

First record of the Southern White-lipped Mud Turtle, *Kinosternon (Cryptochelys) leucostomum postinguinale* (Cope, 1887), in Manabí Province, Ecuador

Moira L. M. Wiedebusch¹, Fernanda Rodriguez-Zambrano², and Andrea E. Narváez^{2,3,*}

The Mud and Musk Turtle (Kinosternidae) family is a monophyletic group distributed from Canada to South America (Argentina), with most species found in Mexico and Central America (Iverson et al., 2013; Lovich and Gibbons, 2021; Hurtado-Gómez et al., 2024; Rhodin et al., 2025). They live in a variety of ecosystems ranging from temperate regions to southwestern deserts, through the southern tropics to the Amazon Basin (Lovich and Gibbons, 2021). The family contains two subfamilies, four genera and 34 species (Lovich and Gibbons, 2021; Rhodin et al., 2025; Uetz and Hošek, 2025) as of July 2025. *Kinosternon* (mud turtles) is the most diverse extant turtle genus with 25 recognised species, distributed from Northeastern and central USA to South America (Hurtado-Gómez et al., 2024; Rhodin et al., 2025; Uetz and Hošek, 2025). Species in this genus are small to medium sized turtles, brownish, with one or two plastral hinges and webbed toes. Mud turtles are semi-aquatic, walking on the bottom of lakes, rivers, ponds, stock tanks and swamps (Lovich and Gibbons, 2021; Hurtado-Gómez et al., 2024). Ecuador is home to two mud turtle species, *Kinosternon (Cryptochelys) leucostomum* and *K. (K.) scorpioides* (Arteaga et al., 2024; Rhodin et al., 2025; Torres-Carvajal et al., 2025; Uetz and Hošek, 2025).

The Southern White-lipped Mud Turtle, *Kinosternon (C.) leucostomum postinguinale* (Iverson et al., 2013;

Hurtado-Gómez et al., 2024; Rhodin et al., 2025), is distributed in Colombia, Costa Rica, Ecuador, Nicaragua, Panama and Northern Perú (Rhodin et al., 2025; Uetz and Hošek, 2025). It is locally known in Ecuador as “tapaculo”. It is a small species with males reaching up to 17 cm in total length, with females slightly shorter, lighter and less wide (Páez et al., 2012; Ceballos et al., 2016; Rhodin et al., 2025; Torres-Carvajal et al., 2025). It inhabits swamps, quiet rivers and gullies, with the ability to tolerate brackish and saline waters, including estuaries. It can live in permanent, semi-permanent, or ephemeral aquatic habitats, and it is also seen actively wandering over dry land (Páez et al., 2012; Torres-Carvajal et al., 2025; Uetz and Hošek, 2025). It is a nocturnal species; in areas with well-defined dry and wet seasons it burrows during the dry season and becomes active when the first rains of the rain season start; in regions without seasonality, it is active year-round (Páez et al., 2012). It is the turtle species with the widest elevational distribution in the region, as it can inhabit habitats up to approximately 1700 m elevation (Páez et al., 2012). Reproduction seems to occur year around, with multiple clutches with one or two eggs (Ernst and Barbour, 1989; Torres-Carvajal et al., 2025), and the nesting sites are located in small depressions in the ground covered by leaf litter (Ernst and Barbour, 1989).

In Ecuador, *K. (C.) l. postinguinale* has been reported in the provinces El Oro, Esmeraldas, Guayas, Los Ríos, Santo Domingo de los Tsáchilas, Pichincha and Cañar, from 11 to 1000 meter elevation (Torres-Carvajal et al., 2025). It is present in the Coastal Deciduous Forest, Chocó Tropical Rainforest and Western Piedmont Forest (Ministerio del Ambiente del Ecuador, 2012), and in the protected Areas: Cotacachi-Cayapas Ecological Reserve, Molleturo-Mullopungo Protected Forest, and Carchi-Imbabura Agricultural Association (Torres-Carvajal et al., 2025). Here we present a new distribution record for *Kinosternon (C.) leucostomum postinguinale*

¹ Museo de Zoología, Facultad de Ciencias Exactas, Naturales y Ambientales, Pontificia Universidad Católica del Ecuador, Avenida 12 de Octubre y Roca, Apartado 17-01-2184, Quito 170525, Ecuador.

² Fundación Great Leaf, Calle de las Azucenas N47-60 y Av. Eloy Alfaro, Quito 170503, Ecuador.

³ Universidad Espíritu Santo-Ecuador, Km2.5 vía Samborondon, Guayaquil 092301, Ecuador.

* Corresponding author. E-mail: aenarvgarc@gmail.com

and the first record for the Manabí province (Fig. 1). It was found in the private reserve “TENKA Forest” (0.3688°S; 79.6532°W), an 83-ha site located in the community of Santa Rosa de Campeche, El Carmen parish, in the north-western region of Manabí province, Ecuador.

On 16 December 2024, at 09:10 h, while doing forest patrolling within the new acquired forest remnant of the Great Leaf foundation, “TENKA Forest” private reserve, F. Rodríguez-Zambrano observed an adult (probably female) turtle on the ground (-0.3730°S; -79.6506°W, elevation 162 m; Fig. 2). She took a picture of the animal and didn't collect it. The picture was deposited at the Museo de Zoología (QCAZ), Pontificia Universidad Católica del Ecuador in Quito, Ecuador, available on BIOWEB (<https://bioweb.bio/faunaweb/reptiliaweb/>) (picture code: KL01MW). The identification was confirmed and verified using published diagnostic characteristics (Ernst and Barbour, 1989; Torres-Carvajal et al., 2025; Uetz and Hošek, 2025): (1) Carapace brown, smooth, flattened, and oblong in shape in adults; (2) Plastron not deeply notched (or only very slightly) between the anal scutes, brownish-yellow with darkened sutures, relatively broad and completely covering the shell openings; (3) Limbs with well-developed webbing; (4) First, third, and fourth vertebral scutes wider than long, the first being the widest; the second and fifth may be longer than wide in adults; (5) First vertebral scute in contact with the first marginal scutes, and the fourth pleural

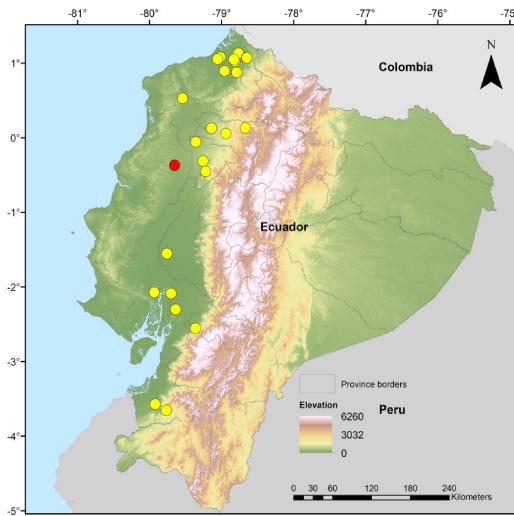


Figure 1. Map illustrating the geographic distribution of *Kinosternon (C.) leucostomum postinguinale* in Ecuador. Yellow dot represents the known localities, and the red dot represent the new locality of this species in TENKA Forest private reserve, Manabí, Ecuador. Previous distribution records were based on Torres-Carvajal et al. (2025) and primary scientific literature (Table 1).

scute in contact with the eleventh marginal scute; (6) Lateral marginal scutes directed upward, but posterior ones flattened; (7) Cervical scute very wide; (8) Posterior anal notch present; (9) Hinge present between



Figure 2. Photos of the individual of *Kinosternon (C.) leucostomum postinguinale* found in the “TENKA Forest” private reserve. (A) photo of the carapace (the head is hiding) and (B) photo of the plastron. Photos by Fernanda Rodríguez-Zambrano.

Table 1. Locality data used to create the distribution map of *Kinosternon (C.) leucostomum postinguinale* in Ecuador (Fig. 1). Coordinates are in decimal degrees. Acronym SD means Santo Domingo (province). Source citations correspond to (a) Cogălniceanu et al. (2015), (b) Garzón Santomaro et al. (2019), (c) Carr et al. (2014), (d) Carr and Almendáriz (1990). BIOWEB species records refer to those reported in Torres-Carvajal et al. (2025).

Province	Latitude	Longitude	Place	Source
Cañar	-2.5537	-79.3642	Manta Real	Bioweb
El Oro	-3.6537	-79.7668	Buenaventura	a
El Oro	-3.5694	-79.9206	Remolinos	b
Esmeraldas	1.1333	-78.7667	La Boca	Bioweb
Esmeraldas	1.0793	-79.0174	Borbon	Bioweb
Esmeraldas	1.0725	-78.6534	Durango	Bioweb
Esmeraldas	1.0544	-79.0565	Borbon	Bioweb
Esmeraldas	1.0719	-78.6507	Durango	Bioweb
Esmeraldas	0.5271	-79.5430	Quinindé	Bioweb
Esmeraldas	1.0258	-78.8188	Rocafuerte	Bioweb
Esmeraldas	1.0491	-78.8315	Concepción	c
Esmeraldas	0.8953	-78.9597	Playa Grande	c
Esmeraldas	0.8767	-78.7928	Luis Vargas Torres	d
Guayaquil	-2.3003	-79.6389	El Mango	Bioweb
Guayaquil	-2.0722	-79.9345	Pascuales	d
Guayaquil	-2.0859	-79.7022	Puente Río Chimbo	d
Los Ríos	-0.4525	-79.2217	Río Palenque	d
Los Ríos	-1.5519	-79.7594	Vinces	d
Manabí	-0.3699	-79.6527	TENKA Forest	This work
Pichincha	0.0560	-78.9390	San Miguel de los Bancos	Bioweb
Pichincha	0.1278	-79.1414	Pedro Vicente Maldonado	Bioweb
Pichincha	0.1316	-78.6752	Nanegal	d
SD. de los Tsáchilas	-0.0570	-79.3590	Bosque Protector La Perla	Bioweb
SD. de los Tsáchilas	-0.3120	-79.2563	San Miguel de los Colorados	d

the humeral and femoral scutes, allowing the plastron to completely close with the carapace; (10) inguinal is set well back on the bridge and it is separated from the axillary; and (11) Head brown with yellow spots.

Finding *K. (C.) l. postinguinale* in “TENKA Forest” extends the (sub)species’ distribution 45 km eastwards from the nearest previously reported locality in Santo Domingo province (San Miguel de Los Colorados), and 100 km southwards from the nearest previously reported locality in Esmeraldas province (El Achote – Quinindé). This individual was found on dry soil outside the forest, but this seems to be common as this turtle is not confined to water and often wanders extensively on land (Ernst and Barbour, 1989; Carr et al., 2014). *K. (C.) leucostomum* is one of the most-traded turtle species

(Uetz and Hošek, 2025), due to pet trade, consumption, and use of its shell for ornaments and utensils (Páez et al., 2012; Carr et al., 2014). Due to the numerous seizures of this species, indiscriminate releases have been generated, which could have consequences on the health and genetic identity of the populations (Páez et al., 2012). There is the possibility that a lot of the known distribution corresponds to reintroduction cases after pet trade, or animals that were brought by local people from other places (Cisneros-Heredia, 2006). The TENKA Forest is a lowland rainforest remnant whose surrounding land had been transformed and use for agriculture and livestock. Although a small community (Santa Rosa de Campeche) of 129 people lives nearby, the authors discarded the likelihood of human-mediated

introduction. Very few individuals travel through TENKA Forest, and access to the forest is limited due to the difficult terrain and the fact that the surrounding areas are privately owned by cattle ranchers, further reducing the probability of reintroduction. Additionally, this locality overlaps with the potential distribution range and ecosystem (Chocoan Tropical Forest) where this species naturally occurs. The absence of natural collections for this locality is probably due to the low herpetological field work performed in the Manabí province (Coloma and Duellman, 2024), linked to the lack of awareness about the existence of pristine forest fragments in the region. The report of *K. (C.) l. postinguinale* in the TENKA Forest demonstrates the importance of preserving this and other lowland rainforest remnants as they can sustain reptiles and amphibians (Wiedebusch et al., 2025) species and serve as a survival island for diversity in a province that has been mainly transformed into an agricultural matrix. We suggest that further herpetological work in this region is essential to help us find more individuals, assess the population status and implement better conservation strategies.

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