

## Previously Unrecognized Original Type Specimens of American Turtles Collected by John Le Conte in 1828

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**ABSTRACT.** – Turtles given to the Paris National Museum of Natural History in 1828 and collected by Major John Eatton Le Conte include previously unrecognized type specimens of *Testudo floridana* (= *Pseudemys floridana*), *T. rubriventris* (= *Pseudemys rubriventris*), *T. concinna* (= *Pseudemys concinna*), and *T. insculpta* (= *Clemmys insculpta* or *Glyptemys insculpta*), described by him in 1830, as well as two syntypes of *Testudo depressa* Guérin, 1829 (junior synonym of *Testudo polyphemus* Daudin, 1801) (= *Gopherus polyphemus*).

**KEY WORDS.** – Reptilia; Testudines; Emydidae; Testudinidae; *Pseudemys*; *Gopherus*; *Clemmys*; *Glyptemys*; *Testudo floridana*; *Testudo rubriventris*; *Testudo concinna*; *Testudo insculpta*; *Testudo depressa*; turtles; type specimens; nomenclature; John Le Conte; USA

John Le Conte was a Major in the U.S. Topographical Engineers and he demonstrated interest in different aspects of natural sciences: geology, botany, and zoology, including herpetology. In the latter field, he published ten papers, including descriptions of several new species. This paper deals with the turtles and tortoises described as new by Le Conte, particularly focusing on the type specimens.

Great-grandson of Guillaume Le Conte, a French Huguenot who migrated to New York in the 1690s to avoid religious persecution, John Eatton Le Conte, Jr., was born in (or near) Shrewsbury, Monmouth County, New Jersey, on 22 February 1784; he died in Philadelphia, Pennsylvania, on 21 November 1860. His son, John Lawrence Le Conte (1825-1883), is still considered a leading entomologist of the latter half of the nineteenth century. Several short biographies of Le Conte have been published, including Gray (1861, 1883), Dohrn (1861), Sharswood (1861), Scudder (1884a,b), Graham (1889), Barnhart (1917), Rehn (1954), and Hardy et al. (1982, 1986). Rehn listed a total of 40 publications; 35 are mentioned in the "Catalogue of Scientific Papers" (Anonymous, 1869) and the same number of references was given by Dohrn (1861). Neither list is exhaustive and both show some inaccuracies.

Le Conte's best known paper, published in 1830, included descriptions of 19 species of North American turtles, among them four new species (and two considered "not well established"). Publication of this work followed a trip to Paris and the gift by Le Conte of about a dozen turtles to the Muséum National d'Histoire Naturelle (MNHN). Specimens belonging to the four new species are here designated as syntypes or lectotypes, no other "potential type material" of Le Conte's species having been reported in other institutions. This will help to clarify the status of some problematic taxa.

It also appears that two other turtles, among the specimens given by Le Conte to the Paris Museum, are connected with a valid publication by Guérin (1829) of a new name;

these specimens are described here, along with the other types involved in Le Conte's descriptions.

### The Work and the New Species

On 7 December 1829, Le Conte read before the Lyceum of Natural History of New York (of which he was, in 1817, among the founders) the first monograph dealing exclusively with "the tortoises which are natives of our country" (Le Conte, 1830:93). In some works (e.g., Carr, 1938, 1952), the year of publication of this 30-page paper is given as 1836, i.e., the date printed (as 1828-1836) on the title page of the entire third volume of the *Annals of the Lyceum*, in which the work was published. However, Le Conte's monograph was analyzed by Bonaparte in a work written in 1830 (Bonaparte, 1831:145), who has given complete references. Gray (1831b:viii) also certainly received a copy in January 1831. Therefore, we may confidently admit 1830 as the year of publication.

Le Conte (1830), among 19 species, presented four turtles as new: *Testudo floridana*, *Testudo rubriventris*, *Testudo concinna*, *Testudo insculpta*—all distinguished as such by the notation "L.C." It is noteworthy that these four species are presently recognized as valid, although all have subsequently been placed in other genera: *Pseudemys floridana*, *Pseudemys rubriventris*, *Pseudemys concinna*, *Clemmys insculpta* or *Glyptemys insculpta*. Later Le Conte (1854:189) erroneously placed his *T. rubriventris* in the synonymy of *T. rugosa* Shaw, 1802. On the other hand, Le Conte is the informal author of the nominal species *Emys mobilensis* Holbrook, 1838: "Leconte informs me that he observed it many years ago in Alabama, and proposed calling it *Emys mobilensis*, to which I have no objection" (Holbrook, 1842:74).

With perhaps the exception of Gray (1831b:viii), Le Conte's work was welcomed by his contemporaries in Europe (Bonaparte, 1831; Duméril and Bibron, 1835) as well as in America (Harlan, 1835; Holbrook, 1836, 1842; Agassiz, 1857). Le Conte's interest in turtles reappeared

much later (Le Conte, 1854, 1860), when he described six new species of *Kinosternum* (senior synonym: *Kinosternon*), one of *Teleopus* (new genus, senior synonym: *Manouria*), and one of *Emys* (presently: *Trachemys*), from which only two species are currently recognized, *K. integrum* and *K. sonoriense*, both described in 1854. The first of these papers (Le Conte, 1854) included an “arrangement” of turtles followed by a “Catalogue of American Testudinata,” listed by Dohrn (1861) as a distinct paper.

### Le Conte's Specimens

According to the literature, only four specimens are known and designated as being types (holotypes) of Le Conte's various new species of turtles: they are *Kinosternon guttatum* Le Conte, 1854 (senior synonym: *Kinosternon odoratum* or *Sternotherus odoratus* [Latreille, 1801]), *Kinosternon henrici* Le Conte, 1860 (senior synonym: *K. sonoriense* Le Conte, 1854), *K. mexicanum* Le Conte, 1854 (senior synonym: *K. scorpioides cruentatum* Duméril, Bibron, and Duméril, 1851) and *Emys valida* Le Conte, 1860 (senior synonym: *Trachemys scripta venusta* [Gray, 1855]). All of these types are in the collections of the Academy of Natural Sciences, Philadelphia (ANSP; see Malnate, 1971). Smith and Taylor (1950) stated that the type specimens of *K. integrum* and *K. sonoriense* were deposited in the collections of the ANSP, but Iverson (1976, 1981, 1989, in King and Burke) stipulated that the type of *K. sonoriense* was “unlocatable” or “apparently lost”, and that the type of *K. integrum* was “unknown, not ANSP”.

Among the other 15 turtles described, there appears to be no mention of other specimens identified as types, and the original types of the four new species described in Le Conte (1830) have never been identified. Le Conte (1860:7) himself specifically stated, about *T. concinna* and *T. floridana*: “there is no specimen in the collection of the Academy which I can recognize as the animal once described by me.” Carr (1938) noted for these species “type apparently not in existence,” and Ward (1984) more correctly wrote, for both these species and for *T. rubriventris*: “no type designated.” Iverson (1986:94) indicated specimen ANSP 242 as holotype of *T. concinna*, but that was presumably an error: ANSP 242 is the holotype of *Emys mobilensis* Holbrook, 1838, according to Malnate (1971:354) and Ward (1984:39). Ernst (1972:125) noted, for *T. insculpta*, “type and collector unstated,” although the collector was most probably Le Conte himself. Finally, in the last published checklist of turtles, Seidel (in King and Burke, 1989:57) stated, for *T. rubriventris*: “type: not traced; perhaps originally in the ANSP”. Even Holbrook (1836:vi, 1842:xi) did not receive any specimen from Le Conte, but only “his notes on Reptiles, accompanied with beautiful drawings.”

The need for type specimens for two of these species is pointed out by Ward (1984:42): “because of the confusion as to the distinctiveness of the species *Pseudemys concinna* and *P. floridana*, consideration should be given to the designation of neotypes for both species”.

Nevertheless, at the time of his 1830 monograph, Le Conte had given to the Paris Museum a collection of turtles: “M. Leconte a généreusement donné au Muséum un exemplaire au moins de toutes les espèces qu'il a décrites dans sa Monographie des Tortues de cette partie de l'Amérique” (Duméril and Bibron, 1834:xvii). Duméril and Bibron (1835:507) later mentioned one or more specimens of *Emys muhlenbergii* (Schoepff, 1801) given by “M. Leconte,” but that is most probably a lapsus for Lesueur, who had given one hog or Muhlenberg's turtle to the Paris Museum (MNHN 1502). A visit “in the Museum of the king's garden at Paris” is alluded to by Le Conte himself (1830:108,126,131) and Asa Gray (1883:198) specified that Le Conte: “made a journey to Paris in 1827, where he formed the acquaintance of many of the most eminent men of science there, and with whom he subsequently kept up a correspondence.” The next year was given by Sallé (1884:571): “Il habita longtemps la Géorgie, où il fit une belle collection d'Insectes qu'il apporta à Paris en 1828, et qu'il offrit généreusement à M. le comte Dejean.”

The hand-written inscription by G. Bibron on the plastron of several Paris Museum turtle specimens: “Etats-unis par M. Leconte 1828” (e.g., MNHN 9171, 9172, 9208, 9452) confirms 1828 as the most probable year of the donation. Le Conte also gave to the Paris Museum collections of fishes (Bauchot et al., 1990) and insects, but data files from the MNHN laboratories of entomology and ichthyology do not allow greater accuracy.

### Le Conte and Cuvier

The presence of Le Conte's specimens in the Paris Museum in the years 1828–29 was certified by Cuvier (1829:10,11), who mentioned several species, attributing them to Le Conte: “-*T. carolina*, Leconte, etc.” (...) “-*Em. reticulata*, Leconte; -*Em. rubriventris*, id.; ...-*Em. concinna*, Lec.; ...-*Em. concentrica*, Lec.; -*Em. odorata*, id.; ...- *Em. pulchella*, Schoepf., XXVI, ou *insculpta*, Lec.; ...” (Cuvier's work was published in July, 1829: Férussac, 1829b:95).

A question may arise: did Cuvier have access to a manuscript from Le Conte, or did he take the names from labelled specimens? It can be assumed that Cuvier took the names from labels, because (a) the turtles were already in the Paris Museum since 1828; (b) Cuvier only mentioned species of which Le Conte's specimens are in Paris; (c) he called the diamondback terrapin “*Em. concentrica*, Leconte” (correctly: *T. concentrica* Shaw, 1802), while this species was called *T. palustris* Gmelin, 1789, by Le Conte in his 1830 publication; (d) he did the same with “*Em. pseudogeographica*” of Lesueur (see Bour and Dubois, 1983); (e) Gray, who visited the Paris Museum in 1829, saw at least Le Conte's specimens of *T. carolina* and *T. insculpta* (he wrote “*inscripta*”), both names being typical of the nomenclature used by Le Conte; on the other hand, for *T. concinna*, Gray noted: “I did not observe any specimen under that name in the Paris Museum” (Gray, 1831a:3,

1831b:11.26,28); (f) Le Conte (1830:130) alluded to “the names he furnished,” having “been misunderstood by M. Cuvier;” (g) there is currently no manuscript by Le Conte in the Paris Museum, and the results published in 1830 were only orally presented in New York at the end of 1829. In a final note, Le Conte (1830:130-131) manifested his disappointment about Cuvier’s treatment of his names: “An individual but little known, and living in a country remote from the scientific capital of the world, might have felt flattered as being noticed by one who is considered as the oracle of natural science, but he would, at the same time, wish not to be misrepresented.” It is quite amazing that Le Conte does not formally allude to the given specimens.

Therefore we can conclude that during a visit to Paris, probably in 1828, Le Conte gave a collection of American turtles to the Museum, with his own labels.

### Le Conte’s Turtles in the Paris Museum

Most of the specimens given by Le Conte are represented today by a dry carapace, head, limbs (fore and hind, sometimes of only one side) and tail being separated and preserved in alcohol. In two cases, the head was skeletonized, and only one specimen was stuffed (Table 1).

Duméril and Bibron (1835) referred to specimens of *T. palustris* (p. 266: “dont le major Leconte a fait présent au Musée, lors de son voyage à Paris”), of *T. rubriventris* (p.

283: “le seul échantillon de cette espèce que renferme la collection erpétologique a été donné au Muséum par M. Leconte”), of *T. concinna* (p. 291: “l’un des deux exemplaires de cette espèce qui ont été donnés au Muséum d’histoire naturelle par M. Leconte”), and of *T. reticulata* (p. 294: “la collection en renferme deux beaux exemplaires reçus, l’un de M. Leconte, l’autre de M. Milbert”), but their work is by far not exhaustive about the origin of the collections. Moreover, about *T. floridana*, they wrote (p. 286): “cette espèce ne nous est pas autrement connue que par la description qu’en a donnée M. Leconte [this species is not otherwise known to us except through the description provided by M. Leconte]”; as a matter of fact, one specimen was present, but obviously—according to its old label—mistaken for *T. concinna*. Duméril and Duméril (1851:5-17) mentioned Le Conte’s specimens of *T. carolina* (actually: *T. polyphemus* Daudin, 1801), *T. insculpta* (as *Emys pulchella* “Schweigger”), *T. concentrica* (senior synonym: *T. terrapin* Schoepff, 1793), *T. serrata* (senior synonym: *T. scripta* Schoepff, 1792), *T. rubriventris*, *T. concinna*, *T. reticulata* (senior synonym: *T. reticularia* Latreille, 1801), *T. odorata*, and *T. pensylvanica* (senior synonym: *T. subrubra* Lacepède, 1788). In their catalogue, the origin is only stated as being “Etats-Unis” or “Amérique septentrionale,” i.e., “United States” or “North America.”

Turtles given by Le Conte to the Paris Museum are listed in Table 1 with their main dimensions. They were presented with original labels by Le Conte just before the

**Table 1.** Le Conte’s specimens of turtles in the MNHN, Paris (Reptiles and Amphibians). ‘1864 label’ refers to the first hand-written catalogue including registration numbers, completed in 1864. Dimensions (in mm) of the shells and heads: CL = straight carapace length; CW = carapace width; CD = carapace depth; PL = plastron length; HW = head (skull) width.

Le Conte’s 1830 names	Current name	1864 label	Current MNHN label	Content	CL	CW	CD	PL	HW
<i>T. floridana</i> sp. nov.	<i>Pseudemys floridana</i> (Le Conte, 1830)	478	9170	shell	110	95	43	102	
<i>T. rubriventris</i> sp. nov.	<i>Pseudemys rubriventris</i> (Le Conte, 1830)	457	9208	shell	263	178	98	240	
		453	TT-26	skull					35.0
		454	2071	limbs					
		454	2069	limbs					
<i>T. concinna</i> sp. nov.	<i>Pseudemys concinna</i> (Le Conte, 1830)	479	9171	shell	179	143	64	162	
		475	2067	head, limbs					21.5
		480	9172	shell	188	150	64	171	
		476	2066	head, limbs					22.0
<i>T. insculpta</i> sp. nov.	<i>Clemmys insculpta</i> (Le Conte, 1830) or <i>Glyptemys insculpta</i> (Le Conte, 1830)	358	9452	shell	145	109	52	133	
		355	6955	head, limbs					25.5
<i>T. carolina</i> Linnaeus, 1758	<i>Gopherus polyphemus</i> (Daudin, 1801)	136	9269	shell	167	130	72	168	
		137	9252	shell	275	207	112	280	
		135	TT-19	skull					44.0
			VER-204 VER-203	limb bones, vertebrae pelvis					
<i>T. reticulata</i> Daudin, 1801	<i>Deirochelys reticularia</i> (Latreille, 1801)	485	9111	stuffed	115	85	50	103	19.5
		490	9115	shell	198	136	82	179	
		488	2065	head, limbs					27.5
<i>T. serrata</i> Daudin, 1801	<i>Trachemys scripta</i> (Schoepff, 1792)	427	7943	shell	155	125	69	149	
		426	7942	shell	123	106	57	120	
		418	2078	head					25.5
		419	2073	limbs					
<i>T. palustris</i> Shaw, 1802	<i>Malaclemmys terrapin</i> (Schoepff, 1793)	389	6956	head, limbs					34.0
		392	2022	limbs					
<i>T. picta</i> Schneider, 1783	<i>Chrysemys picta</i> (Schneider, 1783)	502	2035	head					26.5
<i>T. pensylvanica</i> Gmelin, 1789	<i>Kinosternon subrubrum</i> (Lacepède, 1788)	647	9083	shell	(presently unlocatable)				
<i>T. odorata</i> Latreille, 1801	<i>Sternotherus odoratus</i> (Latreille, 1801)	628	2124	shell	88	62	37	66	
		631	9092	head, limbs					22.5





Figure 1. *Testudo floridana* Le Conte, 1830, syntype MNHN 9170. CL = 110 mm. (a) Shell, dorsal view. (b) Shell, ventral view.

publication of his work: they were obviously considered in his mind as “typical” of his descriptions and labelled with his own nomenclature. Therefore those specimens corresponding to the new species belong to the typical series and, according to the current terminology, are holotypes or syntypes, unless others were designated. A more precise designation is now examined for each new species described by Le Conte.

*Testudo floridana*  
(Le Conte, 1830:100)

Current name: *Pseudemys floridana* (Le Conte). First use of this combination: Baur (1893:223). New combination, according to the systematics proposed by Seidel (1994:126): *Pseudemys concinna floridana* (Le Conte).

The only specimen (MNHN 9170; Fig. 1) is a dried shell of a young turtle (straight carapace length (CL): 110 mm). Le Conte gave a (maximal) length of 1'3" (= 380 mm) for the species. The markings agree well with the original description, on the carapace: “with numerous irregular lines of yellow, those on the lateral plates more or less radiating,” as do the markings on the plastron: “marginal plates beneath yellow, with each a large black spot, including a yellow one” (see also Table 2). However, as it is a young specimen and because of the lack of limbs and head, I prefer to consider it only as a syntype of *T. floridana*, without a more formal designation. We may hope that a complete specimen can be rediscovered in another institution; for instance, Bonaparte (1831:154) specified, for *T. floridana* (and for *T. rubriventris*): “extat in Museo nostro.” Are these specimens given by Le Conte himself, and therefore possible syntypes? I do not know what has become of them.

The type locality is “St. John’s River of East Florida” (Le Conte, 1830:101). Carr (1938:105) postulated that “Le Conte’s specimens probably were collected in the lower (northern) reaches of the river.” This hypothesis was con-

nected with a nomenclatural problem, and the MNHN syntype allows an answer to the question asked previously by Carr (1935:148): “whether Le Conte had the typical peninsular race when he described *floridana*, it is impossible to determine, either from the characters used or the type locality designated.” In 1938, Carr described the peninsular race as *Pseudemys floridana peninsularis*, restricting “the name *floridana* to the coastal plain population;” *floridana* has “blotches on lower marginals enclosing light areas,” whereas *peninsularis* exhibits “lower marginals with solid, smudge like blotches.” Ward (1984:42) added to this discrimination: “inframarginal spots occur both anterior to, and occasionally, posterior to the bridge in *P. f. floridana*, only anterior to bridge in *P. f. peninsularis*”. The only known type specimen of *T. floridana* has moderately light-centered blotches on the lower side of the marginal scutes and these blotches extend down to the level of the inguinal scute (7th marginal). Carr’s hypothesis about the actual site of the type locality is probably correct.

Therefore the type locality of *Testudo floridana* Le Conte may be restricted to “lower reaches of the St. John’s River (Duval County), Florida.” This also responds to the (partly incorrect) remarks by Ward (1984:42): “The zone of intergradation between the two subspecies actually encloses the type location of the species as given by LeConte. The species type is lost, but it is assumed that the description was of an intergrade.”

Seidel (1994:125) elevated *P. f. peninsularis* to full species status, *P. peninsularis*; he was followed by Seidel and Ernst (1998). According to Seidel (1994), the upper St. John’s River may actually be where the ranges of two species, *Pseudemys peninsularis* and *P. concinna floridana*, contact. On the other hand, a new problem arises (or any dispute could become obsolete?) with the innovative and highly stimulating systematics developed by Seidel (1994), in which *Pseudemys c. concinna* and *P. c.*





**Figure 2.** *Testudo rubriventris* Le Conte, 1830, lectotype, MNHN 9208, CL = 263 mm. (a) Shell, dorsal view. (b) Shell, ventral view.

*floridana* were considered as being only rather poorly defined subspecies, of which the range limits are difficult to define. Seidel (1994:127) added that “further examination may also cast more doubt on the utility of taxonomically recognizing *floridana*.” Like most authors, Seidel (1994:117,126) emphasized the fact that “the taxonomic status of species and subspecies [within the genus *Pseudemys*] remains poorly defined, especially for *P. concinna* and *P. floridana*” and that “distinction between the Florida cooter *P. f. floridana* and river cooter *P. concinna* has remained one of the most perplexing problems in turtle taxonomy.” Nevertheless, he added that “along the Atlantic slope drainages, there is a *P. c. concinna* morphotype ... easily distinguished by color patterns/markings from a *P. f. floridana* morphotype ... which occurs on the coastal plain ... however, these turtles are not morphometrically distinct, and based on their markings, they appear to intergrade.” Seidel (1994:123) gave elsewhere some features which may generally be used to distinguish *P. f. floridana* from eastern *P. concinna*, including a morphometrical character (posterior shell depth). Jackson (1995) strongly disagreed with the results proposed by Seidel (1994), arguing that he only used morphometric analysis to tentatively distinguish these two taxa; Seidel (1995) later replied: “his ‘alternative interpretation’ of *Pseudemys* is essentially void of scientific evidence.” Obviously, the debate about the identity of *P. floridana* and related topics is not yet closed.

***Testudo rubriventris***  
(Le Conte, 1830:101)

Current name: *Pseudemys rubriventris* (Le Conte). First use of this combination: Baur (1893:224), who erroneously wrote *Pseudemys rubiventris*. The subspecific splitting into *P. r. rubriventris* and *P. r. bangsi*

Babcock, 1937, has been proved to be invalid by Iverson and Graham (1990).

The only specimen in the Paris Museum (MNHN 9208, an adult male; Fig. 2) is dissociated (Table 1). Its CL is 263 mm; Le Conte gave a (maximal) CL of 11" (= 280 mm). This specimen agrees well with the original description, therefore I designate MNHN 9208 (with body parts MNHN 2069, 2070, and 2071 of the same specimen) as the lectotype of *T. rubriventris*. The pattern markings on the shell are similar to those of the turtle depicted by Agassiz (1857:Pl. XXVII, Fig. 1). Le Conte (1830:102) stated that the turtles “inhabit in rivers from New Jersey to Virginia ... in the Delaware, near Trenton, they are very numerous.” This last place was selected as the type locality by Baur (1893:224), followed by Stejneger and Barbour (1923:136).

***Testudo concinna***  
(Le Conte, 1830:106)

Current name: *Pseudemys concinna* (Le Conte). First use of this combination: Gray (1855:34).

Both MNHN specimens (males) agree well with Le Conte’s description and with the turtle he illustrated himself (Holbrook, 1842:Pl. 19; partly reproduced in Wermuth and Mertens, 1961:139). The dark longitudinal blotches on the bridge, typical of the taxon, are obvious in the Paris specimens and on the individual pictured. MNHN 9172 (Fig. 3) has a CL of 188 mm, MNHN 9171 (Fig. 4) is 179 mm. Le Conte gave a (maximal) length of 8 1/2" (= 216 mm). It is likely that the given corresponding depth of 3 3/4" (= 95 mm) is erroneous, the shell being rather depressed in this species: Carr (1938, 1952) gave a minimal ratio length/depth of 3.06 (males) and 2.62 (females), distinctly greater than the 2.27 ratio obtained from the measurements published by Le Conte.

Designation of a lectotype is especially critical, as there has been considerable confusion about the status of this





**Figure 3.** *Testudo concinna* Le Conte, 1830, lectotype, MNHN 9172, CL = 188 mm. (a) Shell, dorsal view. (b) Shell, ventral view. (c) Head (as MNHN 2066).

species and the closely related *T. floridana*: “few species of American Emyds have been more extensively mistaken than this [*P. concinna*]” (Agassiz, 1857:432). Actually the confusion arose at the time of Le Conte (1860:7): “Mr. Agassiz likewise thinks that my *Emys concinna* and Dr. Holbrook’s *E. floridana* are the same. My friend will pardon me when I say, that he probably has not had an opportunity of examining my species ... These two species are by no means alike. The *E. concinna* is most beautifully smooth, nothing can be more so; the *E. floridana* is extremely rough with longitudinal rugae, it is besides sometimes three times the size of the other, and the marks on the head and neck are entirely different.”

During the last century, many workers looked into the problem, without proposing an indisputable answer: “these big ‘cooters’ are notorious as a ‘difficult’ group, by which

the zoologist means that he finds it hard to force them into his standard taxonomic compartments” (Carr, 1952:279); see also Brimley, 1907; Carr, 1935, 1942; Carr and Crenshaw, 1957; Zweig and Crenshaw, 1957; Weaver and Rose, 1967; Holman, 1977; Fahey, 1980; Seidel, 1981, 1994, 1995; Ward, 1984; Dundee and Rossman, 1989; Seidel and Palmer, 1991; Jackson, 1995; Seidel and Ernst, 1996, 1998.

For example, Carr (1935:147) referred to *P. concinna* that which is currently recognized as *P. floridana*; he soon (1938) realized his mistake, but later (1952:237) introduced further confusion by describing *P. concinna* as having “fore and hind feet mostly dark, unstriped above and below; tail not striped above,” while Le Conte (1830:107) described (and pictured in Holbrook, 1842) turtles with limbs striped or marked above and beneath, and a “tail above striped with



**Figure 4.** *Testudo concinna* Le Conte, 1830, paralectotype, MNHN 9171, CL = 179 mm. (a) Shell, dorsal view. (b) Shell, ventral view. (c) Head (as MNHN 2067).



**Table 2.** *Pseudemys concinna* and *Pseudemys floridana*: selected diagnostic features according to Ward (1984) compared with data taken from MNHN type specimens.

<i>Pseudemys concinna</i>	<i>Pseudemys floridana</i>
Plastron usually with dark figure MNHN 9171-9172: <b>yes</b>	Plastron usually lacks dark pattern MNHN 9170: <b>yes</b>
Black pigment on inguinal scute present (99%) MNHN 9171-9172: <b>yes</b>	Inguinal scute lacks any black markings (98%) MNHN 9170: <b>yes</b>
Shell pattern on pleural scutes with posteriorly directed open circle ending at edge of scute (radiating lines = trifurcate figure) MNHN 9171-9172: <b>yes</b>	Carapacial pattern usually straight vertical lines MNHN 9170: <b>yes</b>
Width anterior plastral lobe / width posterior plastral lobe: 94 ± 4 MNHN 9171: <b>95</b> , MNHN 9172: <b>95</b>	101 ± 5 MNHN 9170: <b>97</b>
Carapace height / carapace length: 34 to 40% MNHN 9171: <b>36</b> , MNHN 9172: <b>34</b>	41 to 45% MNHN 9170: <b>40</b>
Anterior extension of the cervical scute / that of the marginals on either side: less than MNHN 9171-9172: <b>yes</b>	even with MNHN 9170: <b>yes</b>
Length of ventral portion of cervical scute / length of dorsal portion of cervical scute: 32 ± 10% MNHN 9171: <b>32</b> , MNHN 9172: <b>26</b>	43 ± 9% MNHN 9170: <b>50</b>
Width of ventral portion of cervical scute / width of dorsal portion of cervical scute: 145 ± 45% MNHN 9171: <b>113</b> , MNHN 9172: <b>131</b>	85 ± 11% MNHN 9170: <b>100</b>

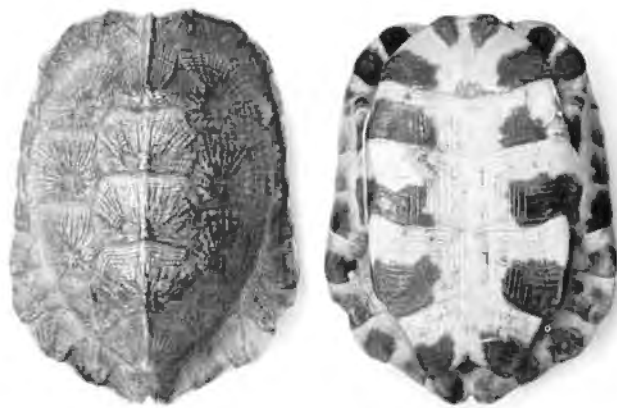
red, beneath with yellow." Fortunately these features are conspicuous in the MNHN specimens, although the yellow and red colors have faded.

I here designate specimen MNHN 9172 (with the body parts MNHN 2066 of the same) as lectotype of *Testudo concinna* Le Conte, 1830. Specimen MNHN 9171 (with the body parts MNHN 2067) is consequently a paralectotype. The given locality (Le Conte, 1830:108) is "the rivers of Georgia and Carolina, where the beds are rocky. ...never...below Augusta on the Savannah, or Columbia on the Congaree." Baur (1893:222) restricted the type locality to Augusta and Columbia; Carr (1938:105) restricted it to the Piedmont, and Schmidt (1953:101) to the vicinity of Columbia, South Carolina. Carr (1952:Pl. 53) pictured a male specimen from Columbia. Jackson (1995:332) confirmed that turtles identified as *P. concinna* live in the Savannah River.

Table 2 presents some of the characters used by Ward (1984) to distinguish *Pseudemys concinna* from *P. floridana*, with measurements and character states for the MNHN type specimens. Some odd values may be the result of measuring techniques; Ward does not precisely give the method he used for taking his measurements from the shells. Two more recent papers on the diagnostic features of these turtles (Seidel and Palmer, 1991; Seidel, 1994) challenge the taxonomic characters given by Ward, stating that his examination of *P. floridana* probably included only *P. f. peninsularis*; following these authors, it appears that only markings separate the two forms. Table 3 presents some data and ratios used by Seidel and Palmer (1991) and Seidel (1994) and also includes values for the MNHN type specimens. Measurements were taken according to Seidel and Palmer's method; due to the dry state of the

**Table 3.** *Pseudemys rubriventris*, *Pseudemys floridana*, and *Pseudemys concinna*: selected diagnostic features (range given) according to Seidel and Palmer (1991) and Seidel (1994), compared with data taken from MNHN type specimens. Details about measurements are given in Seidel and Palmer (1991).

Measurement	Seidel and Palmer (1991)	Seidel (1994)	MNHN Types
<i>Pseudemys rubriventris</i> (comparison with MNHN 9208, male, lectotype):			
Lateral angle of carapace:	65-121°	101-113°	100°
Angle formed by lateral edges of anal scutes:	45-80°	45-80°	67°
<i>Pseudemys floridana</i> (comparison with MNHN 9170, juvenile, syntype):			
Lateral angle of carapace (female):	80-124°	90-95.5°	90°
Angle formed by lateral edges of anal scutes (female):	45-80°	61-65°	70°
Posterior shell depth, % CL (female):	30-35%	32-33%	33%
<i>Pseudemys concinna</i> (comparison with MNHN 9171, male, lectotype):			
Lateral angle of carapace:	57-110°	86-90°	95°
Angle formed by lateral edges of anal scutes:	30-72°	57-62°	57°
Posterior shell depth, % CL:	27-35%	32-33%	32%
<i>Pseudemys concinna</i> (comparison with MNHN 9172, male, paralectotype):			
Lateral angle of carapace:	57-110°	86-90°	92
Angle formed by lateral edges of anal scutes:	30-72°	57-62°	45°
Posterior shell depth, % CL:	27-35%	32-33%	31.5%



**Figure 5.** *Testudo insculpta* Le Conte, 1830, lectotype, MNHN 9452, CL = 145 mm. (a) Shell, dorsal view. (b) Shell, ventral view.

shells, values for the lateral angle of the carapace elevation are only approximations.

It should be noted that contrary to Carr's (1935:147) and Fahey's (1980:49) statements, and to Pope's (1939), Carr's (1952), Schmidt's (1953), and Mertens and Wermuth's (1955) nomenclature, in case of synonymy of *floridana* and *concinna*, *floridana* is not the valid name even though it has "page priority." The first reviewer who united both taxa was apparently Agassiz (1857:432), followed by Strauch (1865:76), Gray (1872:14), and Boulenger (1889:83), who chose *concinna* as the valid name; see also Smith and Smith (1980:442). As indicated by Seidel and Ernst (1996), *Testudo concinna* is the type-species of the genus *Pseudemys* Gray, 1855, by subsequent designation of Baur (1893:221), Wermuth and Mertens (1977) wrongly attributing that designation to Stejneger and Barbour (1917). *Testudo concinna* is also the type-species of the genus *Ptychemys* Agassiz, 1857, by subsequent designation of Brown (1908:114); Baur's designation (1893:221) was unclear, whereas Lindholm (1929:280) claimed the authorship of this designation. Consequently, *T. concinna* is also the type species of *Nectemys* Agassiz, 1857, a replacement name for *Ptychemys*. The designation of *T. rubriventris* (or "*T. rugosa*") as type-species of *Ptychemys* by Ward (1984:42) is therefore invalid. Eventually a replacement name should be proposed to designate the subgeneric partition of this author, including *Pseudemys rubriventris* and its relatives *P. alabamensis* Baur, 1893, and *P. nelsoni* Carr, 1938, according to Seidel (1994).

Before the valid publication of *Testudo concinna* by Le Conte (1830) and even the mention of "*Em. concinna*, Lec." by Cuvier (1829) as a *nomen nudum*, the nominal species had been published, accompanied with a plate, and is therefore nomenclaturally valid. *Emys concinna* was first published by Guérin (1829: Reptiles, Pl. 1, Fig. 3; plate dated 1828), in March, 1829 (Férussac, 1829a:105; see also Cowan, 1971:24), as a caption of a colored figure depicting a young red-eared turtle, presently referred to *Trachemys scripta elegans* (Wied, 1839). The same plate appeared later in Gray (1831a: Pl. 1, Fig. 1; plate dated 1830), and in Guérin-Meneville (1829-1844: Reptiles, Pl. 1), with this caption:

"Fig. 3. tortue d'eau douce mignonne. Dum. et Bibr. *Emys concinna* Leconte. Hab. l'Amérique septentrionale. Nota. Il se pourrait que le jeune individu représenté ici appartient à une autre espèce que l'*E. concinna*."

This case should be submitted before the International Commission of Zoological Nomenclature, with the purpose of invalidating the nominal species published by Guérin (1829). Two other names could be available to replace the nominative subspecies of *T. concinna* Le Conte: *Emys annulifera* Gray, 1831 (possibly; the holotype, a juvenile, is in the Natural History Museum, London, BMNH 1946.1.22.28) and *Pseudemys elonae* Brimley, 1928 (probably; the type locality is in North Carolina, Guilford County). The first valid name to replace *T. concinna*, apart from the dubious *Emys annulifera*, is *Emys hieroglyphica* Holbrook, 1836, or *T. floridana* Le Conte if the new taxonomy proposed by Seidel (1994) is accepted.

#### *Testudo insculpta* (Le Conte, 1830:112)

Current name: *Clemmys insculpta* (Le Conte). First use of this combination: Fitzinger (1835:124). Another combination, *Glyptemys insculpta*, first proposed by Agassiz (1857:443) was recently resurrected by Holman and Fritz (2001).

A disassociated specimen, an adult female, was given to the Paris Museum (MNHN 9452; Fig. 5). Le Conte (1830:131) mentioned that during his visit in Paris he also saw "a decapitated specimen of the *insculpta* which is labelled *pulchella*" (probably the shell of MNHN 7940); this second specimen is therefore considered as being another type specimen, i.e., a syntype. I believe it is more appropriate to select as lectotype the turtle brought by Le Conte himself, and I designate the specimen MNHN 9452 (with the body parts MNHN 6955 of the same) as the lectotype of *Testudo insculpta* Le Conte. The CL is 145 mm; a maximal length of 8" (= 203 mm) is asserted by Le Conte. The given locality is "northern states," and the type locality is restricted to "vicinity of New York City" by Schmidt (1953:92). *Testudo insculpta* is the type-species of the genus *Glyptemys* Agassiz, 1857, by monotypy.

#### The Case of *Testudo depressa* (Guérin, 1829: Pl. 1, Fig. 1)

The most divergent point in Le Conte's nomenclature was the use of *Testudo carolina* Linnaeus, 1758, instead of *T. polyphemus* Daudin, 1801, to name the gopher tortoise, presently *Gopherus polyphemus* (Daudin, 1801). Gray (1831a:3) was the first to synonymize both nominal species. Le Conte twice vindicated his position (1830:99, 1854:188), which was followed by Agassiz (1857:447).

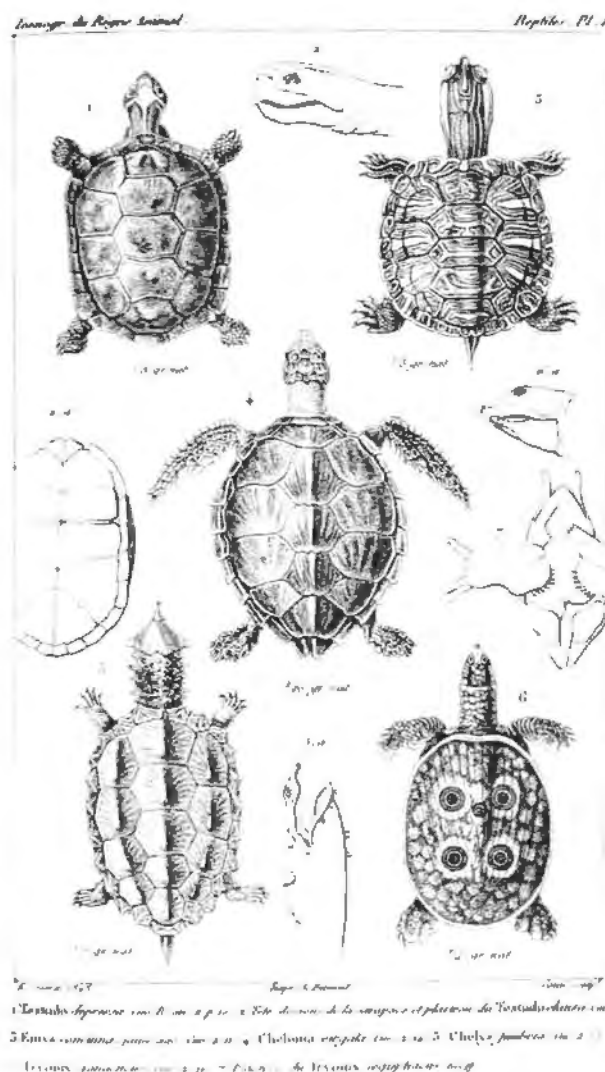
Strangely, another nominal species is connected with the pair of gopher tortoises given by Le Conte to the Paris Museum, MNHN 9252 (an adult male, CL = 275 mm) and MNHN 9269 (a young female, CL = 167 mm). In a work primarily planned to illustrate Cuvier's "Règne Animal",



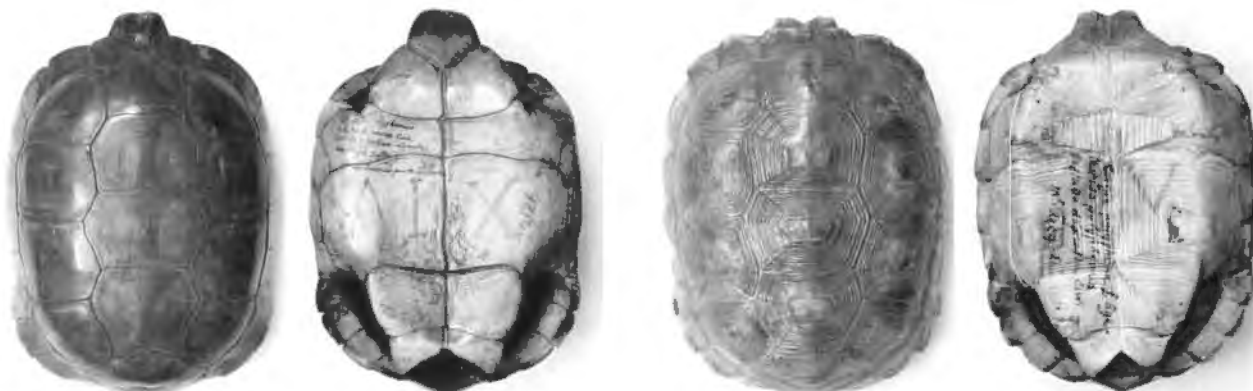
Guérin (1829) illustrated the dorsal view of a tortoise, of which the caption specified "*Testudo depressa*. Cuv. R. an. II. p. 10." This nominal species appeared only a few months later in Cuvier (1829:10), as a *nomen nudum*; Guérin probably had print proofs from Cuvier's work. The pictured tortoise roughly looks like the specimen MNHN 9252, but the quality of the drawing does not permit categorical acceptance (see Figs. 6 and 7). From the suggested size (scale of the original drawing = 1/8), it is possible that the figured specimen is actually the very one measured by Duméril and Bibron (1835:106), a large stuffed individual (straight CL ca. 300 mm) presently unlocatable. Nevertheless, both specimens of the pair given by Le Conte (MNHN 9252 and 9269) still bear, among other, the hand-written inscription "*Testudo depressa* Cuv." They were seen by Cuvier (1829:10), who mentioned the same species—and probably alluded to the same specimens—under two distinct names, *T. depressa* and *T. carolina*. Therefore I consider these specimens as syntypes of *Testudo depressa* Guérin, 1829. The type locality, taken from Le Conte (1830:98), is "the pine forests of Georgia and Florida," never "north of the Savannah river". Schmidt (1953:105) restricted the type locality of *Testudo depressa* to the "vicinity of Savannah, Georgia," the same as for *Testudo polyphemus*.

Guérin's Plate 1 was partly (and badly) reproduced in Gray (1831a: Pl. 1): "*Testudo depressa*" is pictured by Gray in Fig. 2, not in Fig. 3 as stated on the caption. Although Cuvier (1829:10) clearly claimed to be the author of *T. depressa*, Gray in the same work (1831a:2) and later (e.g., 1831b:11, 1844:4, 1855:5) attributed the authorship of this nominal species to Lesueur. That was evidently a mistake, possibly a lapsus for Le Conte: according to Lesueur's unpublished notes and drawings (Bonnemains and Bour, 1996), it appears that this author did not send specimens of the gopher tortoise to the Paris Museum before 1834 and that he correctly named it *Testudo polyphemus* Daudin.

**RÉSUMÉ.** — John Le Conte a remis en 1828 au Muséum national d'Histoire naturelle de Paris une collection de tortues dans laquelle sont reconnus des spécimens-types des



**Figure 6.** Reproduction of Plate 1 (Reptiles) in Guérin, 1829 (original captions and current names). (1) *Testudo depressa* = *Gopherus polyphemus* (Daudin). (2) *Testudo clausa* = *Terrapene carolina* (Linnaeus). (3) *Emys concinna* = *Trachemys scripta elegans* (Wied). (4) *Chelonia virgata* = *Chelonia mydas* (Linnaeus). (5) *Chelys fimbria* = *Chelys fimbriatus* (Schneider). (6) *Tryonix gangeticus* [sic] = *Aspideretes hurum* (Gray). (7) *Tryonix aegyptiacus* [sic] = *Trionyx triunguis* (Forsskål).



**Figure 7.** Syntypes of *Testudo depressa* Guérin, 1829 (= *Gopherus polyphemus*), donated to MNHN by Le Conte. (left) MNHN 9252, CL = 275 mm. (right) MNHN 9269, CL = 167 mm.

espèces américaines *Testudo floridana*, *T. rubriventris*, *T. concinna*, et *T. insculpta*, décrites par lui-même en 1830, ainsi que deux syntypes de *Testudo depressa*, décrite par Guérin en 1829.

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