



Trionyx ferox.

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TRIONYX.—*Geoffroy de St. Hilaire.*

GENUS TRIONYX.—CHARACTERS. Carapace with an osseous disk in the centre, from the sides of which project bony tubercles or ribs; beyond these the margin is cartilaginous, flexible; mandibles furnished with thick lips at the sides; snout prolonged; anterior extremities with five fingers, palmate, the three internal furnished with nails; posterior, with five toes, palmate, the three internal with nails.

TRIONYX FEROX.—*Schneider.*

Plate I.

CHARACTERS. Head elongated, oval; snout greatly prolonged; neck very long; body covered above with a strong cartilaginous shield, entire, with numerous short spines or tubercles on the anterior margin, and several knobs near the posterior border; above, umber coloured, with irregular dusky blotches; abdomen beautiful white, and marked with numerous red blood-vessels; anterior extremities with five palmated fingers, the three anterior only furnished with nails; posterior with five toes fully palmated, the three internal with nails.

SYNONYMES. Soft-shelled Turtle, *Pennant*, Phil. Trans. for 1771, vol. lxi. p. 268, pl. x. figs. 1, 2, 3.

Testudo ferox, *Schneider*, Schildk., p. 330.

Testudo ferox, *Gmelin*, Syst. Nat. Lin., tom. i. part iii. p. 1039.

Soft-shelled Turtle, *Bartram*, Travels in Carolina, &c., p. 177.

La molle, *Lacépède*, Quad. Ovip., tom. i. p. 136, not the figure.

- Testudo ferox, *Schoepff*, Hist. Test., p. 88, f. xix.
 Testudo verrucosa Bartrami, *Schoepff*, Loc. Cit., p. 90.
 Testudo ferox, *Latreille*, Hist. Nat. Rept., tom. i. p. 165.
 La tortue de Pennant, *Daudin*, Hist. Nat. des Rept., tom. ii. p. 69.
 Testudo Bartrami, *Daudin*, Loc. Cit., p. 74.
 Testudo ferox, *Shaw*, Gen. Zool., vol. iii. part i. p. 64, pl. xvii. fig. 1.
 Trionyx Georgicus, *Geoffroy*, Ann. Mus., tom. xiv. p. 7.
 Trionyx Bartrami, *Geoffroy*, Loc. Cit., p. 18.
 Trionyx ferox, *Schweigger*, Arch. Königsb., vol. i. p. 285.
 Trionyx ferox, *Merrem*, Versuch. eines Syst. der Amphib., p. 20.
 Trionyx ferox, *Say*, Jour. Acad. Nat. Scien. Philad., vol. ii. p. 203.
 Trionyx spiniferus, *Lesueur*, Mem. du Mus., tom. xv. p. 258, pl. vi. figs. a, b.
 Testudo ferox, *Leconte*, Ann. Lyc. Nat. Hist. N. Y., vol. iii. p. 93.
 Aspedonectes ferox, *Wagler*, Natürlich. Syst. der Amphib., p. 134.
 Trionyx ferox, *Gray*, Synops. Rept., p. 43.
 Trionyx ferox, *Harlan*, Med. and Phys. Res., p. 158.
 Gymnopus spiniferus, *Dumeril et Bibron*, Hist. Nat. des Rept., tom. ii. p. 477, pl. xxii.
 fig. 1.
 Soft-shelled Tortoise, or Soft-shelled Turtle, *Vulgo*.

DESCRIPTION. The shell is sub-oval, larger behind, entire, ecarinate, greatly depressed, and smooth above, except where some tubercles are situated on its posterior soft portion. These tubercles are small, disposed in rows, and reach from the margin to the circumference of the bony disk. At the anterior border are seen a number of pointed or conical tubercles; many of them are almost horny at the tip.

The sternum is oval, entire, and full in front, extending even beyond the carapace; its anterior part is cartilaginous and movable, and can be drawn upwards at the will of the animal, so as to touch the carapace, and thus conceal the head when retracted. Posteriorly the sternum is also entire, but smaller, and much less extensive, leaving the extremities completely exposed.

The head is large, elongated, oval, with the forehead considerably elevated, and

the snout small, cylindrical, and greatly prolonged. The nostrils are anterior and closely approximated; they are sub-round, the greatest extent being in the vertical direction, and their long axes are parallel to each other. The eyes are large, prominent, and very closely approximated; the pupil is black, the iris of pale lemon colour, very brilliant, and marked with an interrupted longitudinal black band. The mouth is large, naked in front, but with large, revolute, movable, thick lips at the sides, both above and below. The jaws are entire, or without serræ, and the lower is received within the upper.

The anterior extremities are large, flattened, and covered at the fore-arm with three broad scales placed transversely; there are five fingers, extensively palmated, but the three anterior alone are furnished with nails, the two posterior are far apart, and seem useful only in supporting the web. The posterior extremities are equally large, and still more flattened at the tarsus, which sustains five broadly palmated toes, the three anterior furnished with short strong curved nails, a little grooved on their inferior face; the two posterior toes are far apart, and sustain the web, which is here extensive, and continued along the posterior margin of the limb; and further, there is behind the little toe a large oblong piece of cartilage imbedded in the membrane or web, continued along the leg, which must be still more instrumental in keeping it extended. The tail is thick, conical, short, passing but slightly the carapace, and has the vent near the tip.

COLOUR. The shell above is umber coloured, more or less bright, and marked with large irregularly dusky blotches; these are circumscribed in the young, but are spread out with irregular margins in adults, and sometimes they disappear altogether and leave the shell of one uniform colour. The sternum is white, and beautifully marked with waving red lines, caused by the blood-vessels being seen through the transparent skin.

The superior and lateral parts of the head and neck are umber coloured, the lips a little lighter; the inferior surface is dirty white, with a tinge of green. On each side of the head and behind the eye is a yellowish oblong blotch, bordered

with black, which in young individuals is bright, and continued towards the snout, but becomes more and more obscure as the animal increases in age.

The extremities are umber coloured above, the webs tinged with green; below they are white, tinged with green, which latter colour prevails at the webs.

DIMENSIONS. The length of shell in the animal here represented was 16 inches; breadth, 12 inches; length of sternum, $10\frac{1}{2}$ inches; length of head, $2\frac{1}{2}$ inches; breadth, 2 inches; elevation of the animal, 3 inches. They sometimes are found of much greater dimensions.

HABITS. The *Trionyx ferox*, in the native state, is a voracious animal, feeding on fish, or such reptiles as he can secure, and is so greedy that he takes the hook readily when baited with whatever animal substance; yet in confinement, even of several months duration, I have never seen one take sustenance of any kind, though offered a variety of food. In the more southern rivers the Soft-shelled Turtle is said to destroy great numbers of young Alligators, and in turn they are devoured by the old. They reside most constantly in the water, swim with rapidity, and choose for their retreats holes under the banks of rivers, or under rocks; and not unfrequently the trunk of some huge forest tree, fallen into the stream, affords them shelter. Sometimes they leave the water and conceal themselves in the mud; I have frequently seen them thus buried to the depth of two or three inches, leaving only a small breathing hole for the long neck, and narrow head, which it occasionally thrusts out, but most commonly has it retracted so that one would pass near without observing its habitation; and if seen, it might easily be mistaken for the residence of some large insect. At other times they may be seen in numbers on rocks in shallow water, basking in the sun, apparently asleep. In these situations, Dr. Geddings informs me, many are taken, by erecting a slight fence at some distance around them, or by placing other obstructions between them and deep water, to cut off their retreat.

The *Trionyx ferox* bites severely when provoked, darting forward with great

velocity his long neck and head, and not unfrequently springs upward at the same time, and makes a loud hiss.

In the month of May the females seek sandy places along the banks of the waters they inhabit to lay their eggs, generally about sixty in number; and it is remarkable that, though their motions are slow and difficult on dry land, yet at this season they sometimes mount hillocks several feet high.

The eggs once deposited, the female returns to the water, and leaves them to be hatched by the heat of the sun. The eggs, according to Lesueur, who examined them on the Wabash, are spherical, with the shell more brittle than those of the *Emydes* inhabiting the same waters.

Of all the *Cheloniadæ*, the flesh of the *Trionyx ferox* affords the most delicate food, surpassing that even of the Green Turtle.

GEOGRAPHICAL DISTRIBUTION. The *Trionyx ferox* affords an admirable illustration of the influence of physical geography in the distribution of animals. Thus, it inhabits the Savannah as well as all those rivers that empty into the northern borders of the Gulf of Mexico; it ascends up the broad Mississippi, and is found in all its tributaries, even to the very foot of the Rocky Mountains, according to Lewis and Clark; it abounds in the chain of great northern lakes both above and below the Falls of Niagara; and is "common" in the Mohawk, a tributary of the Hudson river; but is not found in any other Atlantic stream between that and the Savannah river, a distance of nearly eight hundred miles. Now a glance at the map of the United States will show us how this tortoise, doubtless originally a western species, and never migrating by land, can have passed by *water* from the Great Valley of the Mississippi to the northern lakes, and to the Mohawk and even Hudson river. At the source of St. Peter's river in times of flood there is a free communication with Red river of Lake Winnipeg, (lat. 48°, Say, in Long's Exp. ;) which thus affords a passage for the *Trionyx ferox* to the Lake of the Woods. Again, the Upper Illinois is well known to

communicate with the waters of Lake Michigan in spring floods, so that even loaded boats may pass; and in this way does our animal reach the chain of lakes, that open into the St. Lawrence river. Lastly, previous to the construction of the New York canal, Wood creek, at the head of the Mohawk, also at "spring floods" communicated with the waters of the Oswego river; and consequently there the *Trionyx* could pass to and become "common in the Mohawk," and reach the Hudson, though absent from every other river opening into the Atlantic, between the St. Lawrence on the one hand, and Savannah river on the other.

GENERAL REMARKS. To Dr. Garden is due the merit of having first described the *Trionyx ferox* in a memoir communicated to Pennant, the celebrated English naturalist. This memoir was read before the Royal Society of London in the year 1771, and then published in the sixty-first volume of their Transactions. The description is accurate, and is accompanied by three tolerable drawings done from life, and giving three different views of the animal. How it obtained the specific name of *Ferox*, I cannot determine, unless it might be from its habits as described by Garden—"this animal is very fierce;"—and it is uncertain by whom it was first applied. It was not Pennant who thus named it, for he confined himself simply to the memoir of Dr. Garden—"A New Species of Fresh Water Turtle, commonly called the Soft-shelled Turtle"—and yet most authors refer this name to him.

Twelve years after this, I find Schneider, for the first time, applying the specific name *ferox* to this animal, which seems now to have been consecrated by the general use of all naturalists, with one or two exceptions. Thus Geoffroy in establishing the genus *Trionyx* which has been adopted in this work, reproduces this animal under a new name, *Trionyx georgicus*, though his description is taken from Pennant.

Lesueur next gives an accurate description and drawing of the *Trionyx ferox*, but under the name *Trionyx spiniferus*, from the knobs and spines on the carapace,

in which he is partly excusable, for he thought it might be a new species of Turtle; thus he says "it is possible that this animal (*Trionyx spiniferus*) may be the *Trionyx ferox*, but from its geographical distribution (Wabash river), he doubts it, as he has observed in the United States that even at short distances the same species no longer exist." This is perfectly true as regards the Atlantic states, but much less so of the western, and if the geographical distribution be referred to it, it will readily be seen how widely extended in the west may be a species entirely aquatic.

Dumeril and Bibron have lately adopted the specific name *spiniferus* for this animal, which I cannot retain, as that of *ferox* has the right of priority, having been in general use for nearly fifty years.

They furthermore consider the *Trionyx carinatus* of Geoffroy, and the *Trionyx Brogniartii* of Schweigger, as merely the young of our animal, and the opinion of such excellent herpetologists is worthy of all credit, especially as they affirm that there is still preserved in the Museum of the Garden of Plants at Paris the identical specimens from which those descriptions were taken.

It has always appeared to me that the "great Soft-shelled Turtle" of Bartram, and the *Trionyx ferox* were one and the same animal, for no other species than this has ever been received from Florida, with which country we have now almost daily communication. Leconte lived for a time on the St. John's river, the very place where Bartram found his animal, yet he saw only the *Trionyx ferox*; and several officers of the army, who have been stationed in that country for years, and planters living on the banks of the river, have equally failed in finding the Soft-shelled Turtle with the long warts about the neck. Bartram, though a respectable botanist, was not an accurate zoologist, as his writings clearly enough show—the spines given to the neck are those that properly belong to the carapace, and the five nails represented as belonging to the extremities, are doubtless the result of careless observation—for there are five fingers and as

many toes, all perfectly well developed, and he might easily suppose each one furnished with a nail, unless he took the pains to examine them closely.

Dumeril and Bibron are, I think, mistaken in supposing this animal of Bartram a fictitious one. They say it represents the body and head of a *Trionyx*, but that the feet and cutaneous appendages of the neck were taken from the *Chelys matamata* (*fimbriata*). This can hardly be, for though the *Chelys matamata* is mentioned in Barrère's *Natural History of Guiana*, at that time called "*La France Equinoxiale*," yet the first figure given of it was by Bruguière in "*Le Journal d'Histoire Naturelle de Paris*," for 1792, which is so good a one that it has been repeatedly copied by other naturalists, as Schoepff, &c. Now Bartram's work was published in Philadelphia in 1791, consequently he cannot be accused of this deception. Bartram was an honest, upright, though somewhat over credulous naturalist.

I can adopt neither the generic name *Aspedonectes* of Wagler, nor that of *Gymnopus* of Dumeril; for though it might be necessary to subdivide the genus *Trionyx* to accommodate all the species with soft shells and three nails, yet in that case I would follow the example of Gray and Bell and retain the name *Trionyx* for the typical form, as it has been consecrated by time, and apply the new epithet of *Amyda*, or *Aspedonectes*, to those that vary from it in proportion of parts, &c., as these should be considered as abnormal forms.



Holbrook, John Edwards. 1842. "Trionyx ferox – Schneider." *North American herpetology; or, A description of the reptiles inhabiting the United States* 2, 11–18.
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