



Evidence in the South-East of Martinique of a species of freshwater turtle with similarities to the *Trachemys stejnegeri*

Marcel Bourgade

► To cite this version:

Marcel Bourgade. Evidence in the South-East of Martinique of a species of freshwater turtle with similarities to the *Trachemys stejnegeri*. [Research Report] PARC NATUREL RÉGIONAL DE MARTINIQUE. 2021. hal-03207177

HAL Id: hal-03207177

<https://hal.science/hal-03207177>

Submitted on 24 Apr 2021

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Evidence in the South-East of Martinique of a species of freshwater turtle with similarities to the

Trachemys stejnegeri (?)

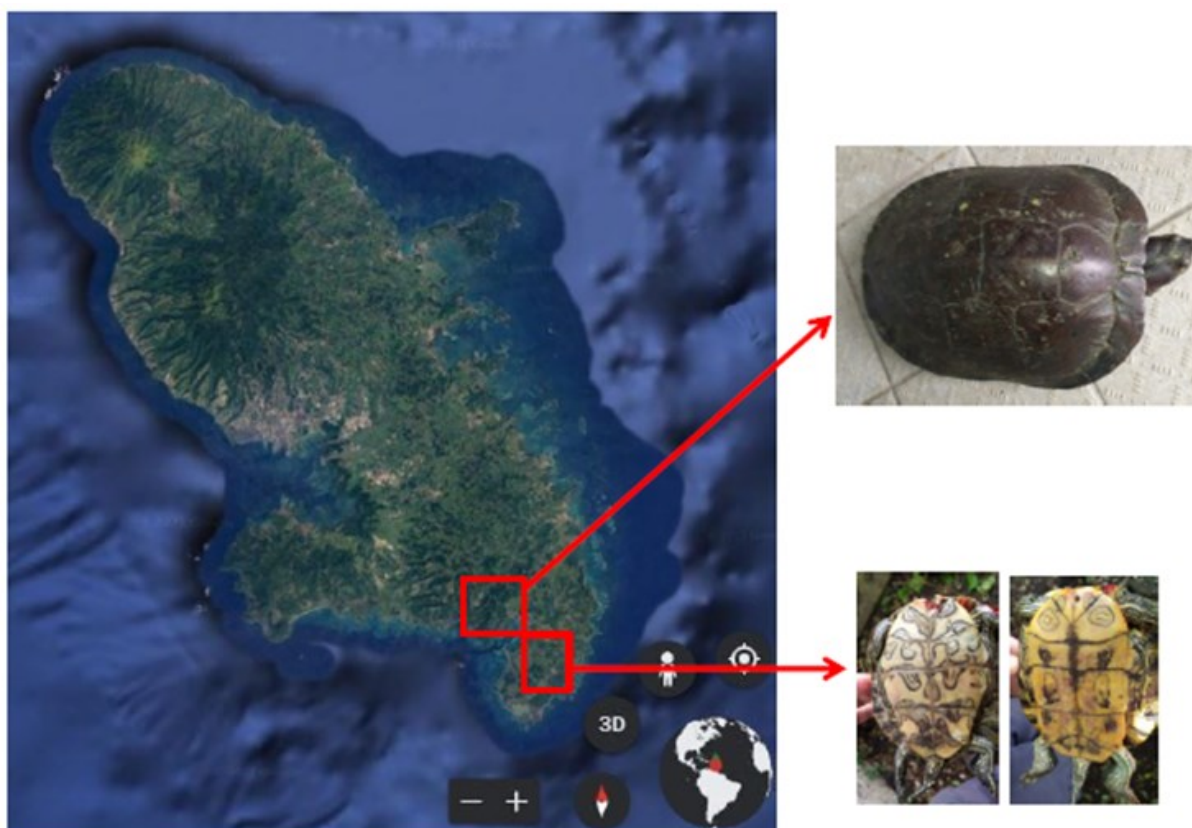
Investigation report carried out within the framework of the IAS control workshop - Invasive Alien Species of Animals

By Marcel BOURGADE

Agent of the Regional Natural Park of Martinique (PNRM)

mbourgade@hotmail.com

Location of identified geographical positions where turtles are found with similarities and characteristics recognized for the identified species : *Trachemys stejnegeri stejnegeri* (Schmidt, 1928) and *Trachemys stejnegeri vicina* or *Pseudemys vicina* (Barbour & Carr, 1940)



Specimen showing similarities with the *Trachemys stejnegeri* species observed and captured by Mr. Jean-Sébastien HEJOAKA, (agent of the Regional Natural Park of Martinique - PNRM), on the banks of the Pilot River; and specimens observed and captured in the territory of Sainte-Anne showing plastra with patterns similar to those of young adults of *T. stejnegeri*.

On November 05, 2020, as part of the fight against IAS (Invasive Alien Species) in Martinique including the species *Trachemys scripta*, we captured two young adult male specimens on the territory of the commune of Sainte-Anne, including the plastrons and the general appearance of the shells differed from the *Trachemys scripta* turtles that we had already captured in the Manzo lake, and the Pagerie river (Parc des Floralies and Golf de Trois-Ilets).



Plastron of *Trachemys* turtles captured at Sainte-Anne, until then considered in the state of current knowledge as “EEE”: Invasive Alien Species in Martinique, "*T. scripta* originating in the USA"

Mr. Pascal VATBLE, PNRM agent, technical supervisor of the Workshop for the fight against Animal “EEE”(Invasive Alien Species in Martinique), insisted that we carry out investigations relating to these phenotypic differences of turtles of the same species, or even of presumed multiple species of *Trachemys* present in Martinique but not yet inventoried.

Initial investigations carried out, with the support of Mr. Thomas ALEXANDRINE, Nature Police Officer at the PNRM, were conducted on the basis of comparisons between diversity of patterns on the plastron of *Trachemys* of North American species (USA) including *T. scripta elegans* (“EEE” in Martinique), to the observation that our plastron observable on specimens of turtles captured in Sainte-Anne, would rather correspond to species originating in South or Central America and / or the large islands of the western Caribbean.

April 14, 2021 Mr. Jean-Sébastien HEJOAKA discovers and captures at night an adult female turtle, which visibly by its large size, is very old; the turtle was circulating on the bank of a tributary of the Pilote river, En Camee district. On April 15, 2021, the “EEE” Animaux Workshop set about determining the taxon of the species of turtle captured the night before on the territory of Rivière-

Pilote, which clearly and unquestionably does not meet the criteria of 'recognized identification for the species *Trachemys scripta*.



Photo by Jean-Sebastien HEJOAKA (April 14, 2021- Rivière-Pilote)

Determination key:

We relied to identify the turtle on the observable criteria at the level of its head. And our research has led to the conclusion that the phenotype of the blackish head of the adult and old tortoise corresponds to a *Trachemys* certainly originating in the Greater Antilles; and that since having a mark in the form of a rather discreet dark red colored band; that this reddish mark on the temple does not reach the immediate border of the eyes as is the case for the other *Trachemys* of Cuba and Jamaica, and that it is precisely an endemic species of Hispaniola (eastern part) and Puerto Rico: *T. stejnegeri*; subspecies: *Trachemys stejnegeri vicina* (in Dominican Republic), *Trachemys stejnegeri stejnegeri* (in Puerto Rico).

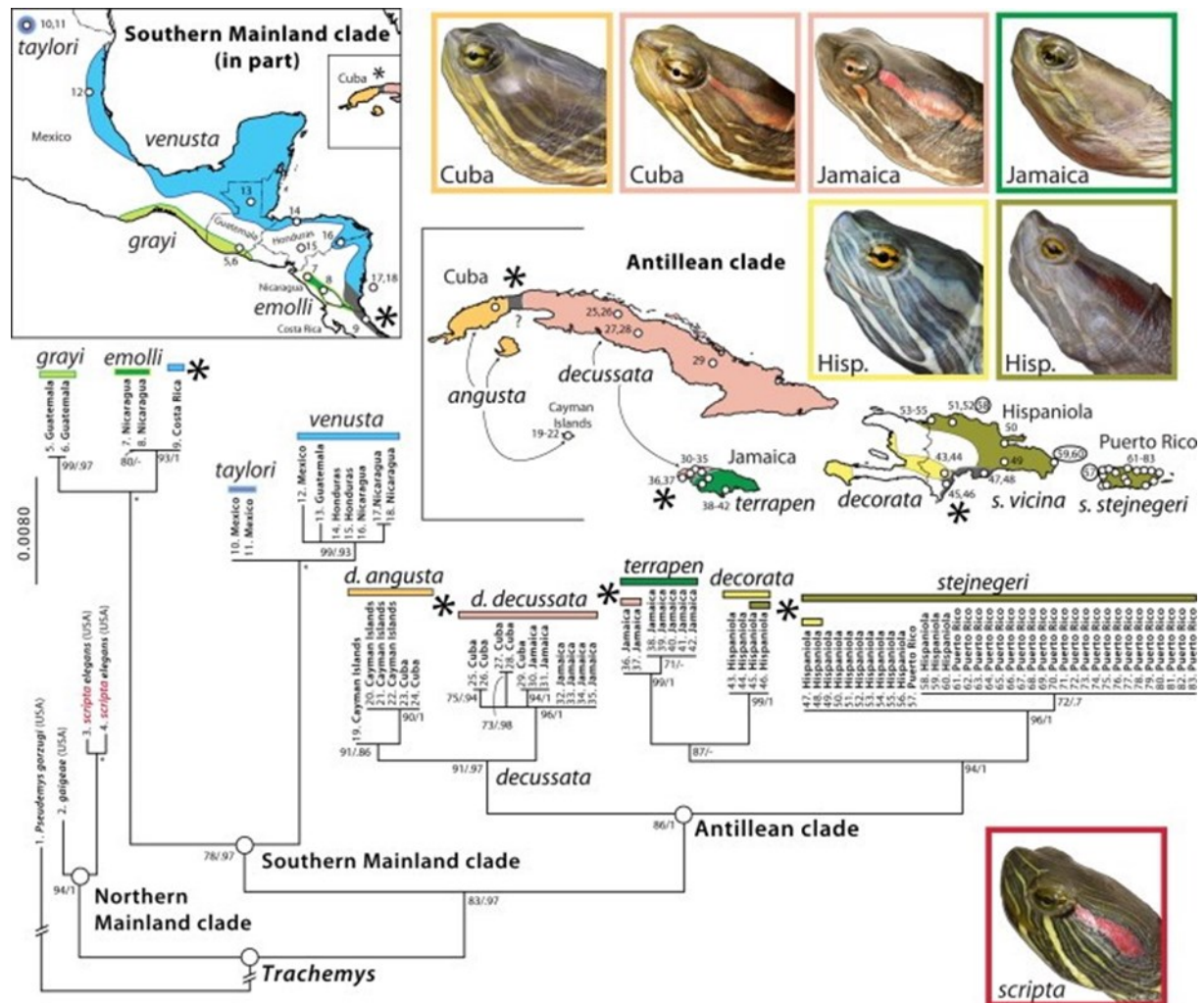
<https://www.sciencedirect.com/science/article/pii/S1055790313000237>

“ (...) Three samples from a known intergrade zone on Hispaniola (46–48) showed orange postorbital stripes (*T. decorata* have pale or yellow, whereas *T. stejnegeri* have red), sometimes combined with plastra that were partially spotted (a *T. decorata* character) and partially showing waving parallel lines (a *T. stejnegeri* character). A fourth sample (45) from deep within this area of intergradation was identified as *T. stejnegeri* based on morphology, but it shows closer affinity with *T. decorata* with all genetic markers tested here. This sample is considered an intergrade for the sake of simplicity. (...)”

The two young adult male specimens observed at Sainte-Anne also show plastra with patterns similar to those of young adults and juveniles of *T. stejnegeri*.

See: <https://www.tortues-du-monde.net/t11229-trachemys-stejnegeri-stejnegeri>

Sources :



<https://www.sciencedirect.com/science/article/pii/S1055790313000237>

Inset maps show the geographic distribution of relevant taxa and origin of Caribbean *Trachemys* samples used in this study (museum vouchers given in Appendix). Colors on the map, head images, and phylogenetic tree correspond. Asterisks (*) indicate areas of hybridization on the map and on the tree whereas circled samples 57–60 of *T. stejnegeri* may indicate translocations. Head images show morphological variation of Antillean *Trachemys* (upper right) and the invasive *Trachemys scripta elegans* (TSE, lower right). Phylogenetic tree is the analysis of the 83-sample mtDNA data set (908 bp, ND4). The tree is based on a RAxML likelihood analysis with likelihood bootstrap (left) and Bayesian posterior probabilities as support (right). 178J.F. Parham et al./Molecular Phylogenetics and Evolution 67 (2013) 176–187

<https://www.tortues-du-monde.net/t11229-trachemys-stejnegeri-stejnegeri>



These data produced here imply the need to carry out in-depth research through molecular biology, and historical, archaeozoological, paleontological, and socio-ethno-biological studies, relative to this new data for Martinique, highlighted in the South. Is Martinique of a species of freshwater turtle, whose identification criteria lead to consider that it would be a presumed *Trachemys stejnegeri vicina* (Schmidt, 1928); *Pseudemys vicina* Barbour & Carr, 1940 endemic to the Dominican Republic, or the *Trachemys stejnegeri stejnegeri* from Puerto Rico (Schmidt, 1928); Species of *T. stejnegeri*, in the state of current knowledge, more generally endemic to the large islands of the western Caribbean, Puerto Rico, Hispaniola (eastern part), Inagua in the Bahamas. Species considered to have been introduced to the eastern Caribbean in Guadeloupe (Marie-Galante and Les Saintes) and in Dominica.

The *Trachemys* turtles observed for the time being in the South -East of Martinique, in Sainte-Anne and in Rivière -Pilote, comprising phenotypes and characteristics leading to identify them as belonging to the presumed species carrying the *Trachemys stejnegeri* taxon raise some questions that we formulate as follows:

- Would they, like the *Trachemys scripta* from the USA for commercial purposes, recently introduced in Martinique in the late 1970s, from Puerto Rico or the Dominican Republic ?
- Or would they be very discreetly (very fearful and having nocturnal habits) present in the South-East of Martinique in ponds and lentic rivers and their surroundings, in hilly environments and behind mangroves on the territories of the municipalities of Robert, François, Vauclin, Sainte-Anne, Rivière-Pilote, etc.), due to a much older introduction, dating from the Sibonéy-Arawak-Taïno- Kalina period ?
- By considering paleontological data and geological history of the Eastern Caribbean and paleogeography (from -50 to - 24 Million years ago), taking particular account of the similarities between the spaces of refuges and then of centers of dispersion for number of species formed by islands of proto Martinique and those of proto Puerto Rico; as was the case for the species of rodent mammal Rat-pillory or Muskrat from Martinique, *Megalomys desmarestii* endemic to Martinique and *Megalomys luciae* from Saint Lucia, extinct since 1902; knowing that the fossils of close cousins of the extinct Martinican *Megalomys* have been found on the island banks of Puerto Rico; attesting to the presence since the Eocene of rodents from the Caribbean close to current chinchillas, viscaches and other pacaranas among chinchilloids, a group of strictly South American rodents. Would we be radically, in the presence of a new species of *Trachemys* sp., with a taxon endemic to Martinique, to be described for science ?
- Is there a possible hybridization process or not, from the 1970s, between the two species present in Martinique; between the alleged *Trachemys stejnegeri* (?) and *Trachemys scripta*?

Plastra of the specimen of the presumed species *Trachemys stejnegeri* (?) observed in the territory of Sainte-Anne Martinique, compared to that of a turtle *Trachemys stejnegeri vicina* observed in the Dominican Republic:



Martinique (Sainte-Anne)

Plastra of a young adult male.

Photo by Marcel BOURGADE (PNRM)



Dominican Republic

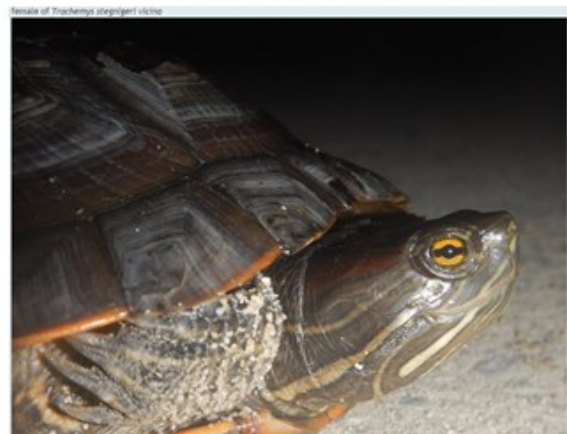
Plastra of a young adult male.

Sources: <https://idfg.idaho.gov/species/taxa/17843>

For comparison with *Trachemys scripta* :



Specimen of the presumed species *Trachemys stejnegeri* (?) observed and captured by Mr. Jean-Sébastien HEJOAKA, (agent of the Regional Natural Park of Martinique- PNRM), on the banks of the Pilote river, compared to a specimen observed in the Republic Dominican:



Martinique (Rivière-Pilote)

Suspected *T. stejnegeri* (?)

Very old adult female specimen.

Photos by Christine NAIME (PNRM)

Dominican Republic

Trachemys stejnegeri vicina

Adult female specimen.

Sources: photos Rep. Dom.

<https://fieldherping.eu/Forum/viewtopic.php?p=29034&sid=35051c436e44187219ddac2faca5e0c>

Biometric data statement relating to the specimen of the presumed species *Trachemys stejnegeri* (?) observed and captured by Mr. Jean-Sébastien HEJOAKA, (agent of the Regional Natural Park of Martinique- PNRM), on the banks of the Pilote river in the evening April 14, 2021:

Carapace length (backrest): 30.5 cm



Photo by Jean-Sébastien HEJOAKA (PNRM)

Faceplate length: 27 cm



Photo by Gérard RINTO (PNRM)

Faceplate width: 22.5 cm



Photo by Widdie TELUSSON (PNRM)

Weight: 3.5 kg



Photo by Christian JABOL (PNRM)



Photo by Gérard RINTO (PNRM)

Estimated age: + 50 years

Estimate based on the condition of a worn shell over time, coloring and general appearance; dorsal or back shell of a dark brown, and a plastra almost becoming melanistic (almost entirely black with yellow spots). The vertebral plates or scales being removed, scales marked or even broken, smoothed without any real visual possibility of counting and interpreting the cutmarks each corresponding to one year or more (2, 3 years) of the turtle's existence; from the outset the obvious non-visibility on each of the scales of the initial points at the origin of their growth, indicates that the turtle is of a very advanced age; we then proceeded to count these apparent striations, by deducing the positions of the initial points on three of the costal scales, which are also still very damaged by the test of the elapsed life time.



Photo by Didier JUPITER (PNRM)



Photo by Didier JUPITER (PNRM)

The general condition of the shell of the *Trachemys* discovered in the wild on the banks of the Pilot River, with its traces of wild life, visibly demonstrates that she lived there or even was born there. This estimated age, following the counting of the apparent cutmarks and extrapolation concerning those which are no longer really visible, is more than fifty years for this female individual *Trachemys* presumed *stejnegeri* (?) observed on the banks of the Pilote river, would suggest the fact that this species preexists in Martinique to the known introduction in the late 1970s of *Trachemys scripta*.

This is indeed new data for Martinique highlighting the presence of presumed *Trachemys* turtles of the species *stejnegeri* (?), spotted for the time being near rivers, ponds on the territory of Sainte-Anne, and on the banks of the Rivière Pilote; and in conclusion, we attest present in Martinique, specimens observed with characteristics similar to those of the species *Trachemys stejnegeri* from Hispaniola and Puerto Rico, a species having by the IUCN conservation status NT: Near threatened; Testudines, turtles of the Emydidae family, *Trachemys* presumed *stejnegeri* (?) not yet inventoried in Martinique, currently confused with the invasive alien species *Trachemys scripta*.

Martinique, Eastern Caribbean on April 19, 2021

Other photographic data for comparison between *Trachemys* turtles observed in Martinique with those of the Dominican Republic (*Trachemys stejnegeri vicina*), and Puerto Rico (*Trachemys stejnegeri stejnegeri*):



	RECORD
Kingdom:	Animalia
Phylum:	Chordata
Class:	Reptilia
Order:	Testudines
Family:	Emydidae
Scientific name:	<i>Trachemys stejnegeri</i>
English common name:	
Spanish common name:	Tortuga de Puerto Rico
Portuguese common name:	
Sex:	N/A
Life stage:	N/A
Record date:	08/01/2013
Country:	Dominican Republic
Province / department:	La Altagracia
Locality o protected Area:	Bayahibe
Location accuracy:	Low
Certainty:	Photographed

Sources : https://www.ecoregistros.org/site_en/imagen.php?id=23872



Trachemys stejnegeri vicina observed in the back mangroves in the Dominican Republic.

<https://fieldherping.eu/Forum/viewtopic.php?p=29034&sid=35051c436e44187219ddac2faca5e0c>



Martinique (Rivière-Pilote)

Suspected *T. stejnegeri* (?)

Very old adult female specimen.

Photo by Pascal VATBLE (PNRM)



Porto-Rico (Jardín Botánico, University of Puerto Rico, Río Piedras)

Trachemys stejnegeri stejnegeri

Well-aged adult specimen after staining of its head

Tortuga Jicotea from Puerto Rico

Photo by Erick Xavier Pérez Guzmán

Sources:

https://www.flickr.com/photos/erickperezguzman_photographex/17119551462