.

Rhinoclemmys frontalis, Gray, Ann. & Mag. N. H. 1873, xi. p. 144.

Chelopus incisus, Bocourt, Journ. Zool. 1876, v. p. 387 (not synonym.); Sumichrast, Bull. Soc. Zool. France, 1880, p. 165.

Hab. MEXICO, Tehuantepec and Chiapas (*Sumichrast*); SALVADOR, La Union (*Bocourt*).

A narrow yellow (?) line runs along the upper edge of the snout over the eye to the tympanum; two other shorter concentric lines on the side of the snout, above the nostrils; a fourth on the horny sheath of the jaw. A median single line on the upper side of the snout is sometimes absent. Side of the head with some irregular small ocellated spots; a few similar spots sometimes on the occipital portion of the head. Upper part of the neck without bands or spots, olive-coloured; throat white, immaculate; sides of the neck, and the hinder part of the underside, punctulated with black. Upper part of the shell sometimes uniformly coloured, sometimes with a small, yellow, black-edged ocellus on the areola of each costal scute. Sternum black in the middle, yellowish on the sides. Shell moderately depressed, rather broad, with the lateral margins sharp and strongly reverted; hind margin distinctly serrated, the serrature becoming obsolete in very old specimens. Vertebral keel very distinct. Nuchal small, occasionally absent. Toes very slightly webbed.

The figure given by M. Bocourt is sufficiently accurate to ensure the recognition of this species. The largest specimen I have seen had a shell 8 inches long. It is a terrestrial herbivorous species.

9. *Emys gabbi*.

Chelopus gabbi, Cope, Journ. Ac. N. Sc. Philad. viii. 1875, p. 153.

Hab. COSTA RICA, Limon (*Cope*).

I have not seen this species, which seems to take its place near to *E. incisa*.

10. *Emys funerea*.

Chelopus funereus, Cope, Journ. Ac. N. Sc. Philad. viii. 1875, p. 154.

Hab. COSTA RICA, Limon (*Cope*).

Distinguished by the absence of markings on the upper side of the head and neck; this species will be easily recognized. I have not seen specimens of it.

11. **Emys areolata.** (Tab. VIII. fig. B.)

Emys areolata, Aug. Dum. Cat. Rept. p. 10; Arch. Mus. vi. 1852, p. 223, t. 14 (the artist introduced into this figure six vertebral and five costal scutes); A. Dum. & Bocourt, Miss. Sc. Mex., Rept. p. 13.

? *Chelopus areolatus*, Cope, Proc. Ac. Sc. Phil. 1866, p. 123.

Hab. GUATEMALA, Lake of Peten (*Salvin, coll. Brit. Mus.*).

Neck with four parallel, white, black-edged bands, the outer of which are far down on the side, and continued forwards over the temple into the supraciliary region; the inner commence from the occipital region. Crown of the head indistinctly marbled; a whitish line along the median line of the upper part of the snout. A minute white speck in front of the upper angle of the orbit (much smaller than in *E. scabra*). Cheek and tympanic region with irregular blackish markings; throat sparsely and minutely spotted with black. Central parts of the sternum blackish or black. Shell depressed, oblong, with the lateral edges sharp, curved upwards. Nuchal equilateral, triangular; vertebrals slightly keeled. Toes scarcely webbed.

The typical specimen came from Lake Peten; the specimen in the British Museum was collected by Mr. Salvin in the same district, and referred by Gray first to *E. scabra* and afterwards to *E. annulata*.

Emys pulcherrima of A. Duméril and Bocourt (Miss. Sc. Mex., Rept. p. 15, t. 7) is not the species described under that name by Gray; it represents a menagery-specimen without precise information as to locality, which has been named *Rhinoclemmys bocourti* by Gray (Ann. & Mag. N. H. 1873, xii. p. 111), and which possibly may prove to be identical with *E. areolata*.

12. **Emys rubida.** (Tab. VIII. figg. C, C', C'')

Chelopus rubidus, Cope, Proc. Am. Philad. Soc. (1869) xi. 1871, p. 148.

Rhinoclemmys mexicana, Gray, Proc. Zool. Soc. 1870, pp. 659, 723; Suppl. Cat. Shield Rept. p. 30; Proc. Zool. Soc. 1871, p. 296, t. 28.

Chelopus mexicanus, Bocourt, Journ. Zool. 1876, v. p. 387; Sumichrast, Bull. Soc. Zool. France, 1880, p. 166.

Hab. MEXICO, San Juan del Rio (*Rébouch, coll. B. M.*), Tehuantepec (*Sumichrast, coll. B. M.*).

The coloration of the soft parts, although varying somewhat in details, is characteristic enough. A narrow yellow (?) band runs round the edge of the snout, from one orbit to the other; a second much broader one, horseshoe-shaped, with the convexity towards the front, occupies the crown of the head, and is mixed up posteriorly more or less with the markings of the occiput, which, like those of the neck, consist of blackish

vermiculations which are darkest on the edges and light in the middle. A short, oblique, yellow band behind the eye is very constant. Throat punctulated. The scutes are sometimes without markings, sometimes with indistinct yellowish figures. The areolar portion of each costal scute is frequently ornamented with a small, oval, yellow spot and a narrow annulus. The middle of the sternum blackish. Shell moderately depressed, oblong, with the lateral edges not or slightly recurved. Nuchal small, occasionally absent. Only a trace of a vertebral keel. Toes not webbed.

Of this species we have a series of examples from both localities named. The shell of the largest example does not exceed 8 inches in length. It is a terrestrial frugivorous species. Cope's description was evidently prior to that of Gray; and Bocourt refers, by some error, Cope's name of "*rubidus*" to his *E. incisus*.

13. *Emys punctularia*.

Testudo punctularia, Daud. Hist. Nat., Rept. ii. p. 249.

Emys scabra, Bell, Testud. cum tab.

Geoclemmys callocephalus, Gray, Proc. Zool. Soc. 1863, p. 254.

Chelopus punctularius, Cope, Proc. Ac. Nat. Sc. Phil. 1865, p. 185.

Rhinoclemmys scabra, Gray, Proc. Zool. Soc. p. 722, cum fig. capitis.

Hab. MEXICO, Yucatan, Tabasco.—SOUTH AMERICA, Guiana, &c.

This is a South-American species, common in Dutch and British Guiana and other tropical parts of South America. However, Cope (*l. c.*) refers to it two Central-American specimens, one from Yucatan, and the other from Tabasco. I have not seen these specimens, which are preserved in the Smithsonian Institution, and am therefore unable to confirm Mr. Cope's identification.

Geoclemmys callocephalus, or *Rhinoclemmys callocephala*, Gray, Proc. Zool. Soc. 1863, p. 254, is based on a dry specimen, which, after having lived for some time in captivity, came into the collection of the British Museum in the year 1853. Its shell is deteriorated; and of the coloration of the soft parts only so much is preserved as clearly shows that the specimen is identical with *Emys scabra* or *punctularia*. The figure given by Gray of the head of this species is very inaccurate and misleading.

NOTE.—*Geoclemmys melanosterna*, Gray, Proc. Zool. Soc. 1861, p. 205, is an extralimital species. Of the two specimens known, the type bears its original label "Chirambira, Darien," altered in Gray's paper to "Cherunha, Gulf of Darien." Chirambira is a place a short distance north of Buenaventura, where the second specimen was obtained. Thus there is no doubt that this species belongs to the Colombian fauna.

Geoclemmys annulata, Gray, Proc. Zool. Soc. 1860, p. 231, t. 29, is likewise extralimital, from the coast of Ecuador. It is true that Gray in the Suppl. Cat. Shield Rept. p. 30, and in the Hand-list of Shield Rept. p. 27, refers to Mr. Salvin as the

discoverer of the species in Ecuador and on the Gulf of Darien. But this mistake is due to his having confounded (in the last years of his life) Mr. Salvin with Mr. Fraser. In fact, the spirit-specimen said to be from the "Gulf of the Darien" is one of the types, and the very specimen figured. The locality "Darien" became attached to it through the insufficient care of a person who assisted Gray.

DERMATEMYS.

Dermatemys, Gray, Proc. Zool. Soc. 1847, p. 55.

1. *Dermatemys mawii*.

Dermatemys mawii, Gray, Proc. Zool. Soc. 1847, p. 56; Cat. Shield Rept. p. 49, t. 21*; Proc. Zool. Soc. 1864, p. 125; Dum. & Boc. Miss. Sc. Mex., Rept. p. 17, t. 7. fig. 2; Cope, Proc. Ac. Nat. Sc. Philad. 1865, p. 187, and 1868, p. 119; Preudhomme de Borre, Bull. Ac. Belg. 1869, p. 116 (young).

Emys berardii, A. Dum. Arch. Mus. d'Hist. Nat. vi. p. 231, t. 15.

Dermatemys berardii, Cope, l. c. p. 120.

? *Dermatemys abnormis*, Cope, l. c. (young).

Dermatemys salvinii, Gray, Suppl. Cat. Shield Rept. p. 50.

? *Chloremys abnormis*, Gray, Proc. Zool. Soc. 1870, p. 711, t. 42 (young).

Hab. MEXICO, Tabasco (*Cope*), Laguna de Terminos, Yucatan (*Zool. Soc.*), Vera Cruz (*Bérard*); BRITISH HONDURAS, Belize (*Cope, Bocourt, P. de Borre*); GUATEMALA (*Salvin*).

A vegetable-feeder, called "Tortuga blanca" in Mexico.

CHELYDRA.

Chelydra, Schweigger, Prodr. Monogr. Chelon. p. 23.

1. *Chelydra serpentina*.

Chelydra serpentina (Linn.), Peters, MB. Berl. Ak. 1862, p. 627; Cope, l. c. 1872, p. 23.

? *Chelydra*, sp., Cope, Proc. Ac. N. Sc. Philad. 1865, p. 187.

Hab. NORTH AMERICA.—MEXICO and southwards to Ecuador.

Called "*Chiquihuan*" in Mexico.

Ranges from Canada to Ecuador. Mexican specimens have been examined by Cope.

2. *Chelydra rossignoni*.

Emysaurus rossignonii, Dum. & Bocourt, Miss. Sc. Mex., Rept. p. 18, t. 5. fig. 2.

Hab. MEXICO; GUATEMALA (*Bocourt*).

* The suture dividing the gular plate is much too distinctly represented in this figure; in the original specimen (which is dry) there is no more of a suture than in another from Salvin's collection—merely a groove in the underlying bone is indistinctly visible in both specimens through the transparent substance of the epidermal scute.

I have not seen any specimens from Central America. This species is said to be distinguished from *C. serpentina* chiefly by having four chin-barbels instead of two. This seems to me quite as variable a character as the others assigned to the Central-American form. In the head of an adult specimen from Meadville, Pa., in spirits, I find some of the lateral skin-papillæ on the chin so much enlarged as to deserve almost the appellation of barbels. However, Bocourt states that he has had three specimens, showing alike the development of four barbels.

STAUROTYPUS.

Staurotypus, Wagler, Syst. Amphib. p. 137 (1830).

1. *Staurotypus triporcatus*.

Terrapene triporcata, Wieg. Isis, 1828, p. 364.

Staurotypus triporcatus, Wagl. Ic. Amphib. t. 33; Gray, Cat. Shield Rept. p. 47, t. 20 B; Dum. & Bocourt, Miss. Sc. Mex., Rept. p. 21; Gray, Suppl. Cat. Shield Rept. p. 65; Cope, Proc. Ac. Nat. Sc. Philad. 1865, p. 188.

Hab. MEXICO, Tabasco (*Cope*), Rio Alvarado, Bay of Campeachy (*Deppe*), Vera Cruz (*Sallé*); GUATEMALA, Rio Usumacinta (*Morelet*).

Vernacular name at Tabasco: *Huan*.

2. *Staurotypus salvini*.

Staurotypus salvini, Gray, Proc. Zool. Soc. 1864, p. 127; Dum. & Boc. Miss. Sc. Mex., Rept. p. 22, t. 5. fig. 3.

Stauremys salvinii, Gray, Proc. Zool. Soc. 1869, p. 179, fig. 5; or Suppl. Cat. Shield Rept. p. 65; Cope, Proc. Ac. N. Sc. Phil. 1872, p. 28.

Staurotypus marmoratus, Fischer, Wieg. Arch. 1872, p. 265, t. 10 (young).

Claudius severus, Cope, l. c. p. 24; Sumichrast, Bull. Soc. Zool. France, 1880, p. 167.

Claudius pictus, Cope, l. c. p. 26.

Staurotypus (Claudius) severus, Bocourt, Journ. Zool. 1876, p. 387.

Hab. MEXICO, Santa Efigenia, Tapana, Tehuantepec (*Sumichrast*); GUATEMALA, Huamuchal (*Salvin*), Vera Paz (*Bocourt*).

Having before me the type of *Stauremys salvini*, and a large series of specimens which were collected by Sumichrast, and therefore are typical of *Claudius severus*, I can positively state that there is no ground whatever for specifically separating them from each other or from the specimen figured by Bocourt and named *Claudius pictus* by Cope. Gray's assertion that the tubercles on the tail are placed in three series in *S. salvini* is erroneous; they are four-rowed as in the other specimens. The rows of tubercles are less separate and regular in the short-tailed females than in males, in which the tail is thicker and longer. The tubercles themselves are in some specimens more developed than in others, and, according to Sumichrast, may disappear altogether.

The mobility of the fore part of the sternum is extremely variable and depends on the amount of ossification which has taken place near the transverse suture, but no joint is developed. Not less variable is the width of the inguinal bridge, which is sometimes not even the same on either side of the same individual. With regard to coloration, every degree of transition occurs from a finely mottled head to one of uniform coloration without any spots.

This species is so closely allied to *Staurotypus triporcatus* that some difficulty exists in referring young examples to either of these two species. Young examples of *S. triporcatus* do not seem to possess the very broad front part of the sternum by which the old ones are distinguished. Therefore in maintaining for the present the genus *Claudius*, I cannot follow Cope in including in it his *C. severus*, but restrict it to *C. angustatus*, for which it was originally formed, although the characters assigned to it seem to me scarcely sufficient to justify a distinct generic appellation.

CLAUDIUS.

Claudius, Cope, Proc. Ac. N. Sc. Phil. 1865, p. 185.

1. *Claudius angustatus*.

Claudius angustatus, Cope, Proc. Ac. N. Sc. Phil. 1865, p. 187 ; 1872, p. 28 ; Proc. Am. Phil. Soc. 1869, t. 9 ; Dum. et Bocourt, Miss. Sc. Mex., Rept. p. 20, t. 4.

Claudius megaloccephalus, Bocourt, Ann. Sc. Nat. Zool. 1868, p. 122 ; Cope, Proc. Ac. N. Sc. Phil. 1872, p. 27.

Hab. MEXICO, Tabasco (*Cope*).

Called "Talmame" by the natives. Carnivorous.

CINOSTERNUM.

Cinosternum, Spix, Test. et Ran. Bras. p. 17 (1824).

Of the twelve or thirteen species known of this genus, not less than nine are peculiar to the Central-American fauna, one only occupying territories in the South, and two or three * in the North. The distinction of the species is a difficult task; and it is still more difficult to select distinctive characters from the lengthy descriptions by authors who notice the most variable details. The shape of the shell, of the individual scutes, of the beak, tail, the width of the hinder sternal lobe are all variable individually, as well as according to sex and age. In the following synopsis I have admitted such characters only as may be more or less fully relied upon.

* It is not within the scope of this work to investigate the question whether *Cinosternon hippocrepis* of Gray and *Platythyra flavescens* of Agassiz are identical or not, as there is no evidence of either occurring within the limits of Mexico.

I. Shell with three keels.

A. Sternum with a notch behind *C. sonoriense*, p. 13.

B. Sternum not notched behind.

1. Jaws spotted.

a. Axillary and inguinal scutes separate. *C. cruentatum*, p. 13.b. Axillary and inguinal scutes joining each other *C. triliratum*, p. 14.2. Jaws uniform yellowish *C. albogulare*, p. 14.

II. Shell with one keel or none.

A. Sternum with a notch behind.

1. Jaws spotted *C. hirtipes*, p. 15.2. Jaws yellow *C. integrum*, p. 16.

B. Sternum without a notch.

1. Jaws spotted *C. effeldtii*, p. 16.

2. Jaws uniformly coloured.

a. A joint between posterior lobe and middle of sternum *C. leucostomum*, p. 17.b. A straight suture between posterior lobe and middle of sternum; axillary and inguinal scutes separate *C. brevigulare*, p. 17.c. A curved suture between posterior lobe and middle of sternum; axillary and inguinal scutes in contact *C. cobanum*, p. 18.1. *Cinosternum sonoriense*.*Kinosternum sonoriense*, Leconte, Proc. Ac. N. Sc. Philad. 1854, p. 184.*Thyrosternum sonoriense*, Agass. Amer. Testud. p. 428, t. 5. figs. 8-11 (young).*Hab.* MEXICO, Tucson, Sonora (*Leconte*), Guadalupe, Cañon Sonora (*Agassiz*).

Shell with three keels, but the lateral are obsolete and scarcely to be traced, except on the two last costal scutes. Sternum emarginate behind. Head and neck black, above mottled and spotted with whitish, beneath whitish, varied in the same manner with dusky; jaws horn-colour, varied with black. The anterior joint of the sternum ligamentous, the posterior sutural, the hind lobe not entirely closing the box of the shell. Gular plate large, equilaterally triangular.

Of this species I have not seen any examples, and the characters are taken from Leconte's description. His specimen was 4.4 inches long. Gray considered his *K. punctatum*, based upon a very young example from East Florida, to be identical with the Sonora species. But this is very doubtful, and unfortunately cannot be determined from the type specimen, which is in a very bad state of preservation.

2. *Cinosternum cruentatum*. (Tabb. IX., X., XI.)*Cinosternum cruentatum*, A. Dum. Cat. Méth. Rept. p. 16; and Arch. Mus. vi. p. 238, t. 16. figg. 1, 2; Dum. & Boc. Miss. Sc. Mex., Rept. p. 23; Bocourt, Journ. Zool. 1876, p. 398.*Kinosternum mexicanum*, Leconte, Proc. Ac. N. Sc. Phil. 1854, p. 182.*Swanka scorpioides*, Gray, Suppl. Cat. Shield Rept. p. 67 (part.).

Cinosternum shawianum, Bocourt, Journ. Zool. 1876, p. 397 (not of Bell, which is the true *C. scorpioides* from Guiana); Sumichrast, Bull. Soc. Zool. France, 1880, p. 169.

Hab. MEXICO (*coll. Brit. Mus.*), Tonala in Chiapas (*Sumichrast*).

Shell with three keels, placed close together and disappearing in very old examples; first vertebral scute as broad as, or even broader than, long. Sternum not emarginate behind; the central portion shorter than either of the two lobes; joint of the hind lobe well developed and straight; gular plate as long as the median suture of the front lobe; axillary and inguinal scutes not in contact with each other.

The tail is very thick in the male and armed with a curved claw; short, tubercular, and provided with a much smaller claw in the female. The head is greyish, mottled with yellow, especially on the cheek; jaws yellow, with black markings, of which the most constant occupies the median line of the lower jaw; middle of the throat mottled with grey.

The principal characters of this species are already indicated in a very young specimen only a few days old; its sternum is yellow with black subsymmetrical markings arranged chiefly along the median line.

Besides some specimens of the origin of which nothing is known except that they came from Mexico, I have examined four examples collected by Sumichrast at Tonala (Chiapas); the largest of them are 5 inches long, a size which this species does not seem to exceed. As far as is known at present, it does not seem to occur beyond Mexico.

The old female figured has only four claws on the fore foot.

3. *Cinosternum triliratum*.

Kinosternum triliratum, Leconte, Proc. Ac. N. Sc. Phil. 1859, p. 6.

Hab. MEXICO (*Pease*).

Shell with three strong keels; sternum bivalved, entire and rather pointed behind; jaws yellow, varied with black (the upper entire, not hooked*). Gular large, triangular; inguinal scutes long, rather wide, joining the axillaries.

I have not seen specimens of this species.

4. *Cinosternum albogulare*.

Cinosternon albogulare, Bocourt, Miss. Sc. Mex., Rept. p. 24; Journ. Zool. 1876, p. 399.

Hab. COSTA RICA (*Bocourt*).

Shell with three keels, sternum not emarginate behind. The first vertebral scute longer than broad; gular shorter than the median suture of the front lobe; fixed por-

* The hook on the upper jaw is not a specific character; it is developed with age, at least in those species of which I have been able to examine individuals of different ages.

tion of the sternum shorter than either of the two lobes; axillary and inguinal scutes touching each other by a point; jaws and throat uniform yellowish.

I have not seen a specimen of this apparently very distinct species.

5. **Cinosternum hirtipes.** (Tabb. XII., XIII., XIV., XV.)

Cinosternum hirtipes, Wagl. Descr. & Ic. Amphib. t. 30; Strauch, Vertheil. Schildkr. p. 101.

Kinosternum henrici, Leconte, Proc. Ac. N. Sc. Phil. 1859, p. 4; Yarrow in Wheeler's Report upon Expl. and Surv., Rept. p. 583, t. 16.

Hab. NORTH AMERICA, New Mexico (*Leconte*), Arizona (*Yarrow*).—MEXICO, Mazatlan and Tres Marias Islands (*Forrer*).

I consider this species to be the southern and more developed form of *Cinosternon pennsylvanicum*, but the shell is broader in young specimens, and generally more convex and raised along the vertebral line in old ones. The sternum is emarginate behind, the joint of the hind lobe forming a somewhat curved line. The fixed part of the sternum is always somewhat shorter than either the front or the hind lobes; gular plate not much shorter than the median suture of the front lobe. The development of the axillary and inguinal plates is subject to variation in this species; in a half-grown specimen from Mazatlan these two scutes are broadly in contact with each other, whilst they barely touch each other in full-grown examples; so it is also in a young specimen from Tres Marias Islands, an adult individual from this last locality having a merely rudimental axillary plate, which is separate from the inguinal.

The vertebral keel is very indistinct, even in young examples, the vertebral region of the shell being flattened, but never concave as in *Cinosternum pennsylvanicum*. The first vertebral is as broad as long, in old examples bell-shaped, the lateral margins being concave. Upper parts of the head brownish or blackish, with irregular yellowish spots; sides of the head, jaws, and throat yellow, marbled and streaked with black. The tail is very strong and long in the male, and armed with a curved claw; in the female it is much shorter and clawless.

Of this species I have examined five specimens—three (male, female, and half-grown) from Mazatlan, and two (female and young) from Tres Marias Islands. The variation of form of the shell is well represented in this series. The shell of the largest male is $6\frac{1}{2}$ inches long, the females being $\frac{1}{2}$ inch shorter. The specimens named *C. henrici* were collected in New Mexico and Arizona, and prove the close affinity of the Mexican form to *C. pennsylvanicum*.

To show the great variation of form to which some species of this genus may be subject, three views of each are given of an adult male and female from Mazatlan, and of an adult female from Tres Marias Islands, together with the arrangement of the axillary and inguinal plates in a half-grown specimen from Mazatlan.

6. *Cinosternum integrum*.

Kinosternum integrum, Leconte, Proc. Ac. N. Sc. Philad. 1854, p. 183.

Hab. MEXICO (*Pease*).

Shell without keel. Sternum a little emarginate behind, bivalved, entirely closing the box. Gular plate small, nearly equilateral. Axillary long and narrow, touching the inguinal by a point. Head and neck brown, spotted with yellow, a large orange spot behind the eye somewhat varied with black; jaws yellow.

The specimen described is $4\frac{1}{2}$ inches long.

Bocourt (Journ. Zool. 1876, p. 393), in his synopsis of the species of this genus, includes the description of what he considers the species named by Leconte; however, I suspect that he had a distinct species characterized by spotted jaws, and by a sternum not emarginate behind. Leconte's description also is somewhat inaccurate, inasmuch as he ascribes a keel to this species in his diagnosis, denying its presence in the more detailed description.

On the other hand, I am inclined to think that the *Cinosternum rostellum*, Bocourt, l. c. p. 391, from Guanajuato, cannot be specifically separated from *C. integrum*.

7. *Cinosternum effeldtii*.

Cinosternum effeldtii, Peters, MB. Ak. Wiss. Berl. 1873, p. 603, cum tab.

?*Cinosternum berendtianum*, Cope, Proc. Ac. N. Sc. Philad. 1865, p. 189; Bocourt, Journ. Zool. 1876, p. 395.

Hab. MEXICO, Vera Cruz (*Peters*); GUATEMALA (*Salvin*).

Shell with a single keel. Sternum not emarginate behind, with the two joints, by which the lobes are attached to the middle portion, well developed; middle portion shorter than the hind lobe, but almost as long as the front lobe. Gular longer than broad, and longer than the median suture of the front lobe. Inguinal and axillary scutes separate from each other. Head and jaws marked with brown and yellow.

I have examined two specimens found by Mr. Salvin in Guatemala, an adult male and female, the latter being 4 inches long. From Peters's description it would appear that sometimes the axillary and inguinal scutes are in contact with each other by a point. I am by no means assured of the identity of this species with *Cinosternum berendtianum* of Cope, although there can, I think, be no doubt that the species described by Bocourt under the latter name is, in fact, the *Cinosternon effeldtii* of Peters. Although Cope says nothing of the coloration of the jaws, he states that *Cinosternum berendtianum* is most nearly related to *C. leucostomum*, thus apparently letting us infer that both are characterized by yellow unspotted jaws.

8. **Cinosternum leucostomum.** (Tabb. XVI., XVII.)

Cinosternon leucostomum, A. Dum. Cat. Méth. Rept. 1851, p. 17; and Arch. Mus. Hist. Nat. 1855, p. 239, t. 17; Strauch, Vertheil. Schildkr. p. 99; Dum. & Boc. Miss. Sc. Mex., Rept. p. 25; Bocourt, Journ. Zool. 1876, p. 394; Cope, Proc. Ac. N. Sc. Philad. 1865, p. 189; and Journ. Ac. N. Sc. Philad. viii. 1876, p. 153.

Kinosternum scorpoides, Gray, Cat. Shield Rept. p. 44 (part.).

Swanka maculata, Gray, Suppl. Cat. Shield Rept. p. 68.

Hab. ? NORTH AMERICA, New Orleans (*Duméril, Strauch*).—MEXICO, Tabasco (*Cope*), Cosamaloapam* (*Sallé*); GUATEMALA, Rio Usumacinta (*Duméril*), Vera Paz (*Bocourt, Salvin*), Huamuchal (*Salvin*); COSTA RICA, Sipurio, Old Harbour (*Cope*); PANAMA, Turbo (*Smiths. Inst.*).—COLOMBIA, Bogota (*Duméril*).

Vernacular name: "Pochitoque camatotl" (Tabasco).

Shell with a single keel, most prominent on the two last vertebral scutes, and generally inconspicuous on the middle of the back, which is flat. Convexity of the shell variable. First vertebral scute as broad as long, sometimes bell-shaped, with the lateral margins concave. Sternum not emarginate behind, the two lobes being attached to the fixed portion by well-developed straight joints. Central part of the sternum rather shorter than either of the two lobes. Gular plate large, generally about as long as the median suture of the front lobe. Axillary and inguinal scutes barely touching each other or entirely separate.

The tail is very long and thick in the male, and armed with a large curved claw; it is much smaller, tubercular, and provided with a small claw in the female. Head greyish brown above, mottled with yellowish; jaws without spots, either uniform yellowish or horn-coloured or blackish; the throat is sparsely mottled with brownish.

Besides some specimens the origin of which is either unknown or uncertain, I have before me a series of seven examples collected by M. Sallé in Mexico and by Mr. Salvin in Guatemala; they are the types of Gray's *Swanka maculata*. The shell of the longest is $5\frac{1}{2}$ inches long.

9. **Cinosternum brevigulare**, sp. n. (Tab. XVIII. fig. A.)

Hab. MEXICO, Playa Vicente (*Sallé*).

This species is distinguished, first by having a scarcely movable hind lobe, which is attached to the sternum by a suture rather than by a joint, and secondly by the shortness of the gular plate, the length of which is only two fifths of the median suture of the front lobe. Shell with a distinct broad keel; first vertebral as long as broad; axillary and inguinal scutes separate. Head brown above, marbled with whitish on the sides; jaws whitish; throat slightly mottled with brownish.

* This is a town on the banks of the Papaloapan river. The latter name has become "Papalco Apoia" in Gray's Suppl. Cat. Shield Rept. p. 68!

The type of this well-characterized species is a female $3\frac{1}{4}$ inches long, and had been placed by Dr. Gray as his *Swanka scorpoides*.

10. **Cinosternum cobanum**, sp. n. (Tab. XVIII. fig. B.)

Hab. GUATEMALA, Coban (*Salvin*), Cahabon (*Sarg*).

Shell moderately convex, with an obtuse vertebral keel. First vertebral scute a little broader than long. Hind lobe of the sternum attached to the fixed portion by a suture, the two rami of which distinctly converge towards the middle. Gular plate short, as long as the interpectoral suture, much broader than long. Axillary and inguinal in contact. Sternum without notch behind. Jaws uniform whitish.

This species seems to represent *C. leucostomum* in Alta Vera Paz; although founded on only two specimens, of which the largest is not quite 2 inches long, the distinguishing characters are sufficiently well developed. The smaller specimen from Coban is figured.

Order CROCODILIA.

Sumichrast (Bull. Soc. Zool. France, v. 1880, p. 170) gives the following account of the occurrence, &c. of the two Crocodilians found in Central America:—

“Whilst the indigenous Crocodile (*C. pacificus*) inhabits both salt and fresh waters, estuaries, rivers, and lakes, the Alligator or Huizizil * never inhabits running or brackish water, but only the bottom of shallow or muddy streams in plains or stagnant pools in woods. It lies in deep burrows along the banks under the submerged roots of the great trees. Its character is much more savage than that of the Crocodile, and when disturbed it leaves its lair and fearlessly attacks an enemy. The Crocodile only rarely does this. The female defends her young bravely, whether against the attacks of the male, who never loses an opportunity of devouring them, or that of any other enemy. Crocodiles frequently live in numerous herds in the estuaries along the edge of the sea, while the Alligator’s habits are solitary and nocturnal. On finding itself captured it becomes furious, lashing out violently with its tail and giving vent to a sort of hollow threatening grunt, and though it never attains so large a size as the Crocodile † is more difficult to take. The food consists of fish, crustacea, and aquatic insects, and I have frequently found its stomach full of sand, gravel, and water-plants.

“The iris is of a greenish grey as in the Crocodile. Age does not make any great change in its form or the shape of its head.”

* The word “Huizizil” is of Aztec origin; among the ancient Mexicans it was applied to the Humming-bird.

† The largest individuals I have observed do not exceed 1.72 metre.

CROCODILUS.

Crocodylus, auct.

1. *Crocodylus americanus*, Schneid.

The American Crocodile has a most extensive geographical distribution. It is found in the large West-Indian Islands, and is very common on the Atlantic side of Mexico and Central America*; on the Pacific side it extends southwards to Ecuador, whence specimens were brought by Mr. Fraser. Naturally, a species of so wide a range exhibits no inconsiderable amount of variation, especially in the comparative length of the snout, in the more or less regular arrangement of the lateral dorsal scutes, in the prominence of the keels of the scutes, and in the development (as regards number and size) of the scutes protecting the neck. The last of these characters is the least trustworthy of all, and therefore I am not prepared to admit the species named *Crocodylus mexicanus* by Bocourt. The variations in the width of the skull are all the more perplexing, as evidently a great change takes place in this respect during the growth of the individual. From specimens less than one foot in length little information is to be gained, but as they grow the snout is more produced and becomes comparatively narrow. This goes on until they have attained a length of five or six feet. About that period the growth of bone is slower in the longitudinal axis of the jaw than in the transverse, and the jaws increase in width as the animal becomes older. It is therefore necessary in the utilization of this character to compare specimens of the same size and presumably of the same age.

Induced by the labours of the French naturalists who distinguished several species of the Central-American Crocodile, I re-examined a very large series (34 specimens), and came to the conclusion that at least two forms, a long-snouted and a broad-snouted, could be distinguished, although even these two forms cannot be sharply defined, all having, besides, one important character in common by which the American Crocodile can always be recognized, namely, the longitudinal elevation of bone along the fronto-nasal region.

For the long-snouted form the subspecific term of *acutus*, and for the broad-snouted that of *moreletii* † may be chosen, and it may be useful to indicate in the accompanying table the amount of variation which attains in each of these two forms.

* Wyman (Sill. Journ. vol. 49, 1870, p. 105) records the occurrence of *Crocodylus acutus* on the coast of Florida, and describes a skull $18\frac{1}{4}$ inches long, comparing it with one of similar size from South America. As the Floridan skull is much narrower than any I have examined of *C. acutus*, and resembles in this respect the Crocodile of the Orinoco, I have some hesitation in referring the Floridan Crocodile to *C. acutus*.

† Wiegmann, Herpetol. Mex. p. 22, and Strauch, Syn. Crocodil. p. 41, maintain that *Crocodylus rhombifer* is common in Mexico and other parts of Central America. This statement rests evidently on a confusion of the Cuban species with the broad-snouted form of *C. americanus*. As far as I have been able to ascertain, the *C. rhombifer* of Cuba is peculiar to that island. It lacks the longitudinal rise of the fronto-nasal region, and the dorsal scutes form four regular longitudinal series besides one or two irregular lateral rows. Duméril's statement as to the shortness of the web between the outer hind toes in Cuban specimens, I am unable to confirm; this membrane shrinks in dry specimens, but in our Cuban Crocodiles it is as much developed as in *C. acutus*, or nearly so. Finally, I may remark that the skull on which Cuvier founded *C. rhombifer* may prove to be nothing but a short-snouted *C. americanus*.

Variations in the form of the head in *Crocodylus americanus*.

<i>acutus</i> , Cuv., = <i>pacificus</i> , Boc.				<i>moreletii</i> , Dum., = <i>mexicanus</i> , Boc.			
Hab.	Size.	Length of head.	Proportion of width* of snout to length of head.	Hab.	Size.	Length of head.	Proportion of width of snout to length of head.
<i>a.</i> Jamaica	in. 10	in. $1\frac{2}{3}$	1 : $3\frac{1}{3}$				
<i>b.</i> Nicaragua	11	$1\frac{3}{4}$	1 : $3\frac{1}{2}$				
<i>c.</i> Mazatlan	14	$2\frac{1}{2}$	1 : $3\frac{3}{4}$				
<i>d.</i> West Ecuador	20	$3\frac{1}{4}$	1 : $4\frac{1}{4}$				
<i>e.</i> Jamaica	28	$4\frac{1}{2}$	1 : 4				
<i>f.</i> Chepo	28	5	1 : $4\frac{1}{2}$	<i>a.</i> Mexico	in. $29\frac{1}{2}$	in. 4	1 : $3\frac{2}{3}$
<i>g.</i> Tehuantepec	29	4	1 : 4	<i>b.</i> Mexico	$32\frac{1}{2}$	$4\frac{1}{3}$	1 : $3\frac{2}{3}$
<i>h.</i> Presidio	37	6	1 : $4\frac{1}{8}$	<i>c.</i> Mexico	38	5	1 : $3\frac{1}{2}$
<i>i.</i> Presidio	43	7	1 : $4\frac{1}{10}$	<i>d.</i> Mexico	$42\frac{1}{2}$	$5\frac{4}{5}$	1 : $3\frac{1}{2}$
<i>k.</i> Guatemala	57	9	1 : $4\frac{1}{2}$				
<i>l.</i> Jamaica	93	14	1 : 4				
<i>m.</i> ?	103	15	1 : $3\frac{3}{4}$				
<i>n.</i> ?	105	16	1 : $3\frac{2}{3}$				
<i>o.</i> Pacific Coast	?	17	1 : $3\frac{9}{10}$				
<i>p.</i> Greytown	$133\frac{1}{2}$	$19\frac{1}{2}$	1 : $3\frac{1}{2}$	<i>e.</i> Mexico	?	20	1 : $2\frac{1}{2}$

***α. Crocodylus americanus*, var. *acutus*.**

Crocodylus americanus plumieri, Schneid. Hist. Amph. fasc. 2, p. 167.

Le Crocodile de Saint-Domingue, Geoffr. Ann. Mus. Hist. Nat. ii. 1803, p. 53, t. 37. fig. 1;

Descourtilz, Voy. d'un Naturaliste, vol. iii. 1809, p. 11 et seqq. pls. 2-5.

Crocodylus acutus, Cuv. Ann. Mus. Hist. Nat. x. 1807, p. 55, t. 1. figs. 3 & 14, t. 2. fig. 5; Geoffr. ibid. p. 79; Dum. & Bibr. Erpét. génér. iii. p. 119; Ramon de la Sagra, Cuba, Rept. p. 62, t. 5.

Crocodylus biscutatus, Cuv. l. c. p. 53, t. 2. fig. 6.

Crocodylus americanus, Gray, Cat. Tort. 1844, p. 60; Dum. & Bocourt, Miss. Sc. Mex., Rept. p. 30, t. 8. fig. 1 † and t. 9. fig. 1.

Crocodylus pacificus, Dum. & Bocourt, Miss. Sc. Mex., Rept. p. 31, t. 9. fig. 5; Sumichrast, Bull. Soc. Zool. v. 1880, p. 171.

Hab. MEXICO, Mazatlan, Presidio (*Forrer*), Tehuantepec (*Sumichrast*); GUATEMALA

* The width of the snout is taken on the level of the tenth upper tooth.

† This figure is again referred to as representing *C. moreletii* on p. 37, and it will be difficult to decide for which it was intended.

(*Salvin*); NICARAGUA (*Richardson*); PANAMA, Chepo river (*Arcé*).—COLOMBIA Cartagena (*Duméril & Bibron*); WESTERN ECUADOR (*Fraser*); ANTILLES, Cuba (*Ramon de la Sagra*), Jamaica (*Brit. Mus.*), San Domingo and Martinique (*Duméril & Bibron*); MARGARITA ISLAND and TRINIDAD (*Ramon de la Sagra*).

Vernacular name: "Lagarto" (Guatemala).

β. *Crocodylus americanus*, var. *moreletii*.

Crocodylus rhombifer (nec Cuv.), Wiegman. Herpetol. Mex. p. 22; Strauch, Synops. Crocodil. p. 41 (part.).

Crocodylus moreletii, A. Dum. Arch. Mus. vi. p. 255, t. 20; Dum. & Bocourt, Miss. Sc. Mex., Rept. p. 37, t. 9. figg. 2, 3.

Alligator lacordairei, Preudhomme de Borre, Bull. Ac. Sc. Belg. xxviii. 1869, p. 109, c. t. (pull.).

Crocodylus mexicanus, Dum. & Bocourt, l. c. p. 34, t. 8. fig. 3.

Hab. MEXICO (*Brit. Mus.*), Alvarado river (*Deppe*), Tampico (*Bocourt*); BRITISH HONDURAS, Belize (*Preudh. de Borre*); GUATEMALA, Lake of Peten (*Morelet*), Rio Polochic, East Guatemala (*Bocourt*).

ALLIGATOR.

Alligator, Cuv.

1. *Alligator punctulatus*.

Jacaretinga punctulatus, Spix, Anim. Nov. p. 2, tab. 2.

Alligator punctulatus, Dum. & Bibr. p. 91; Strauch, Synops. Crocod. p. 24.

Champsia vallifrons, Natterer, Ann. Wien. Mus. ii. p. 322, t. 24.

Champsia punctulata, Natterer, l. c. p. 323, t. 25.

Jacare longiscutata, Gray, Trans. Zool. Soc. vi. p. 164, t. 34.

Jacare ocellata, Gray, l. c. pl. 33.

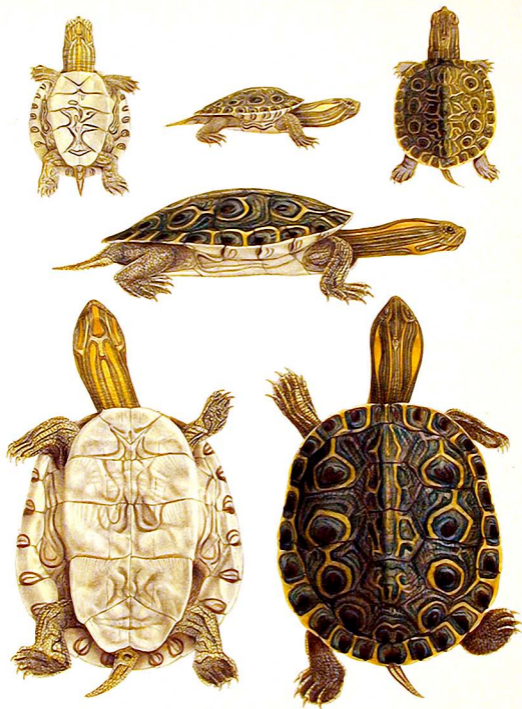
Jacare punctulata, Gray, l. c. p. 165.

Alligator chiapasius, Bocourt, Journ. Zool. 1876, v. p. 400; Sumichrast, Bull. Soc. Zool. 1880, v. p. 170.

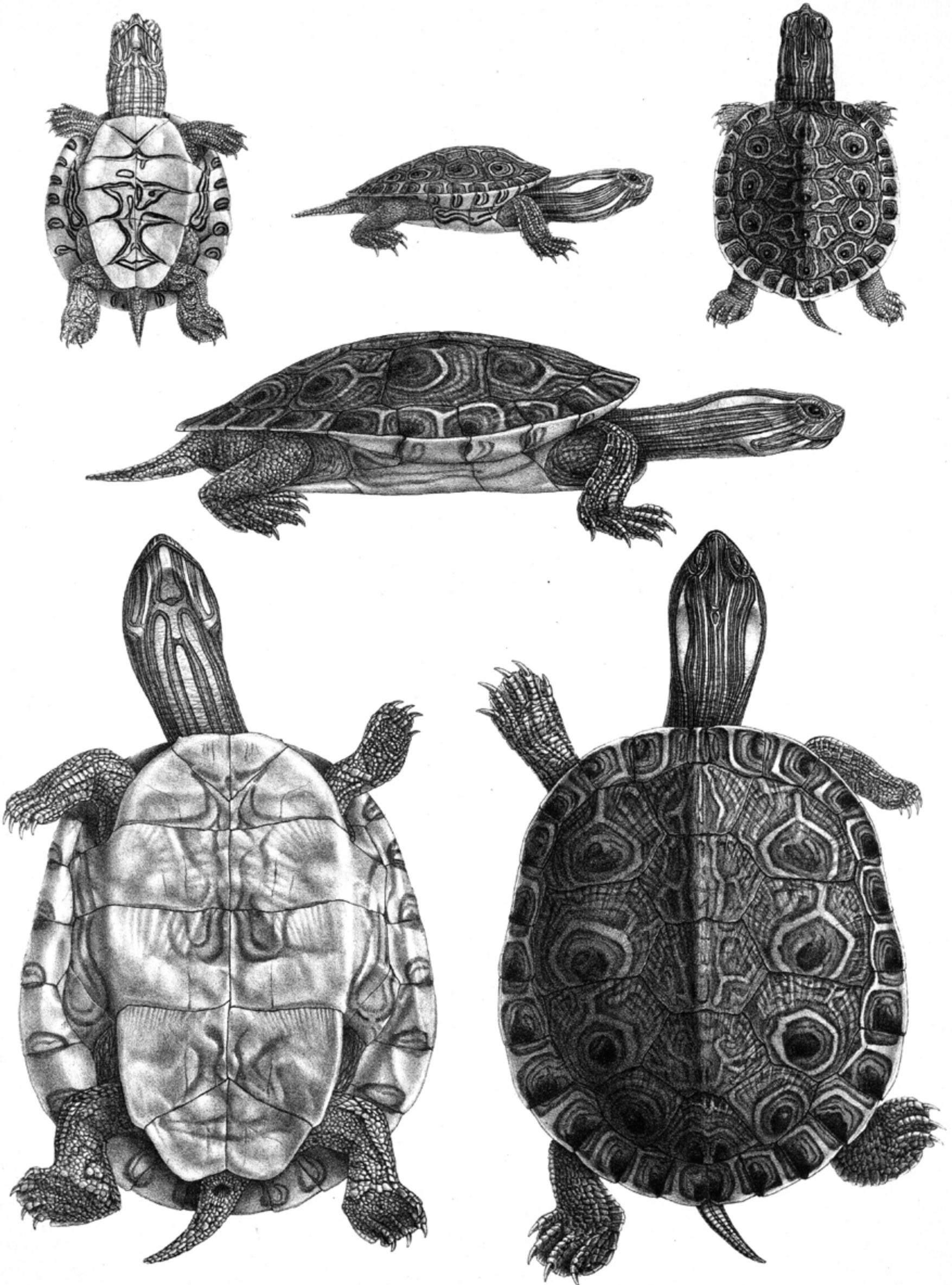
Hab. MEXICO, Tehuantepec and Chiapas (*Sumichrast*); GUATEMALA, Huamuchal (*Salvin*).—VENEZUELA, Lake Valencia; BRITISH GUIANA (*Schomburgk, Brit. Mus.*); BOLIVIA, Santa Cruz de la Sierra (*Gray*); BRAZIL, Solimoens River (*Spix*), Rio Branco and Rio Negro (*Natterer*); ARGENTINE REPUBLIC (*Christie*); MARTINIQUE (*Plée*); TRINIDAD (*Mus. Paris.*).

Vernacular name: "Lagarto" (Guatemala, Panama).

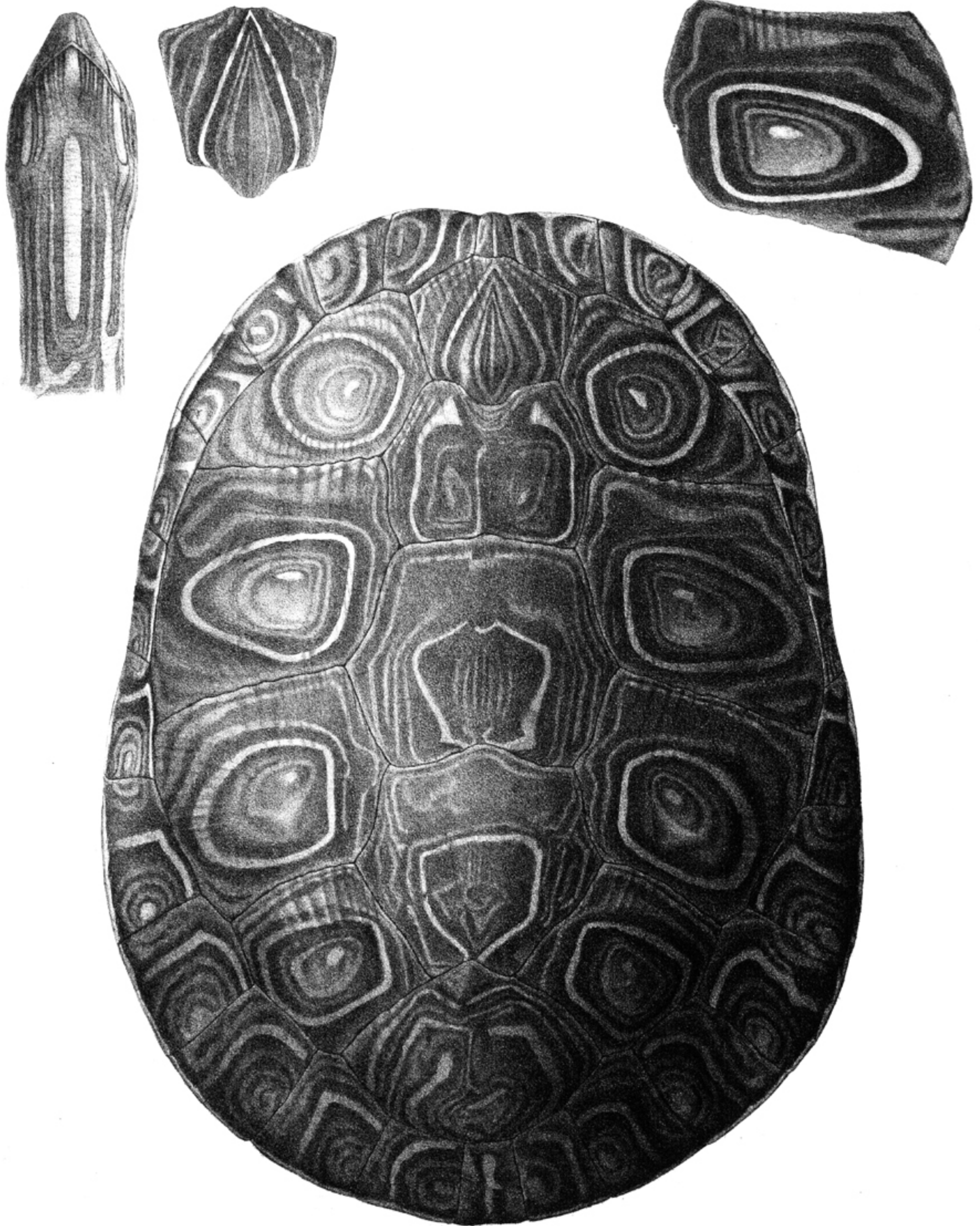
This species seems to range from the head waters of the Parana and Paraguay through Brazil and Northern South America to Southern Mexico.



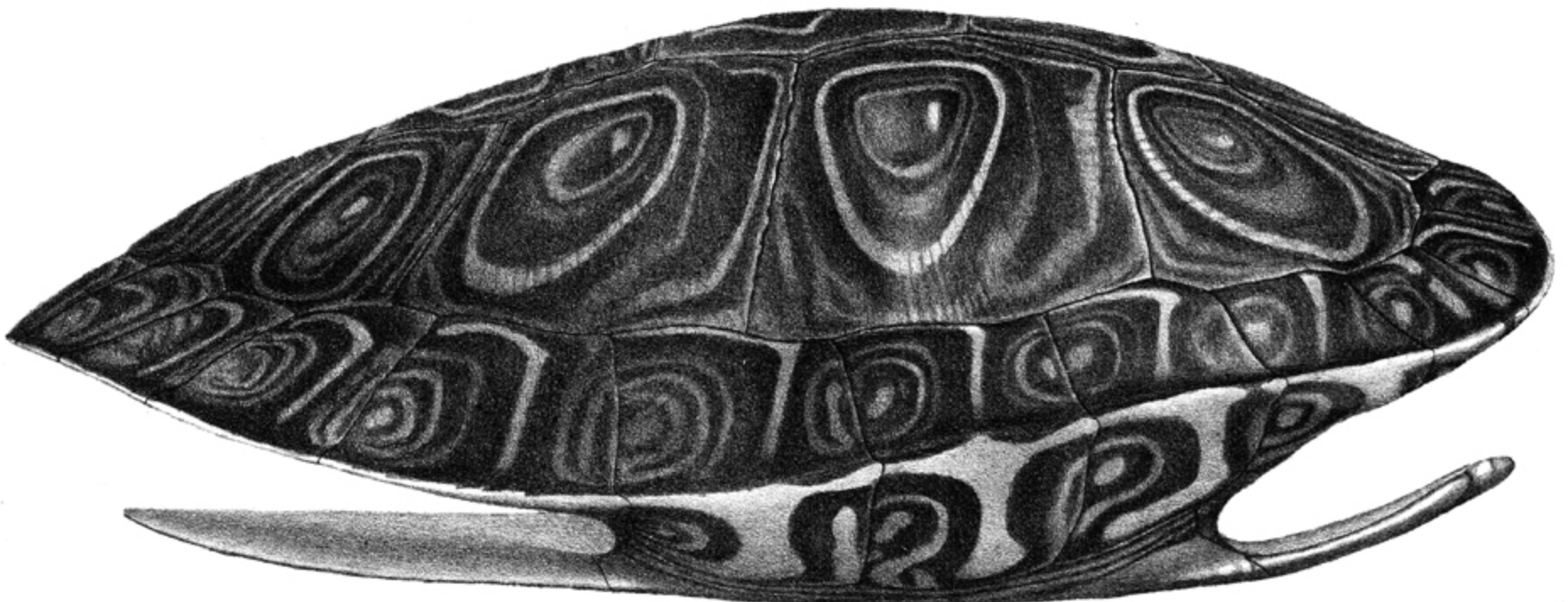
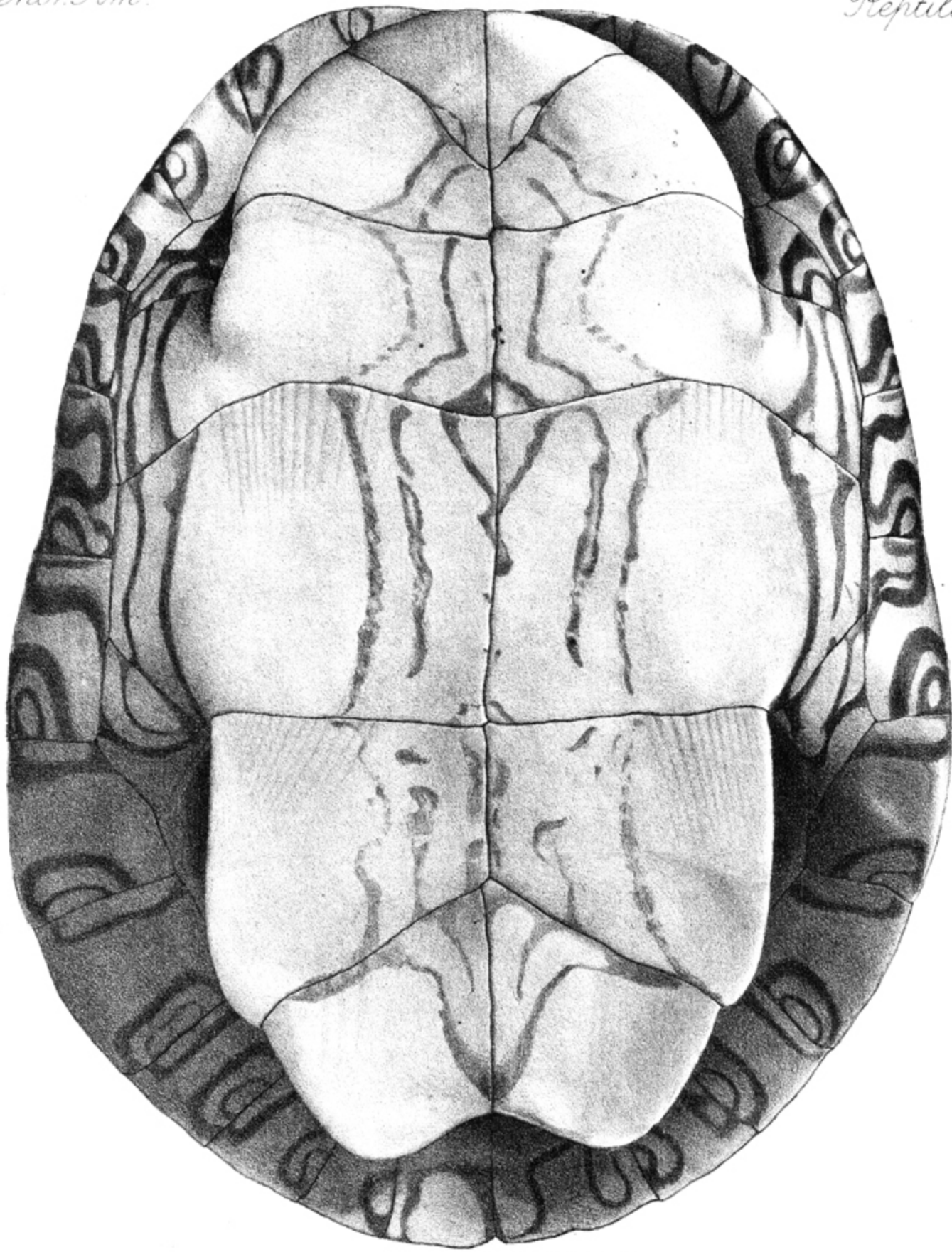
EMYS ORNATA. JUV. & FULL.
(coll. J. J. J.)



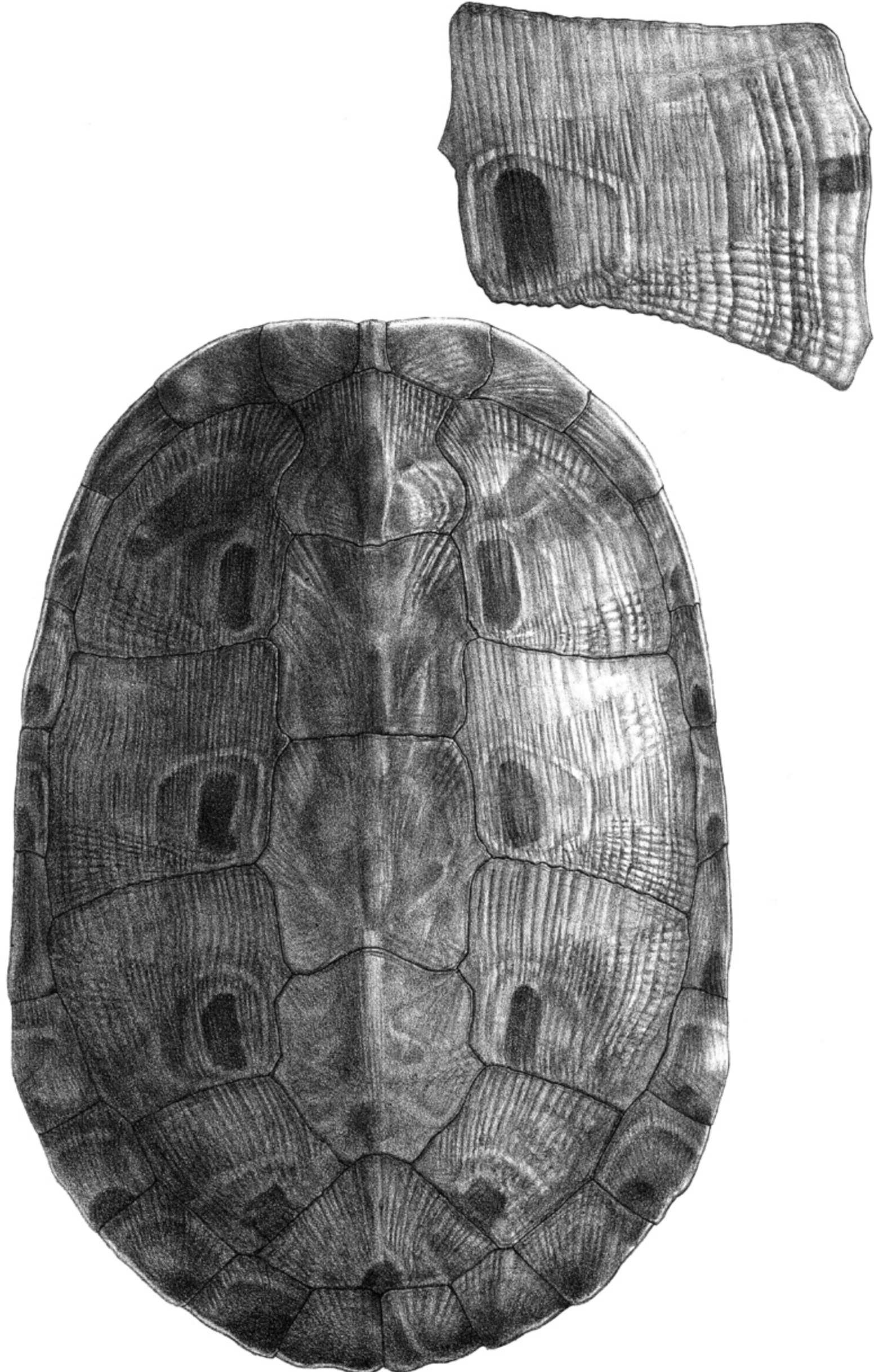
EMYS ORNATA. JUV. & PULL.
(nat. size.)



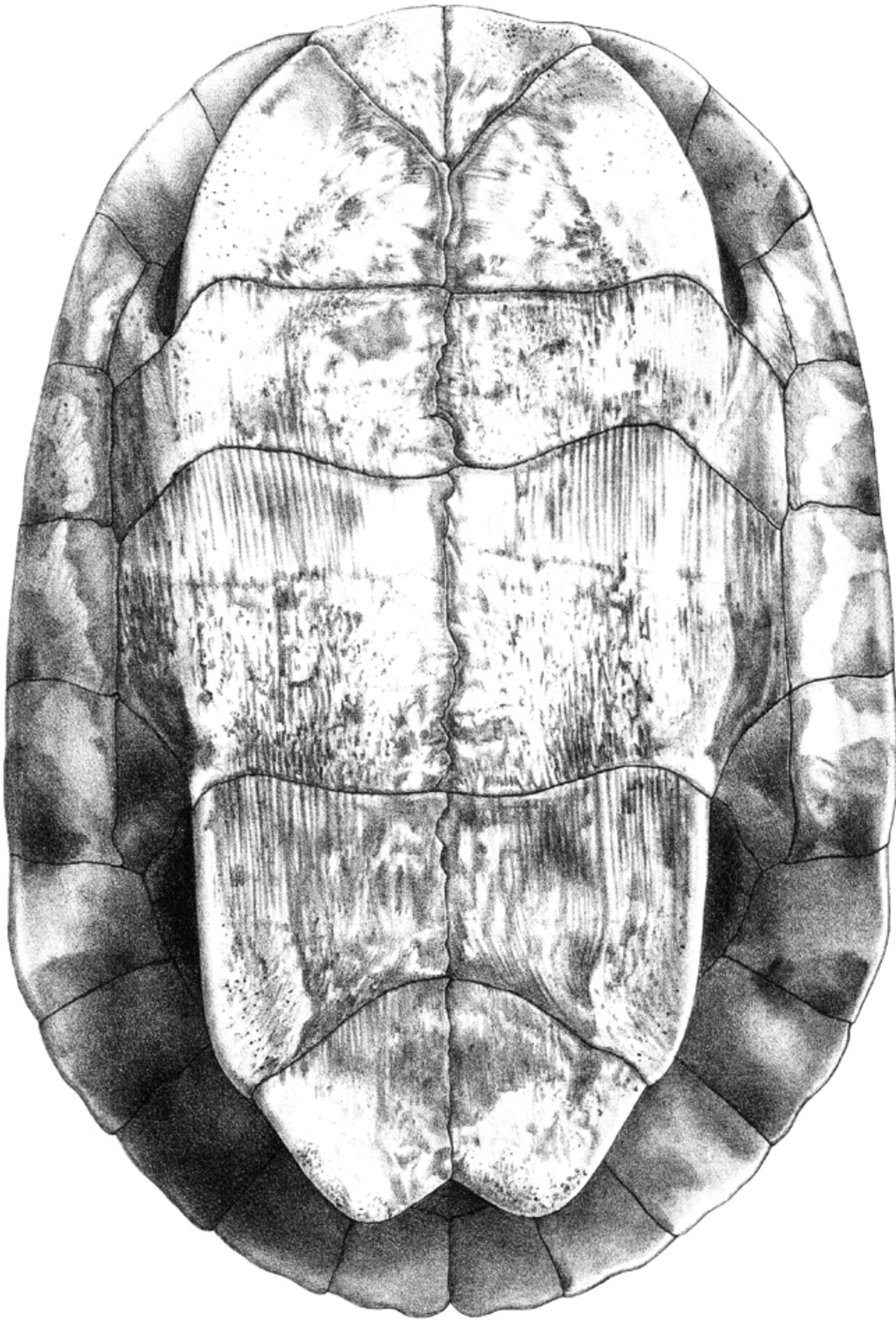
EMYS SALVINI.



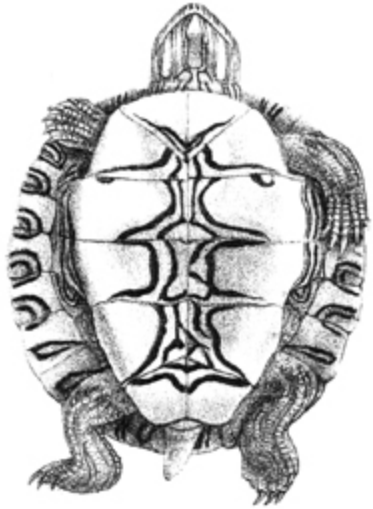
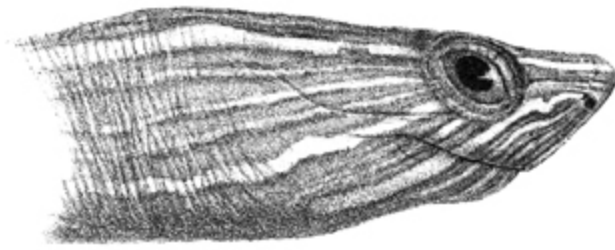
EMYD SALVINI.



EMYS UMBRA.

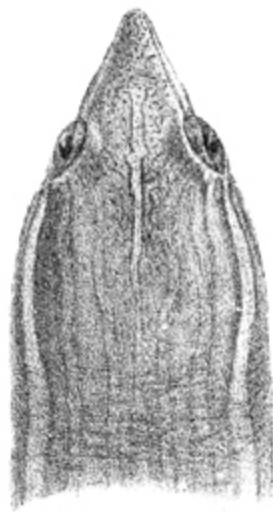


EMYS UMBRA.
($\frac{2}{3}$ nat. size.)



B

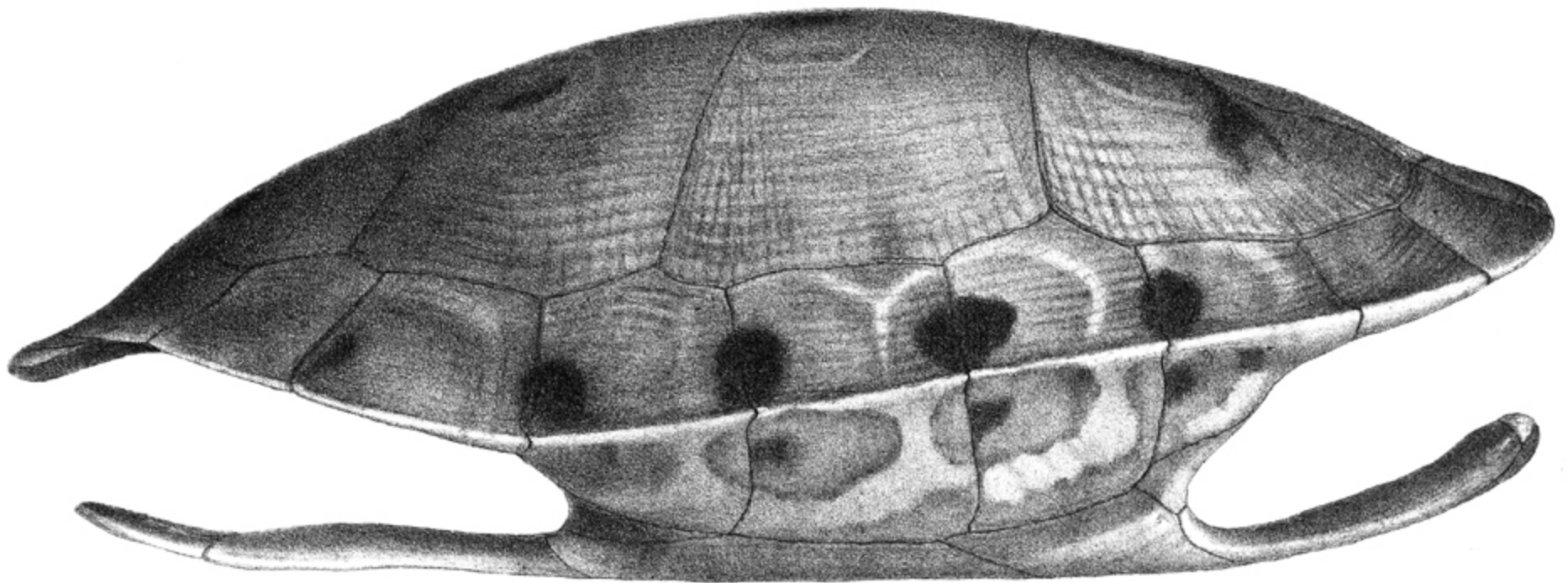
A.



A



B



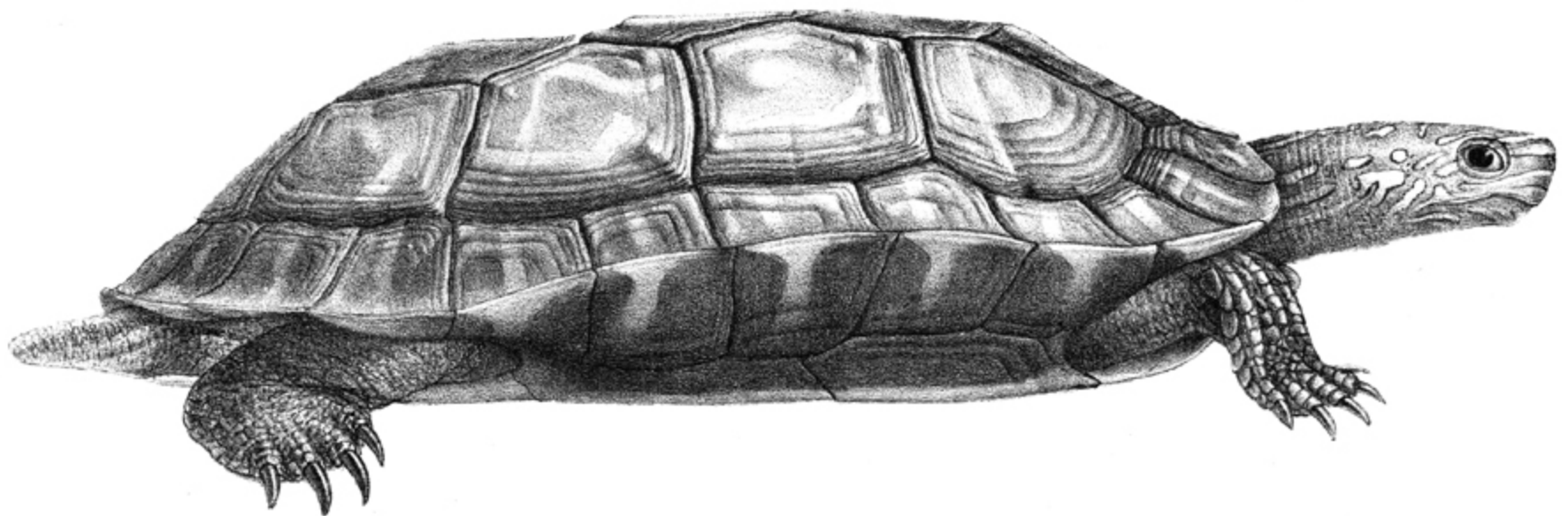
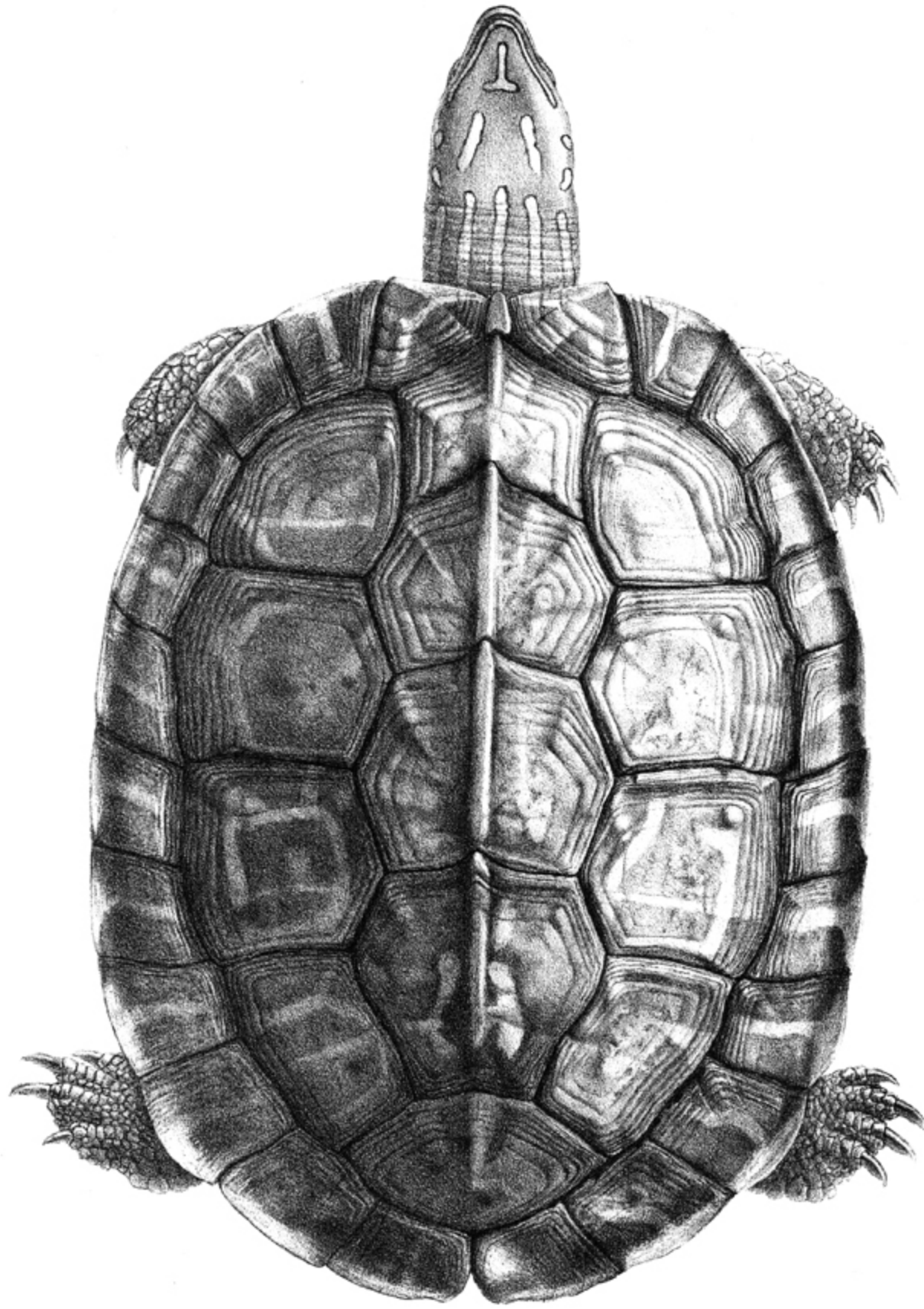
$\frac{2}{3}$ nat size.

A. EMYS UMBRA.

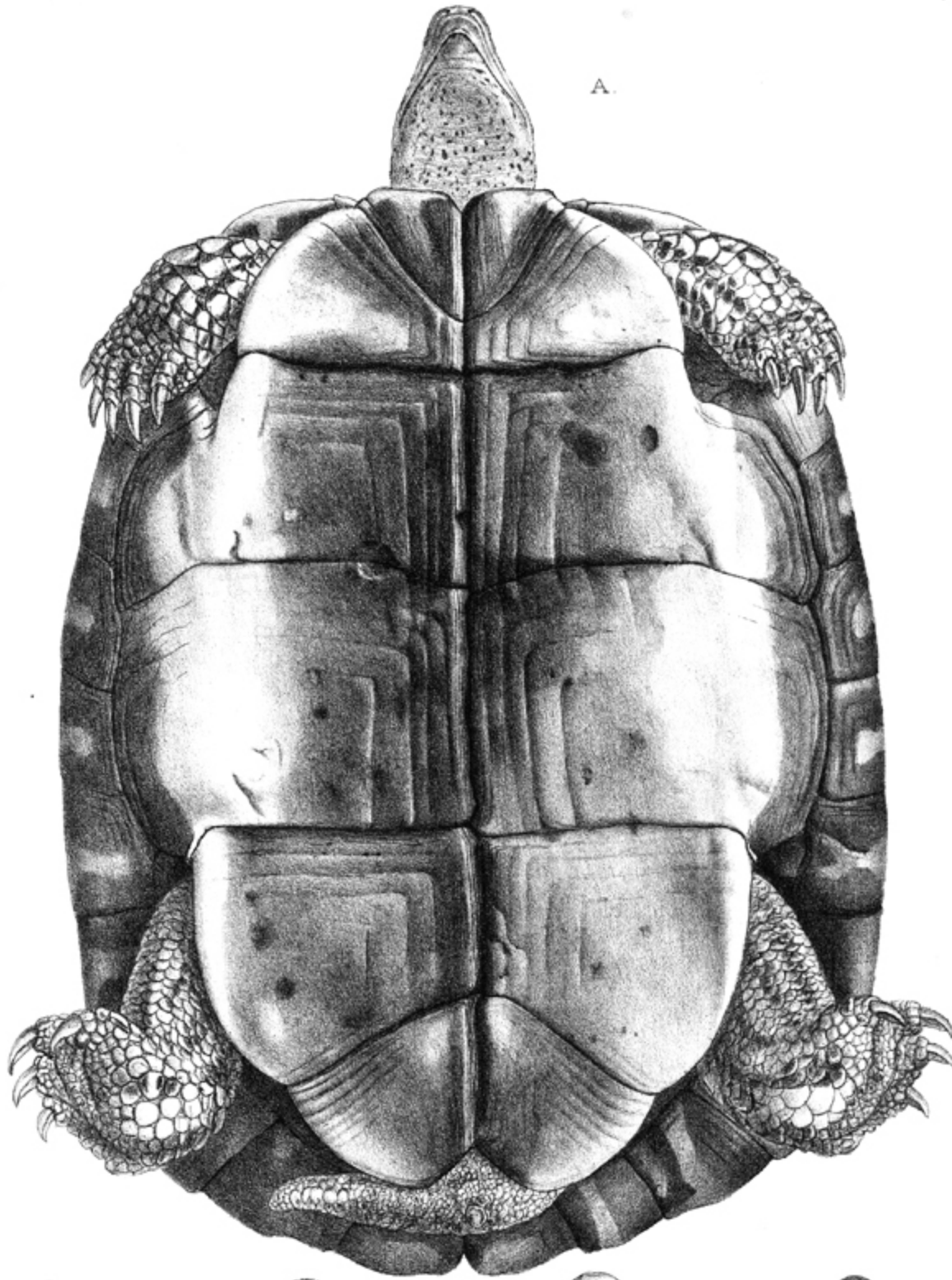
B. EMYS CATASPILA.



EMYS PULCHERRIMA.



EMYS PULCHERRIMA.



B.

C.

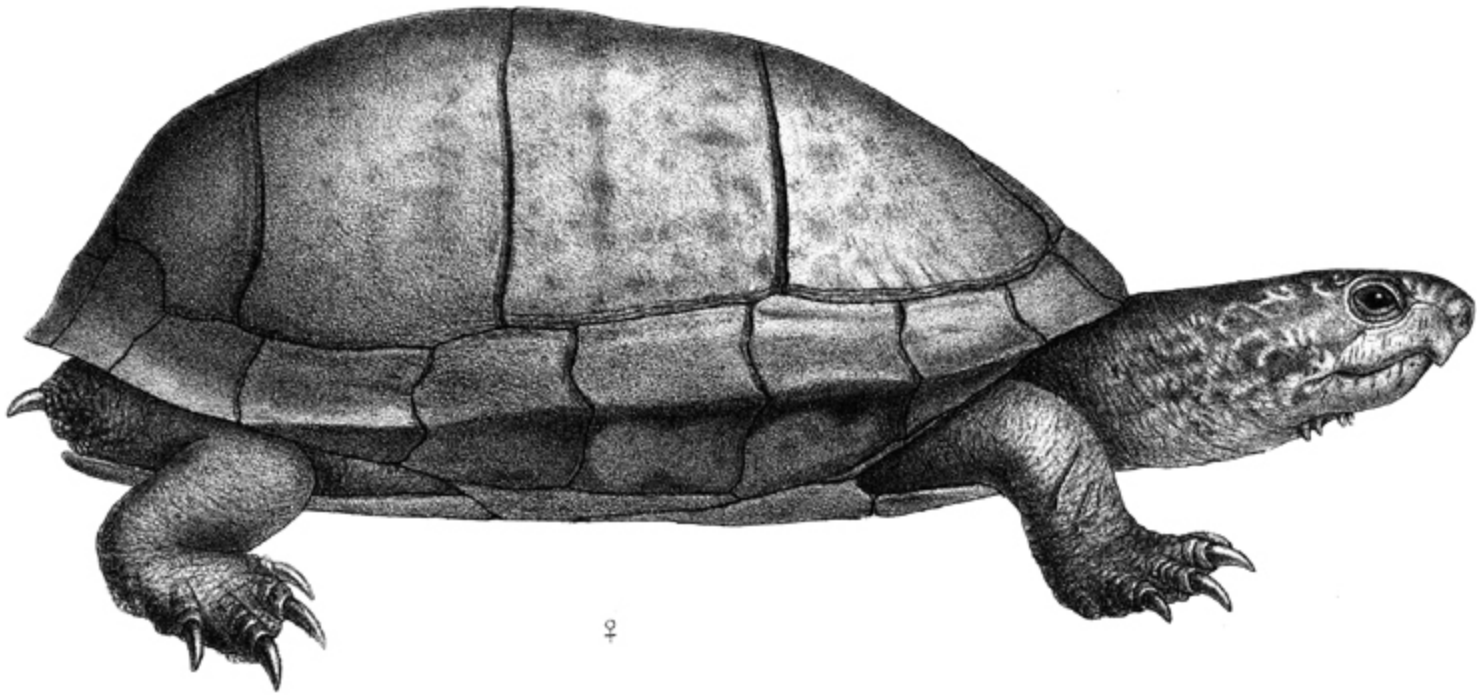
C"



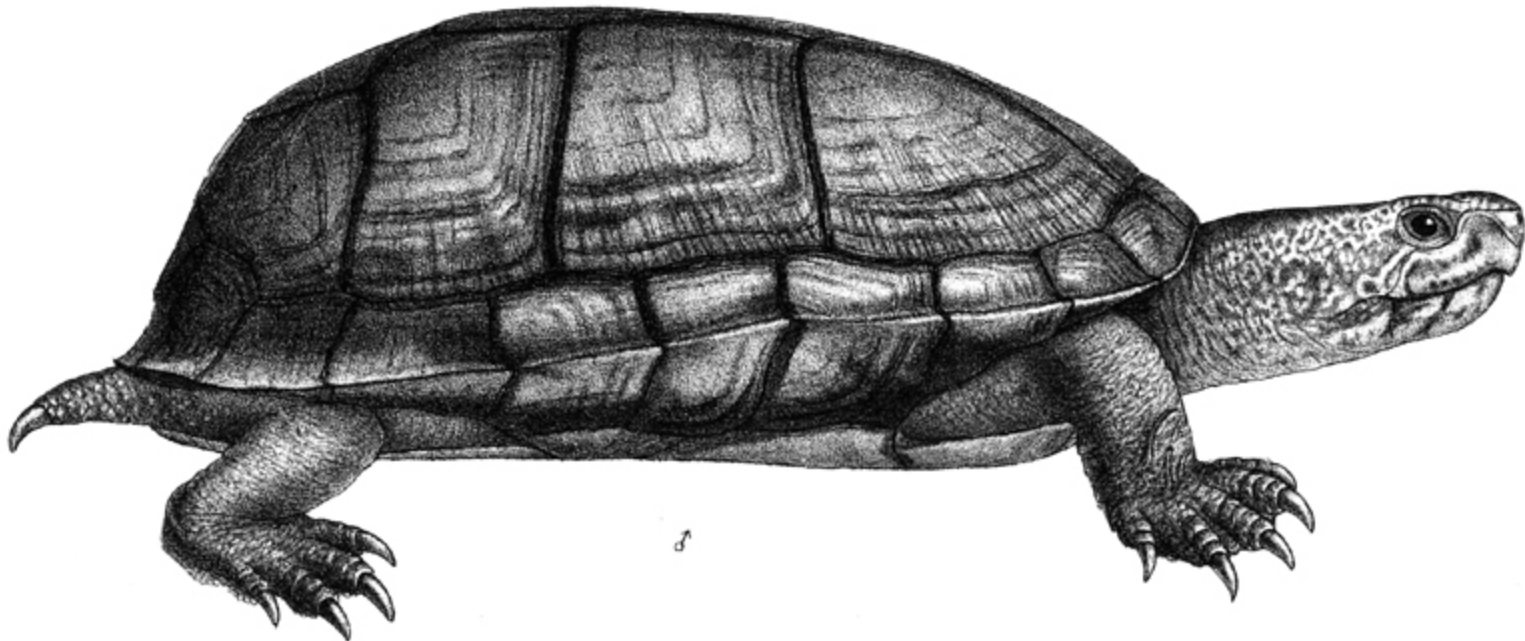
A. EMYS PULCHERRIMA.

B. EMYS AREOLATA.

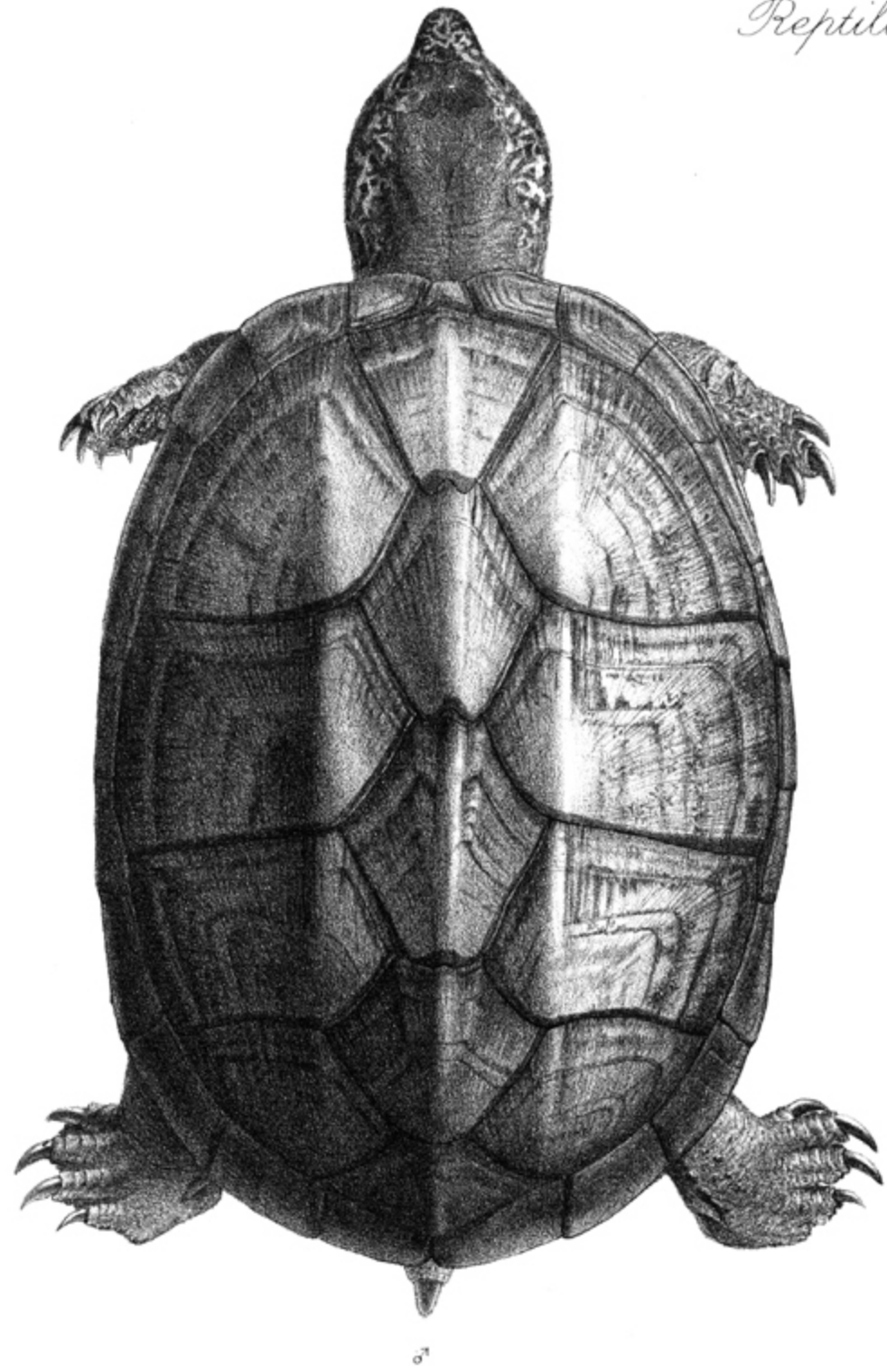
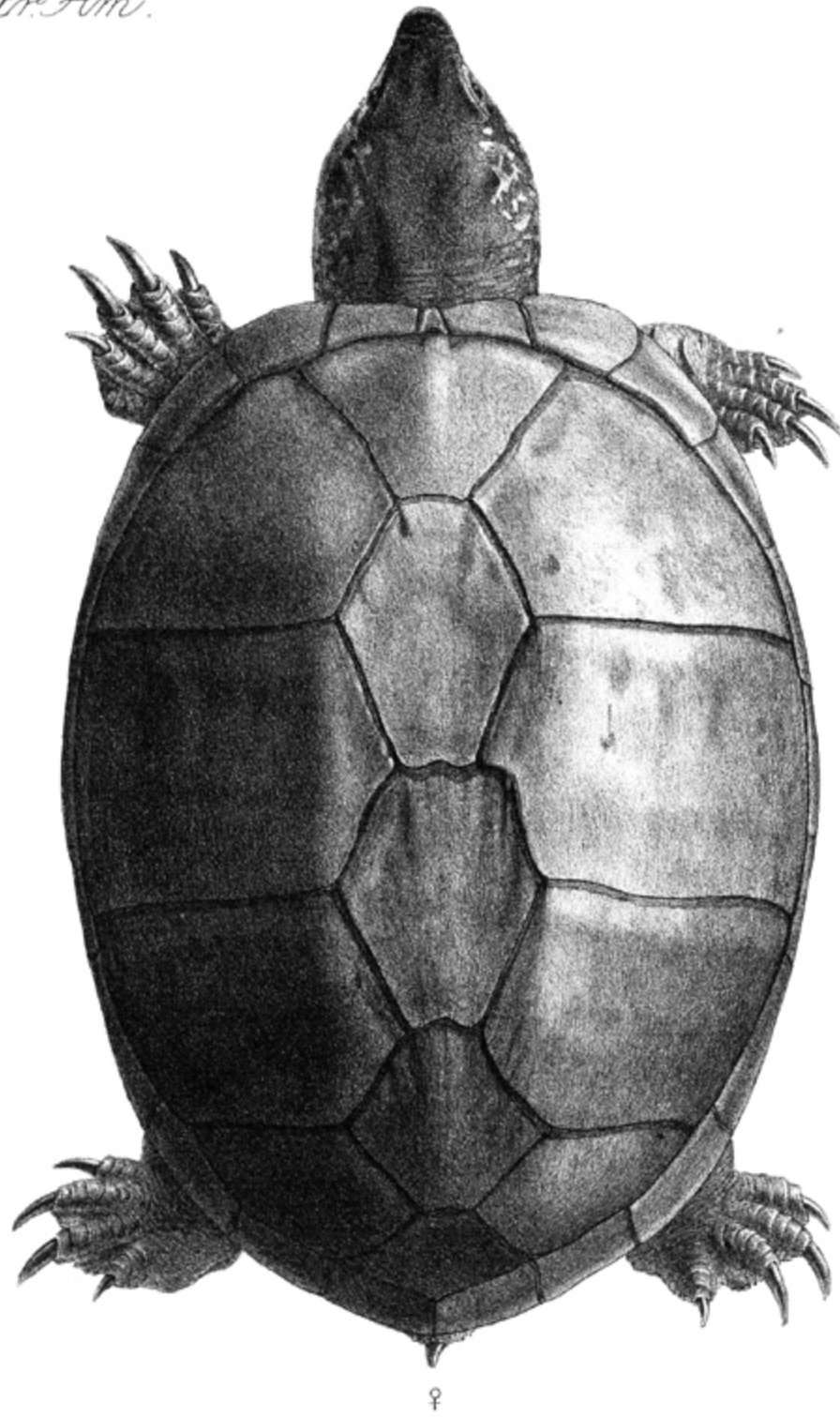
C. C'. C". EMYS RUBIDA.

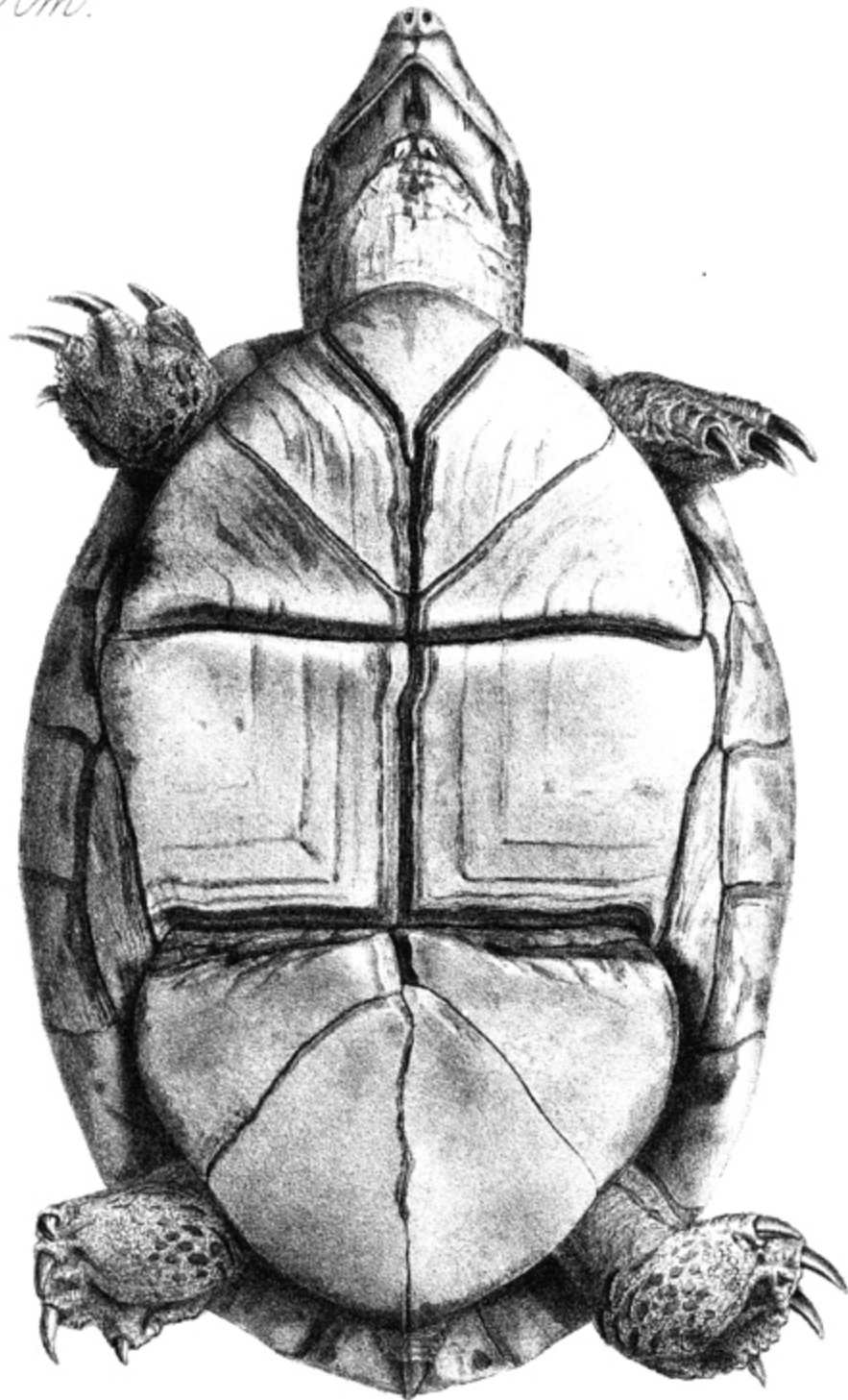


PULL.

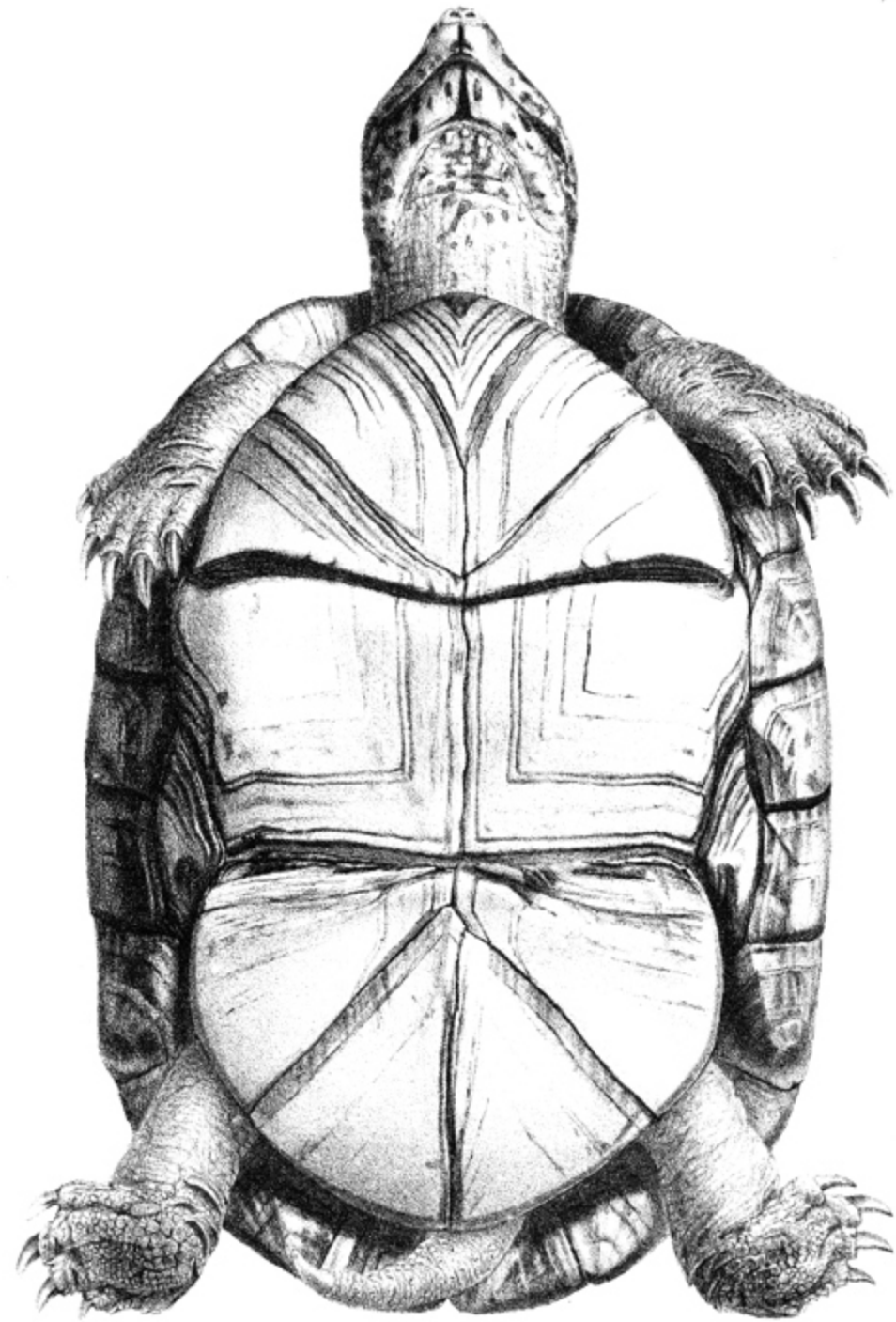


CINOSTERNUM CRUENTATUM.





♀

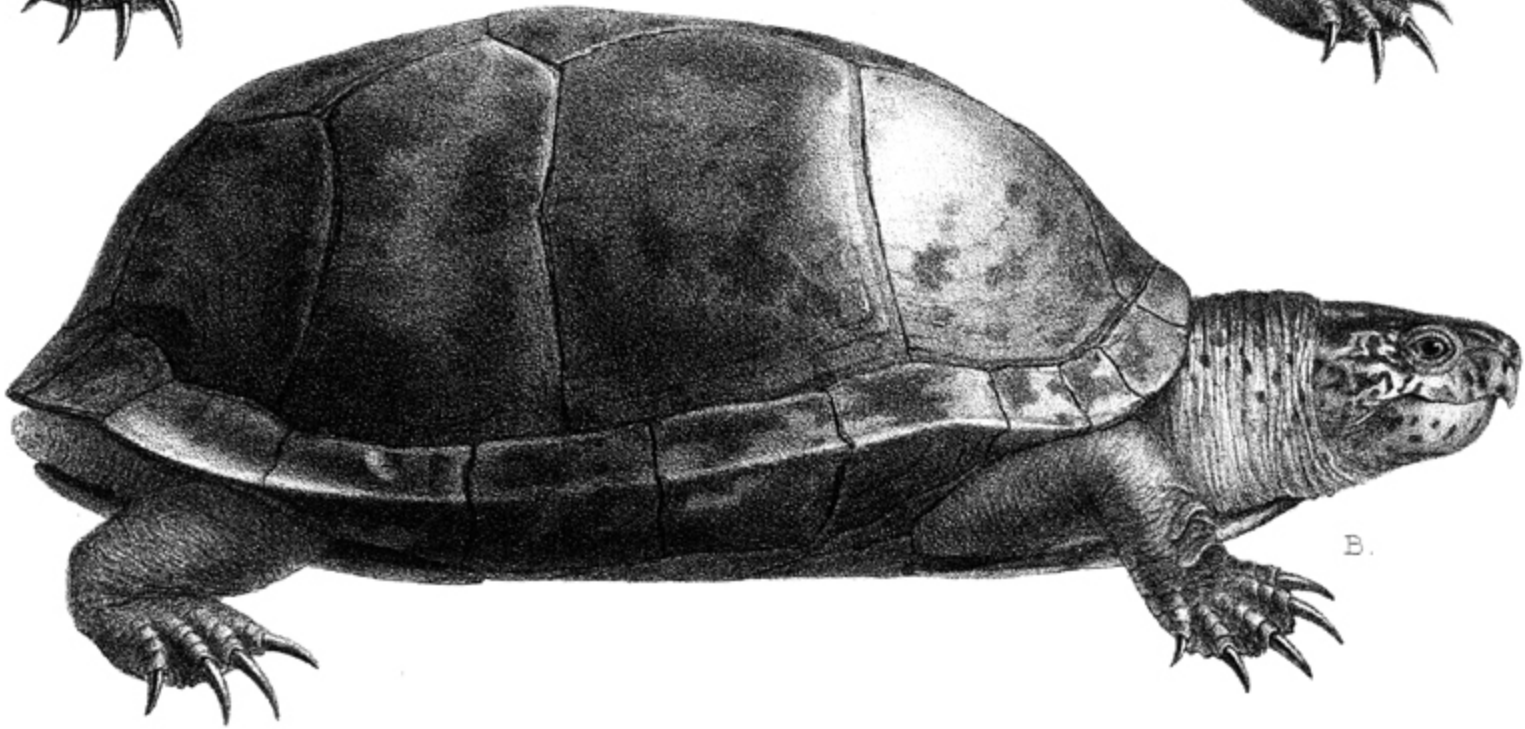


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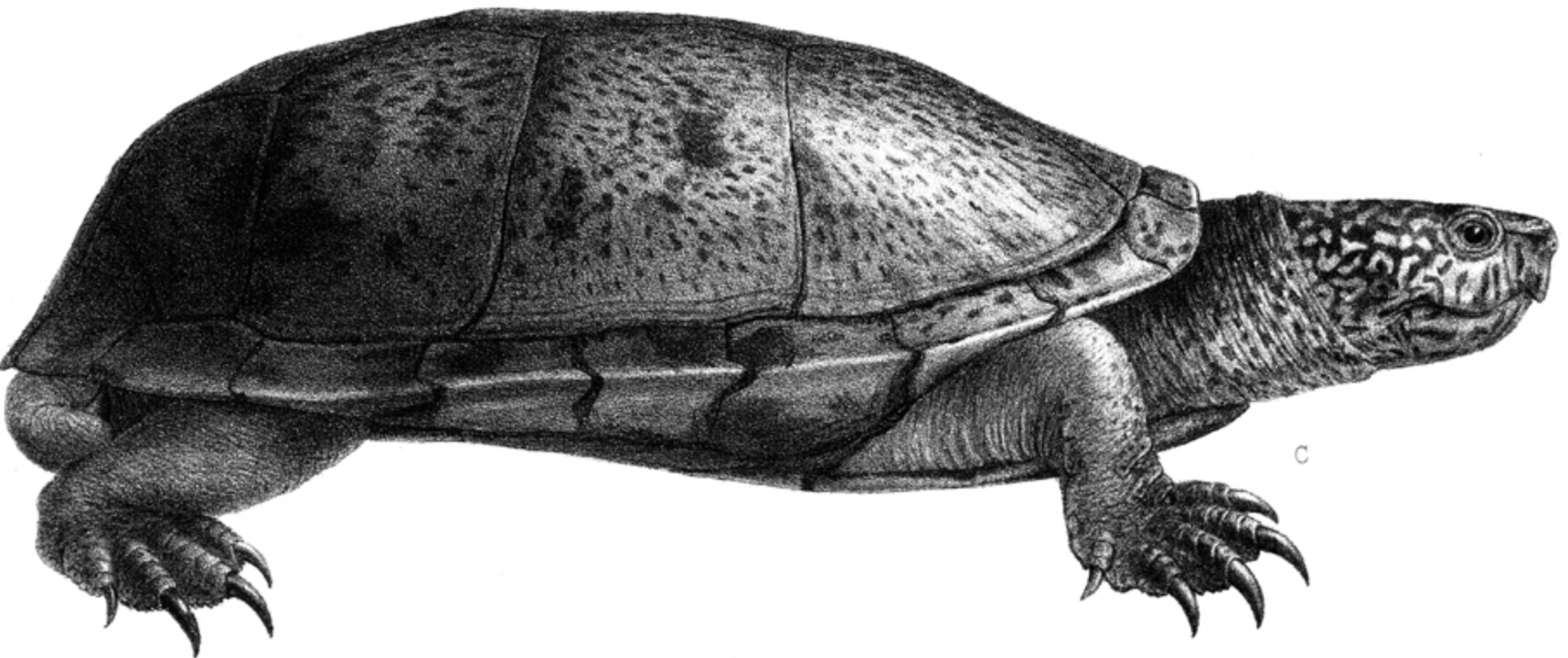
CINOSTERNUM CRUENTATUM.



A.



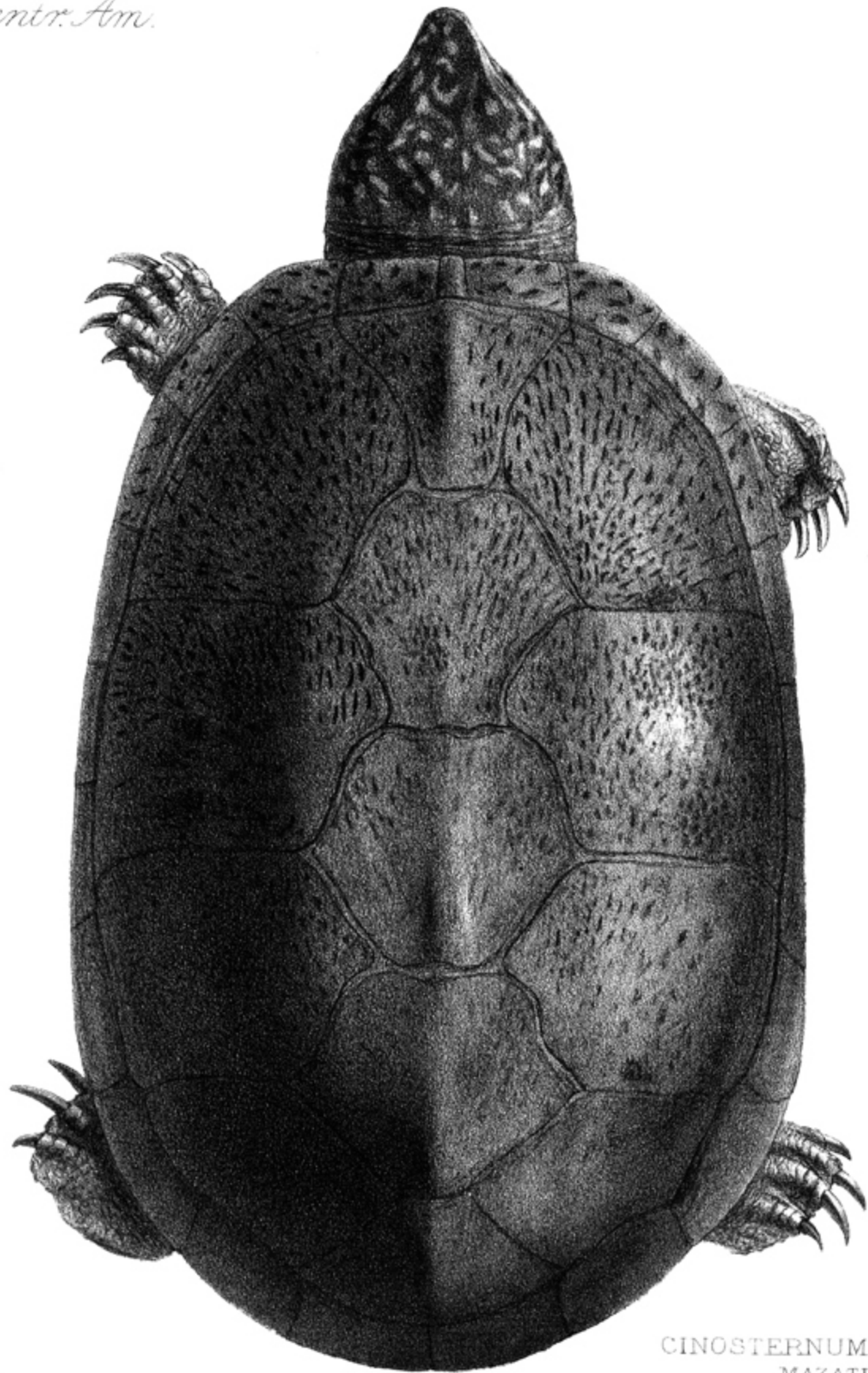
B.



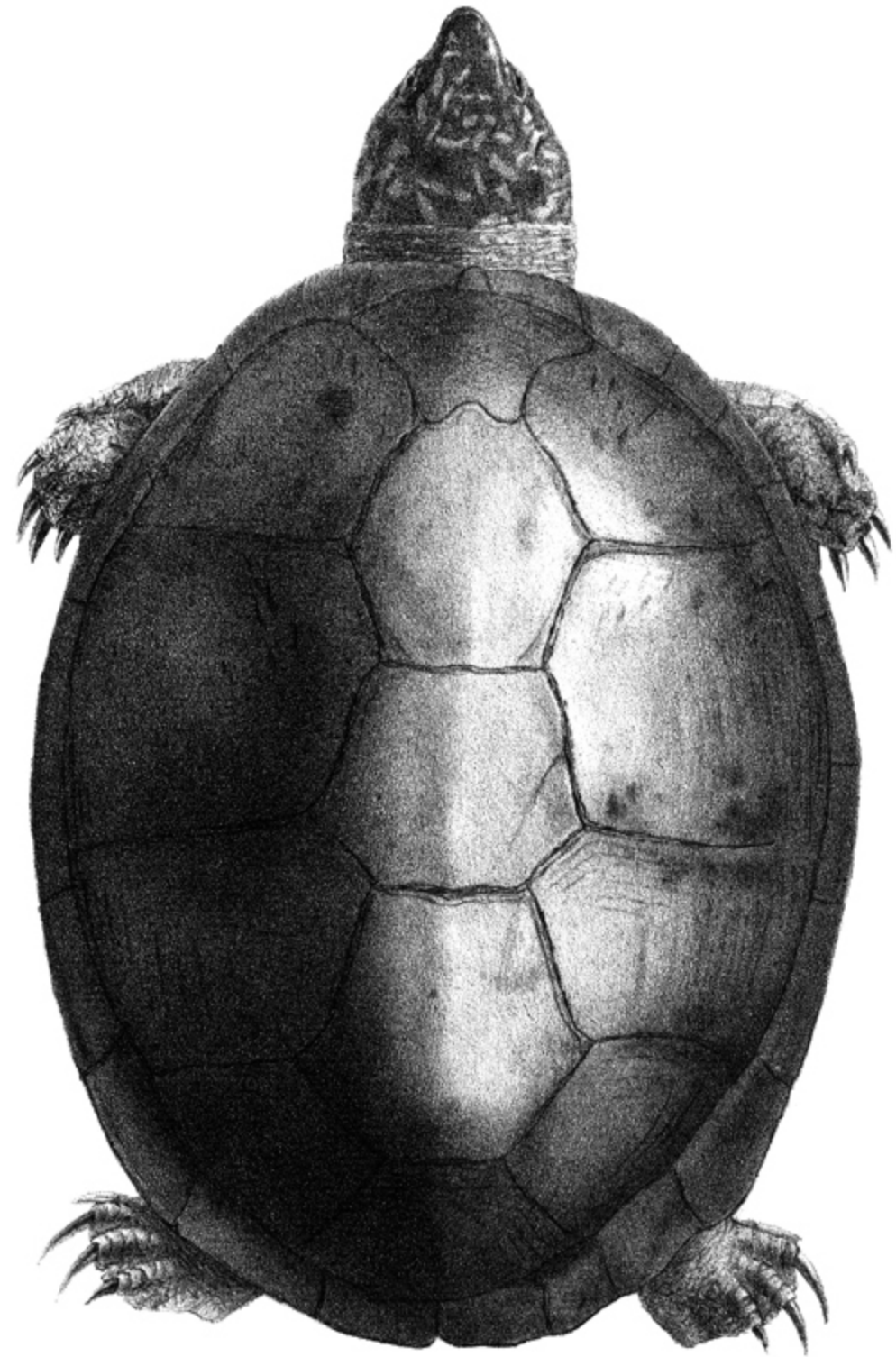
C.

CINOSTERNUM HIRTIPES.

A. ♀ TRES MARIAS. B. ♀ MAZATLAN. C. ♂ MAZATLAN.

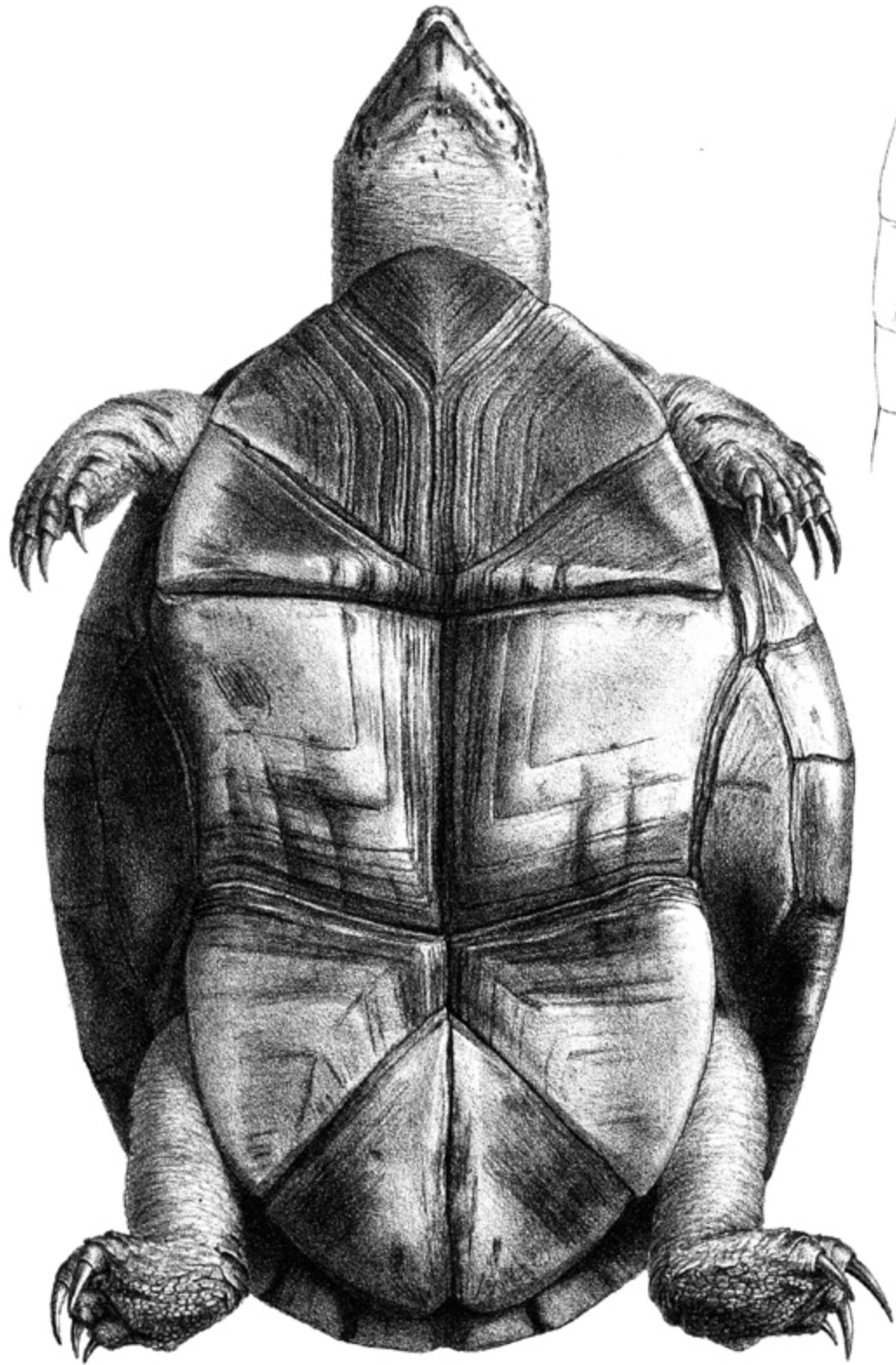


♂



♀

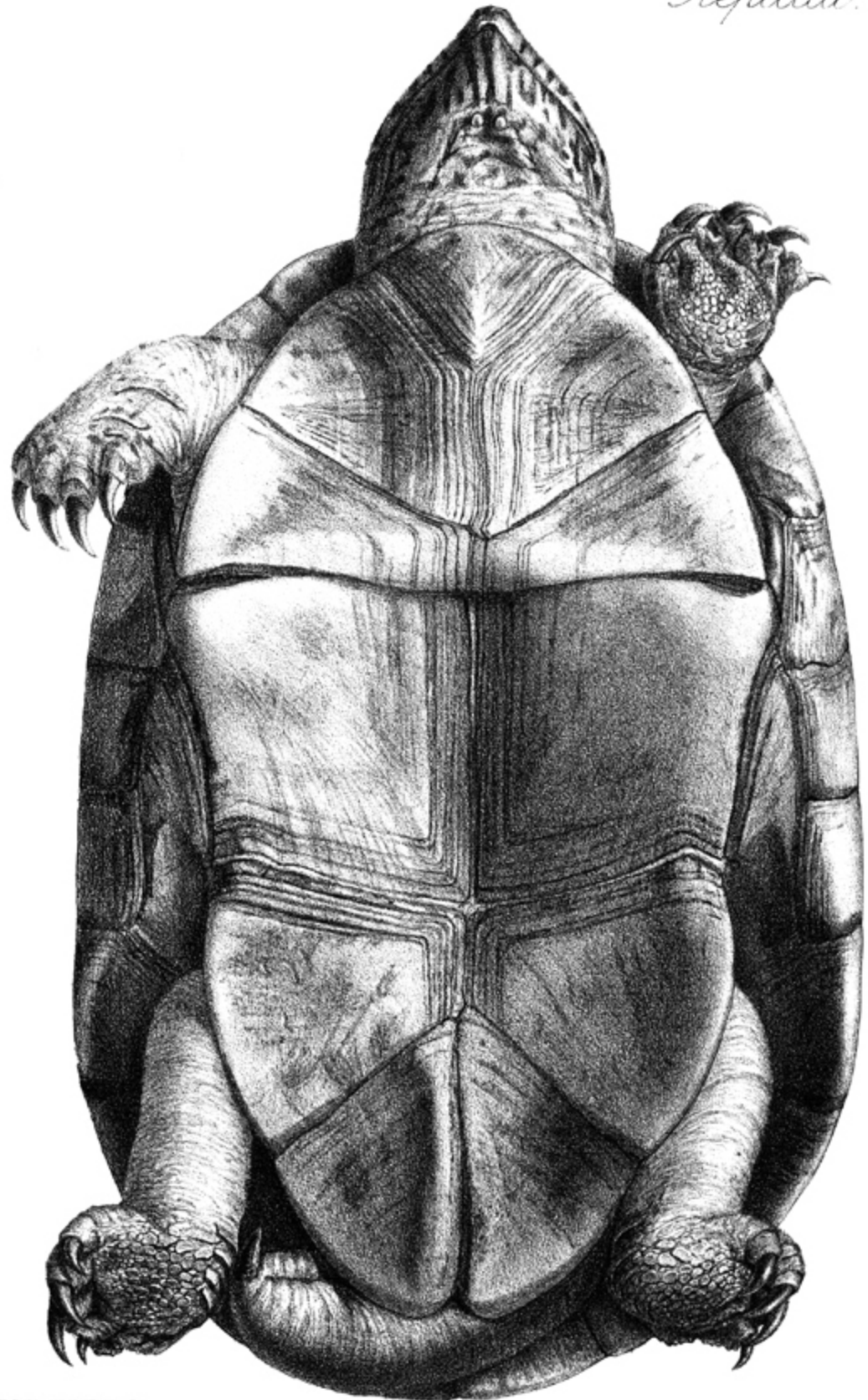
CINOSTERNUM HIRTIPES.
MAZATLAN.



♀

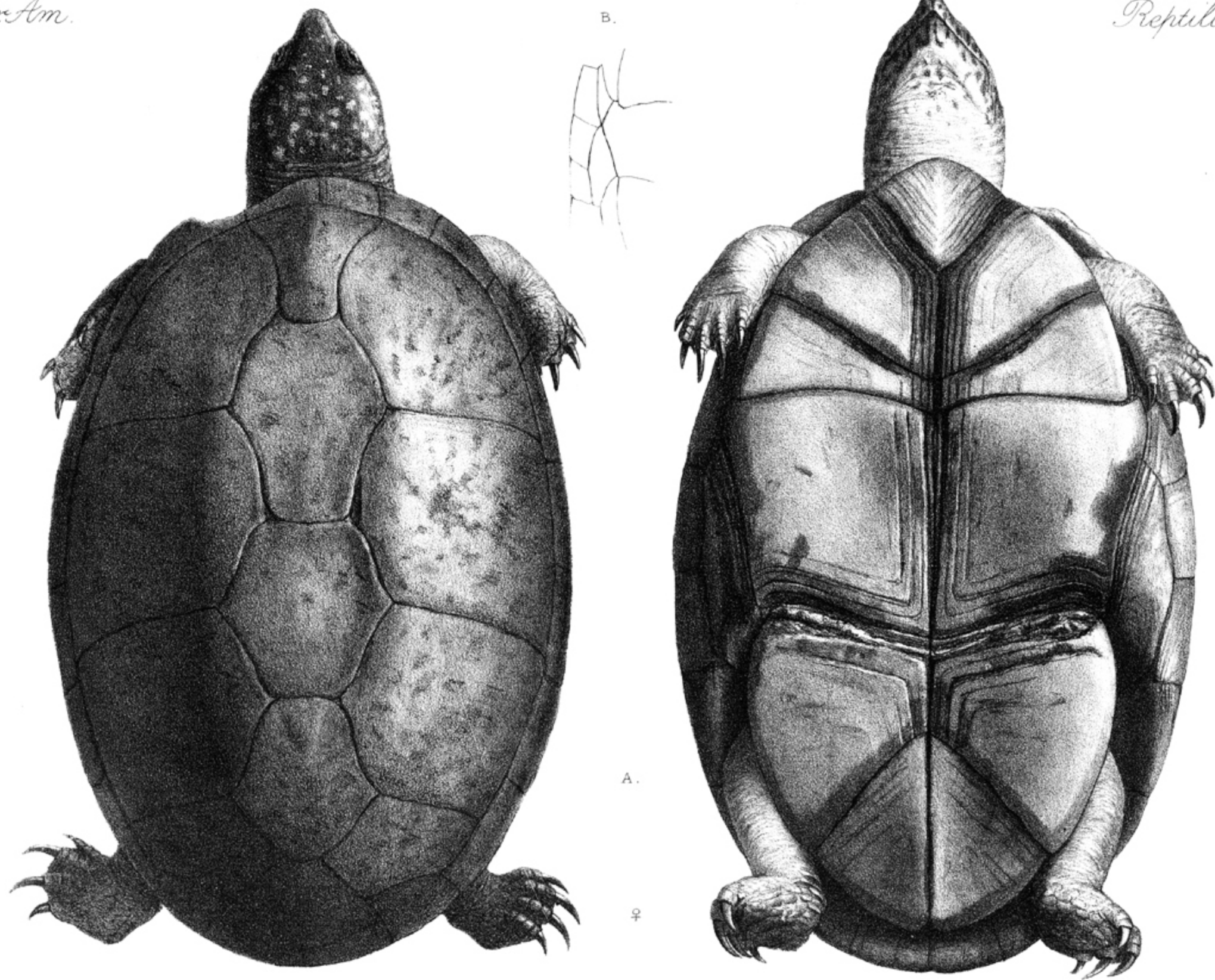


JUV.

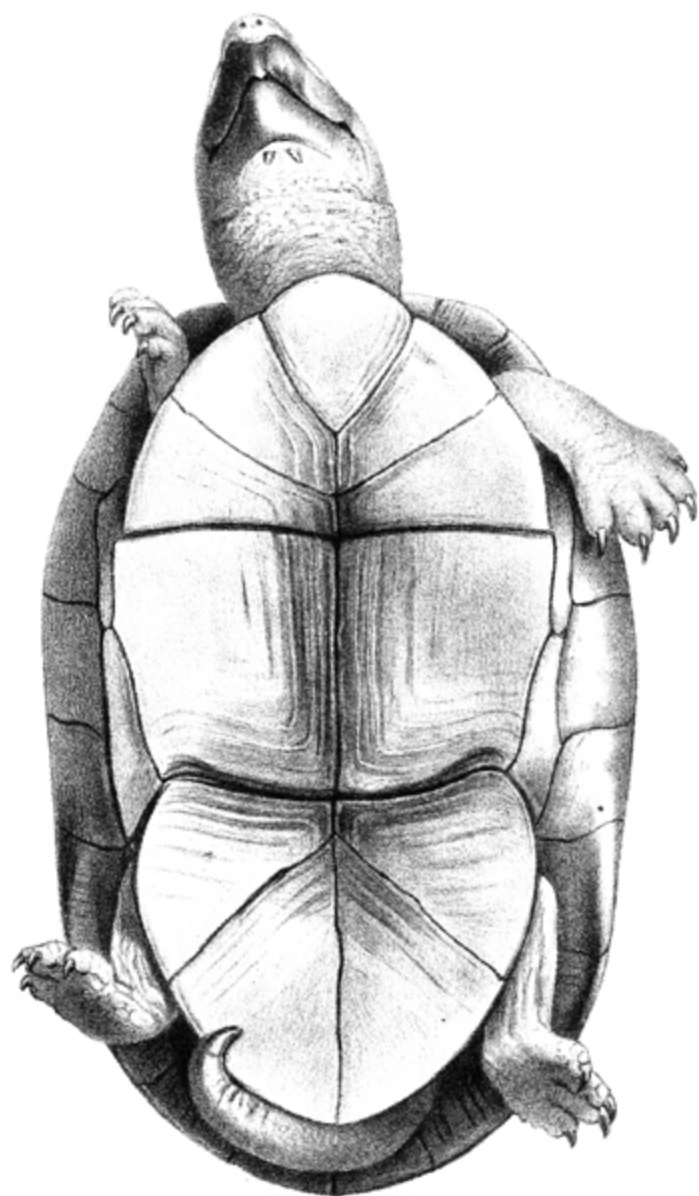
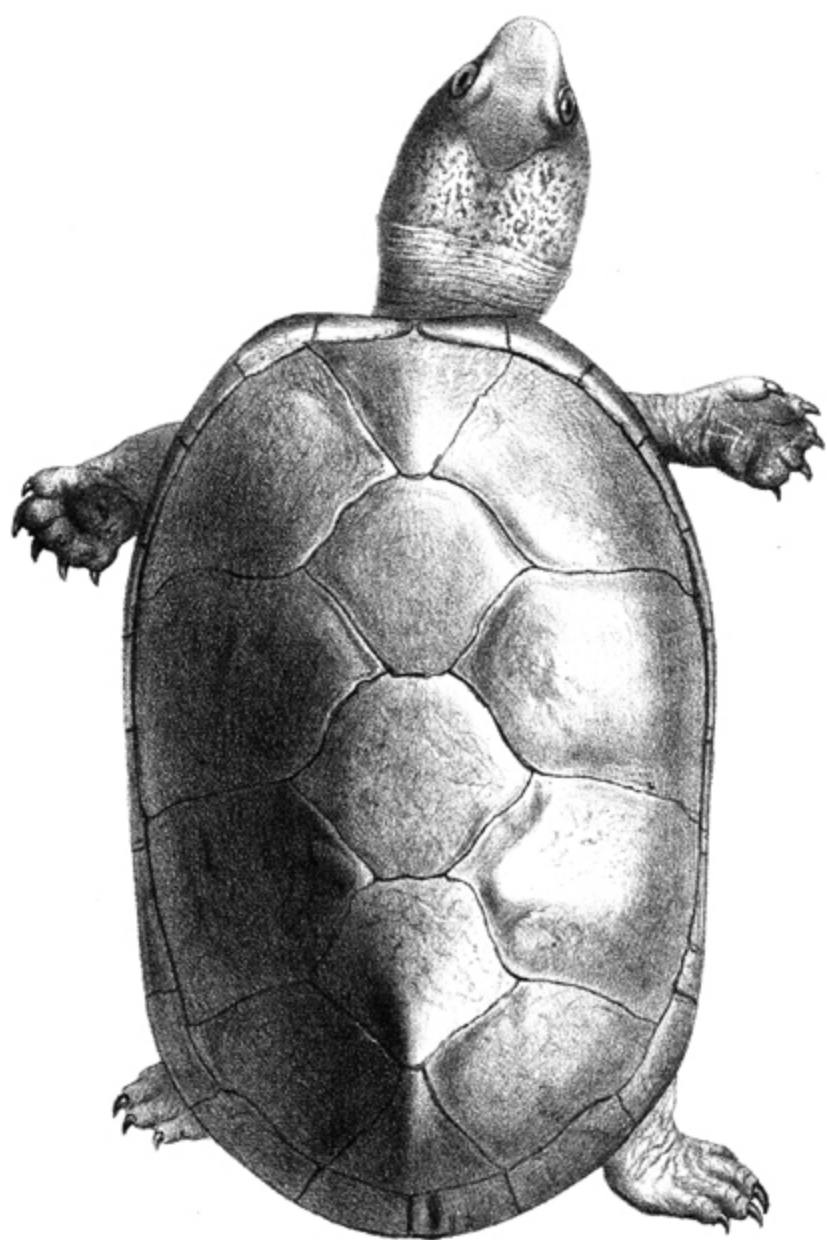
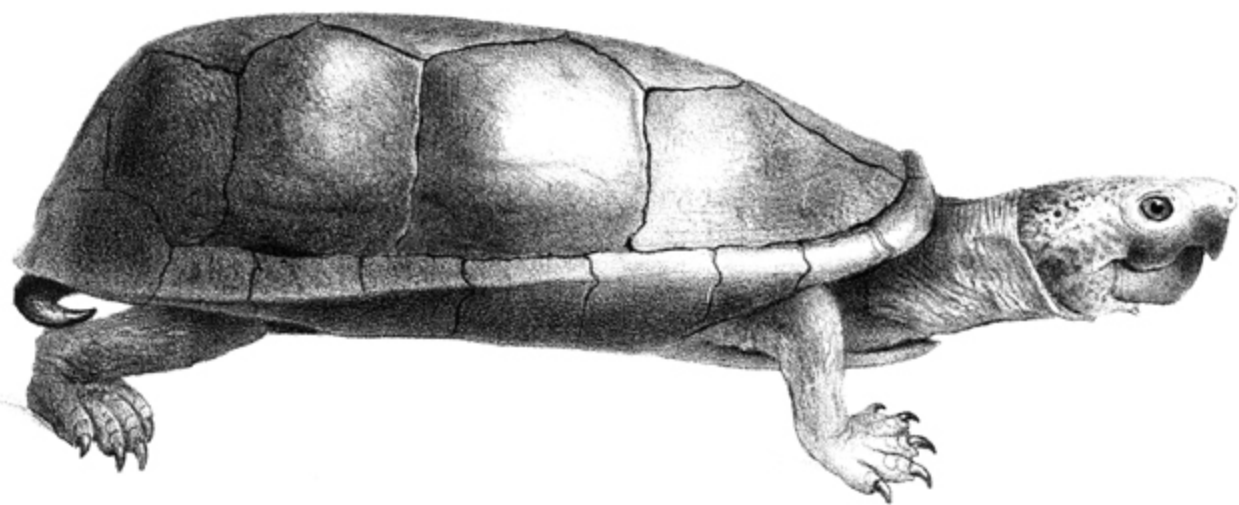


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CINOSTERNUM HIRTIPES.
MAZATLAN.

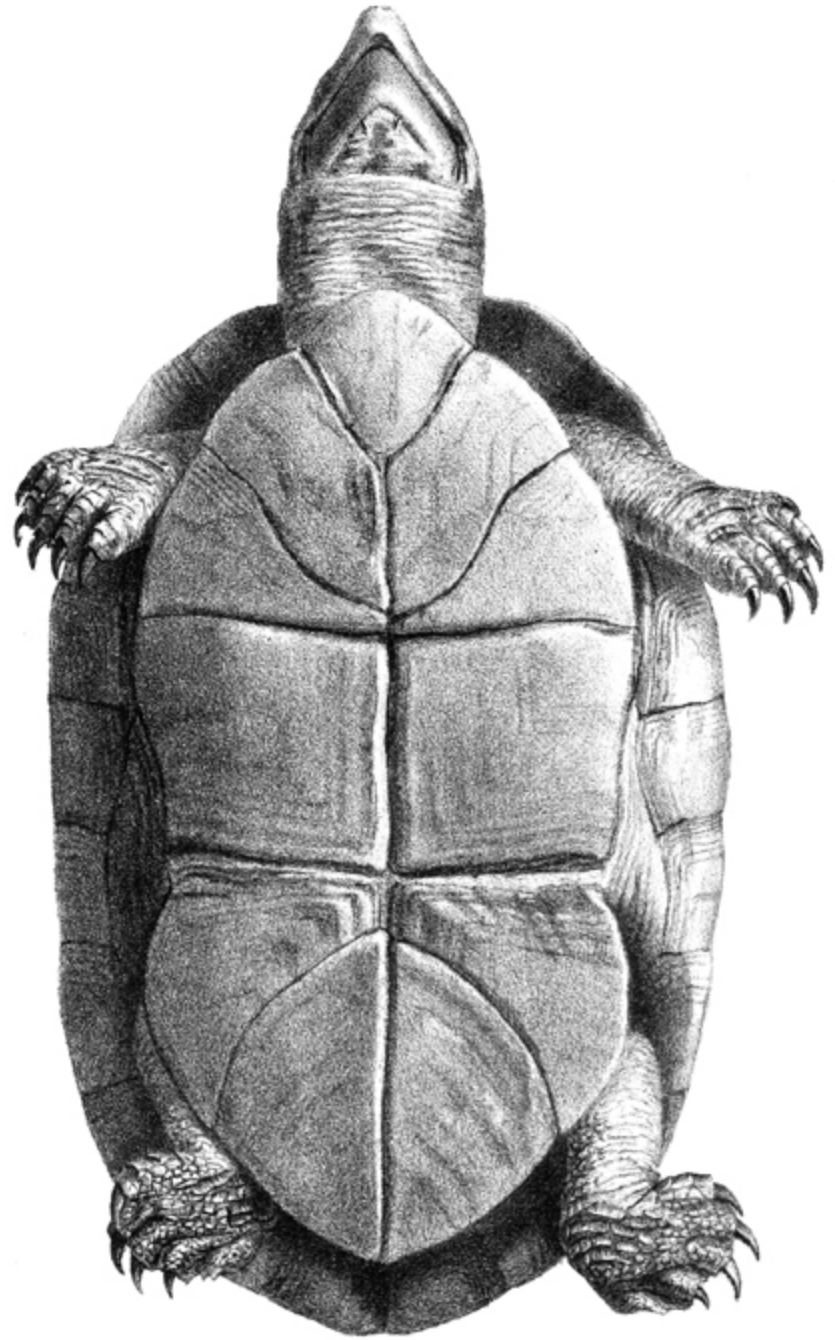
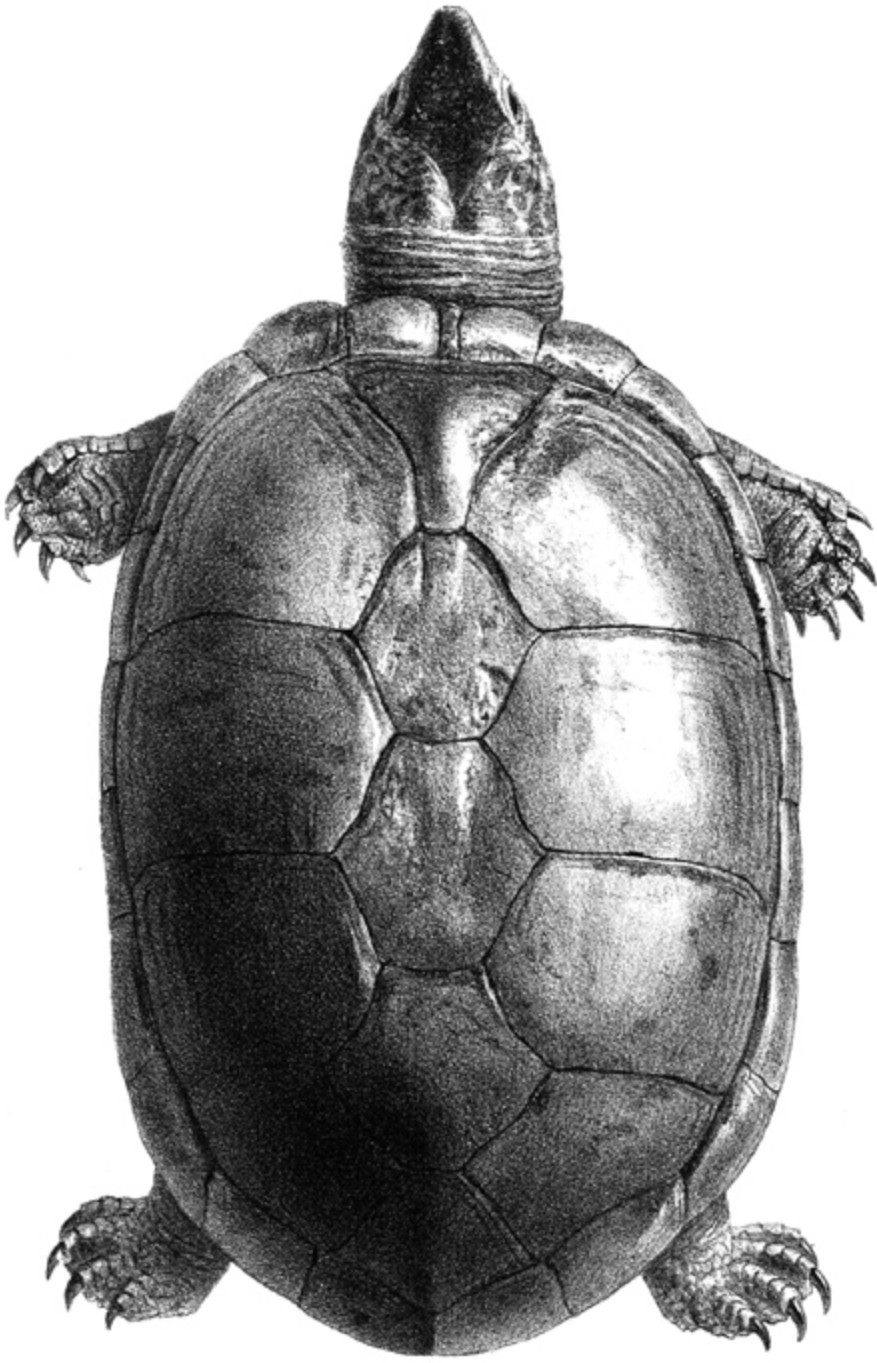
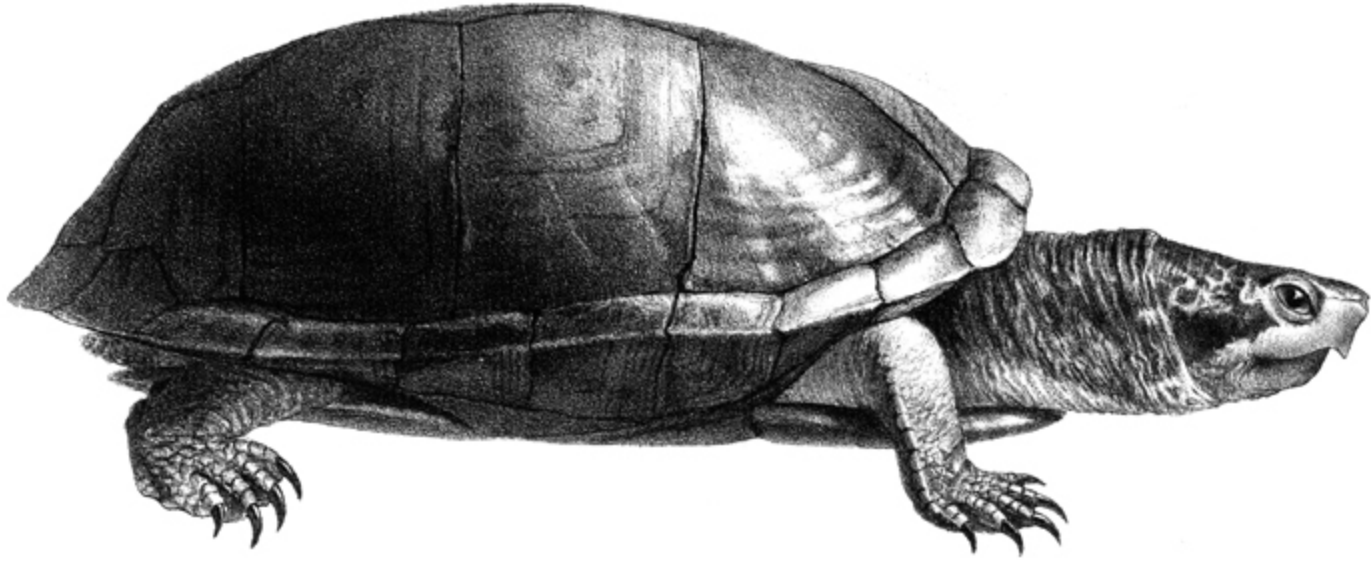


CINOSTERNUM HIRTIPES.
TRES MARIAS.
A. ADULT. ♀. B. HALF GROWN. ♀.



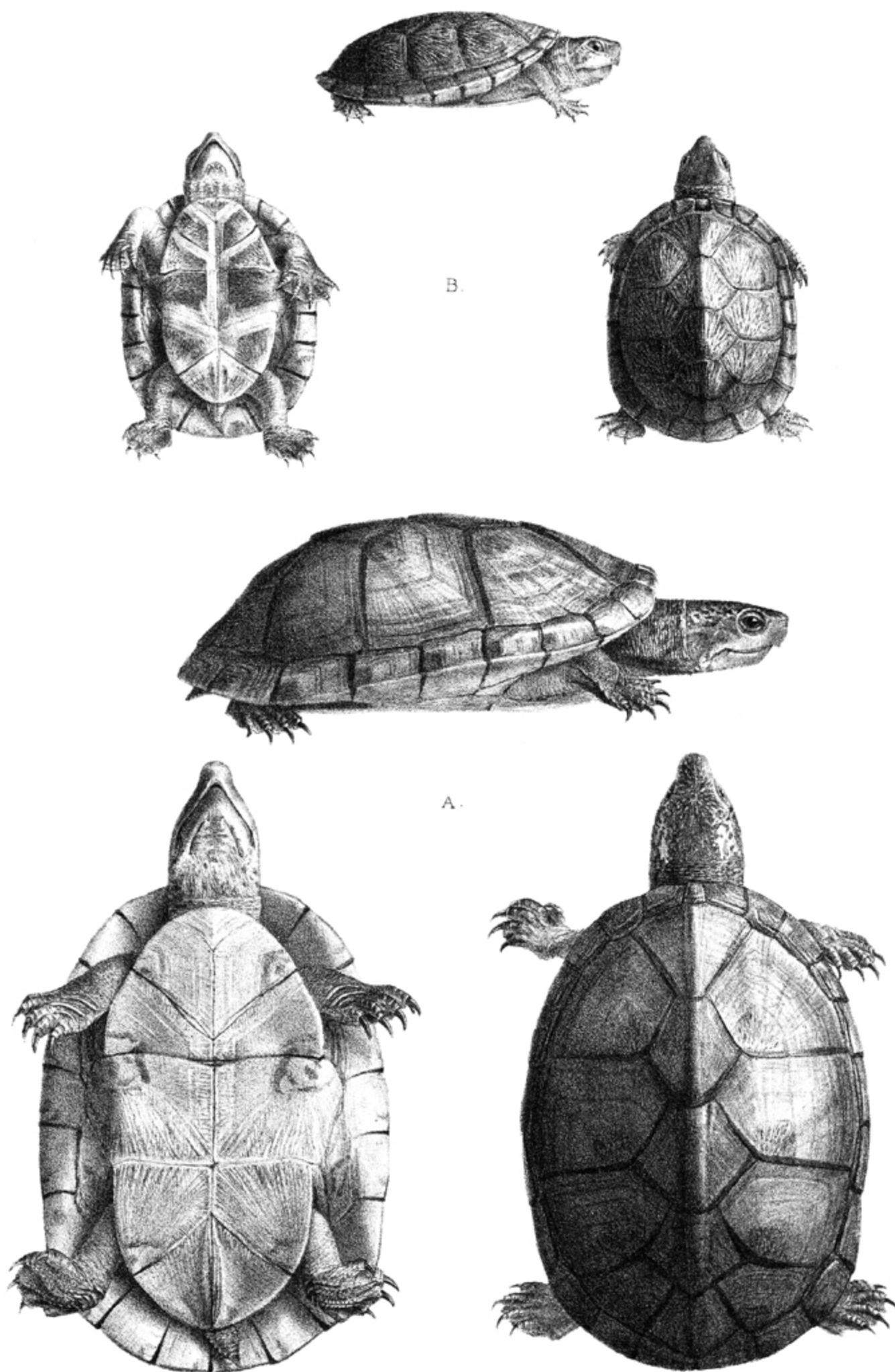
♂

CINOSTERNUM LEUCOSTOMUM



♀

CINOSTERNUM LEUCOSTOMUM



A. CINOSTERNUM BREVIGULARE.

B. CINOSTERNUM COBANUM.