SALAMANDRA	45	3	186-190	Rheinbach, 20 August 2009	ISSN 0036-3375

Three new country records of reptiles from Nicaragua

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Abstract. We collected *Kinosternon angustipons*, *Cnemidophorus lemniscatus* and *Adelphicos quadrivirgatum* for the first time in Nicaragua. We include brief descriptions and ecological notes for the three new country records.

Key words. Reptilia, distribution, ecology, *Kinosternon angustipons*, *Cnemidophorus lemniscatus*, *Adelphicos quadrivirgatum*, Nicaragua.

Resumen. Colectamos *Kinosternon angustipons*, *Cnemidophorus lemniscatus* y *Adelphicos quadrivirgatum* por primera vez en Nicaragua. Incluimos breves descripciones y comentarios ecológicos para los tres nuevos registros.

In recent years, there have been several additions to the known herpetofauna of Nicaragua (Köhler et al. 2004, Köhler & Sunyer 2006, Sunyer & Köhler 2007), and more are expected as research continues in the country. Here we report the presence of one snake hitherto unknown from Nicaragua and the first voucher specimens for one lizard and one turtle species.

From 12 May to 8 June 2003, we visited the Cayos Miskitos Marine Reserve in the Northern Atlantic Autonomous Region (RAAN). This reserve is bordered in the north by Honduras and in the east by the Caribbean Sea and includes coastal mainland, offshore keys, and adjacent submarine platforms (MARENA-CBA et al. 2004). We surveyed several mainland coastal areas around the communities of Barra de Wawa, Karata, Layasiksa, Dakura, Bismuna, and Cabo Gracias a Dios. From 22–23 May 2003, we explored the beach at Barra de Cabo Viejo in an area containing relatively undisturbed mangrove forests. From 9–23 June 2007, we visited Bosawas Biosphere Reserve, an internationally recognised protected area bordered on its northern side by the Coco or Wangki River, which forms the boundary with Honduras. Covering approximately 14% of the national territory, Bosawas constitutes the largest single protected area in Nicaragua (SETAB-MARENA 2002). We conducted surveys at a number of sites in the core zone along the Lakus River, which demarcates the northern portion of the political boundary between the Department of Jinotega and the RAAN. From 18–21 June, we worked at a site called Kulum Kitang in an expansive stretch of pristine lowland broadleaf forest. This site is the starting point for a foot trail which leads out of the core zone to Musuwás, a Mayangna community to the southeast, and is only occasionally used by local Mayangna and Miskitu for transit and hunting. From 18–23 July 2007, we surveyed the Los Guatuzos Wildlife Refuge near the community of Papaturro. Located between the southern edge of Lake Nicaragua and Costa Rica, this refuge is the westernmost of seven protected areas that constitute the Biosphere Reserve of Southeastern Nicaragua (previously referred to as SI-A-PAZ). At night, we travelled in a motorboat along the Papaturro River, a short, slow river that drains into the southern part of Lake Nicaragua. This portion of Lake Nicaragua, the largest freshwater body in Central America, possesses a distinctive mixture of both Pacific and Atlantic versant herpetofaunal

species (JS pers. observ.). In Los Guatuzos, forests that are not seasonally flooded have been cleared for cattle ranching and agriculture, except for a few isolated patches. In contrast, seasonally flooded forests are generally less disturbed and rarely visited by people.

All three aforementioned localities are within the Lowland Moist Forest formation (Holdridge 1967), characterised by a high mean annual temperature (>24 °C) and high mean annual precipitation (2000–4000 mm) with marked wet and dry seasons. Specimens were deposited in the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt a.M., Germany (SMF) and the Museo de Ciencias Naturales de la Universidad Centroamericana, Managua, Nicaragua (UCA). We provide brief descriptions and ecological notes for the three new records.

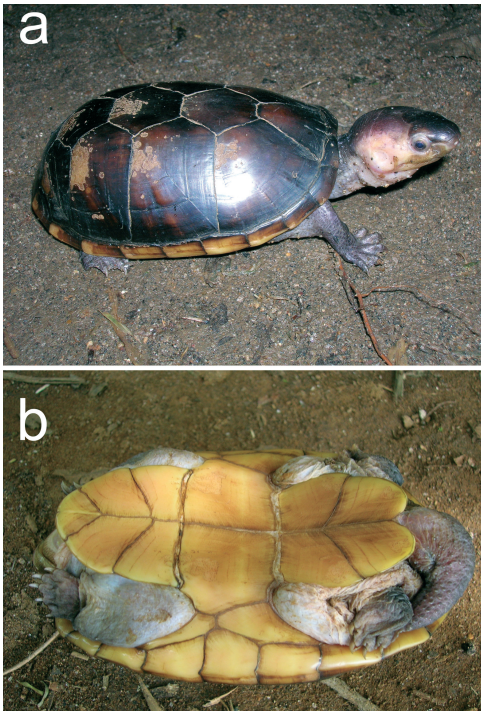

Fig. 1. Male *Kinosternon angustipons* from Los Guatuzos Wildlife Reserve, Río San Juan Department, Nicaragua (SMF 87168); (a) dorsal view; (b) ventral view. Photo: J. Sunyer.

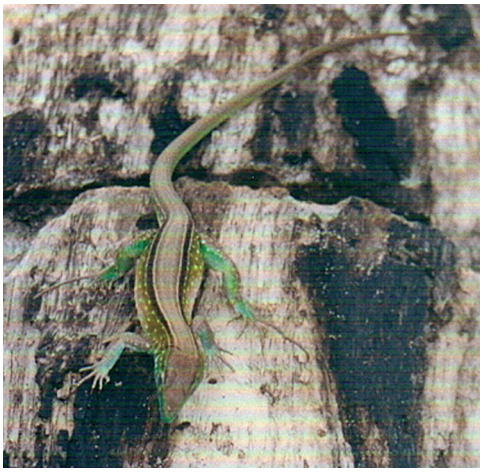

Fig. 2. Male *Cnemidophorus lemniscatus* from Cayos Miskitos Marine Reserve, Northern Atlantic Autonomous Region, Nicaragua (UCA 567). Photo: O. Arróliga.

Fig. 3. Male *Adelphicos quadrivirgatum* from Bosawas Biosphere Reserve, Jinotega Department, Nicaragua (SMF 87169). Photo: J. Sunyer.

Kinosternon angustipons Legler, 1965

On 22 July 2007, we collected a specimen of *Kinosternon angustipons* (SMF 87168) from the Papaturro River, near its confluence with the Sahíno River, approximately 0.5 km before the confluence of the Papaturro River and Lake Nicaragua, Río San Juan Department (11.0227° N, 85.0513° W, 40 m elevation). The area is surrounded by permanent freshwater marshes characterised by tall emergent grasses and a lack of trees. SMF 87168

was found at night in the middle of the Papaturro River while actively swimming on the surface, apparently alerted by our oncoming motorboat and flashlights. It ceased activity once it reached some emergent vegetation approximately 1.5 m from the shore. Despite the waves caused by our boat and the presence of lights directed at the turtle, it did not attempt to escape by diving or climbing onshore. Other turtle species that we collected or photographed in this stretch of the Papaturro River include *Chelydra serpentina*, *Trachemys venusta*, *Kinosternon leucostomum*, and *K. scorpioides*. SMF 87168 is an adult male (carapace length 100 mm) with the following characteristics: carapace smooth, unkeeled, notched posteriorly; plastron reduced, double-hinged, emarginated posteriorly, with eleven plastral shields; length of bridge 17.3% of carapace length; axillary and inguinal shields in contact, separating pectorals from any contact with marginals; upper margin of jaw smooth; three pairs of chin barbels; toes webbed; definite patches of opposable thigh and calf spines; tip of tail soft, extending well beyond margin of carapace. Colouration in life (Fig. 1): carapace dark brown; plastron golden yellow; head dark brown dorsally, tan to cream laterally and ventrally, without contrasting markings.

Legler (1965:623) described *Kinosternon angustipons* based on 14 specimens collected in Costa Rica and Panama and stated that the geographic range for this species is "approximately from the delta of the Río San Juan (the boundary between Nicaragua and Costa Rica) to Almirante, Bocas del Toro, Panama." He subsequently described the range as extending "from the mouth of the San Juan River in Nicaragua to the region of Almirante, Bocas del Toro, Panama" (Legler 1966:118), despite the absence of confirmed records from Nicaraguan territory. Since then, *K. angustipons* has consistently been recognised as part of the Nicaraguan herpetofauna (Iverson 1980, 1986, 1992, Villa 1983, Villa et al. 1988, Köhler 2001, 2003, Ruiz & Buitrago 2003). Ruiz & Buitrago (2003:191) also made a personal report of the existence of this species at "Panaloya, north of the Cocibolca Lake" (= Lake Nicaragua). However, the presence of this species in Nicaragua has not been previously supported by a voucher specimen. Therefore, SMF 87168 constitutes the first definitive specimen of *K. angustipons* collected in Nicaraguan territory, and represents the northwestern-most record of this species, with a range extension of approximately 130 km NE from the nearest locality in Costa Rica (Savage 2002).

Cnemidophorus lemniscatus (Linnaeus, 1758)

On 22 May 2003, we collected two specimens of this species at the Playa de Barra de Cabo Viejo (14.9222° N, 83.2653° W, 3 m elevation), 1.5 km SE of La Aduana, RAAN. Both specimens (UCA 566–67) were encountered as active during the day while basking at ground level in the transitional area between sandy beach and mangrove forest, where a mixture of mangrove forest, sporadic low grass, and coastal debris were present. Although we collected only two specimens, approximately a dozen other *C. lemniscatus* were seen in the area. UCA 567, an adult male (snout-vent length 63 mm), has the following characteristics: tail length 130 mm; 4 supraoculars; 4 parietals; 7 supralabials; 7 infralabials; central gular scales not greatly enlarged; ventral scales large, in 8 transverse rows; enlarged scales on the dorsolateral surfaces of the upper arms; right hemipenis partially everted. Colouration in life (Fig. 2): 4 longitudinal dark stripes on brown background on body; several yellow dots on lateral surfaces of body; green colouration on chin and anterior part of arms and legs. UCA 566, a juvenile (snout-vent length 32 mm), has the following characteristics: tail length 80 mm; 4 supraoculars; 4 parietals; 7 supralabials; 7 infralabials; central gular scales not greatly enlarged; ventral scales large, in 8 transverse rows; enlarged scales on the dorsolateral surfaces of the upper arms; 6 longitudinal dark stripes along body.

Cnemidophorus lemniscatus was known to occur both north and south of Nicaragua (Köhler 2003), and it was expected to be found along the Atlantic coast of Nicaragua (Savage 2002:517). As with *Kinosternon angustipons*, *C. lemniscatus* has been included in various checklists of Nicaraguan herpetofauna (Villa 1983, Villa et al. 1988, Ruiz 1996, Ruiz & Buitrago 2003) but the presence of this species has not been supported by voucher specimens (Köhler 2001, 2003). UCA 566–67 constitute the first definitive specimens of *C. lemniscatus* collected in Nicaragua, and represent a range extension of approximately 55 km SE from the nearest locality in Honduras and approximately 730 km NW from the nearest locality in Panama (Köhler 2003, McCranie et al. 2006).

Adelphicos quadrivirgatum Jan, 1862

On 21 June 2007, we collected a specimen of this semifossorial snake (SMF 87169) at Kulum Kitang (14.3292° N, 84.9375° W, 180 m elevation), Jinotega Department. The snake was encountered at daytime underneath a rotten log (approximately 30 cm in diameter) in primary rain forest. Inside a larger log adjacent to the one containing the *Adelphicos quadrivirgatum*, we also found an adult specimen of the caecilian *Gymnopis multiplicata*. SMF 87169 is a subadult male (snout-vent length 215 mm) with the following characteristics: tail length 56 mm; single elongate loreal scale between postnasal and eye; 7 supralabials, third and fourth bordering the eye; 7 infralabials, first pair of infralabials in contact posterior to mental, second and third infralabials greatly reduced; anterior pair of chin shields greatly enlarged; dorsal scales in 15 rows throughout the body, smooth; 128 ventrals; 46 subcaudals; cloacal scute divided; hemipenes partially everted, small, unilobate, with spines on apex and folds on surface of truncus. Colouration in life (Fig. 3): a broad brown middorsal stripe and four dark brown longitudinal stripes on pale brown background on body; head brown to dark brown; supralabials and chin pale yellow; ventrals pale yellow with occasional dark pigment on the exterior margins (almost exclusively near cloaca); paired subcaudals pale yellow with dark pigment on both inner and outer margins, so that a midventral dark brown stripe is present in the subcaudal region.

SMF 87169 constitutes the first country record of *Adelphicos quadrivirgatum* for Nicaragua. It represents a range extension of approximately 40 km S from the nearest locality in Honduras and is the southernmost record for this genus (McCranie et al. 2006).

Acknowledgements

We thank B. Q. Guatemala, I. O. Gasteazoro, M. G. Camacho, L. Díaz, R. Salvador, A. Choza, C. R. Mejía, E. Duarte and A. Lorío, Ministerio del Ambiente y los Recursos Naturales (MARENA), Managua, Nicaragua, for collecting and exportation permits. Special thanks to A. Gómez, I. Garbayo, A. Medina, O. Arróliga, R. Aguilar, R. Picado, F. López, S. Charly, J. Lewis, and I. Carmona who actively assisted in the field. N. Torres (FUNDAR) and G. Rodríguez (Amigos de la Tierra) provided all logistics in Los Guatuzos. MARENA/CBA provided all logistical and financial support in Cayos Miskitos. Research in Bosawas was supported by the Association of Zoos and Aquariums' Conservation Endowment Fund and the Saint Louis Zoo's Field Research for Conservation Program. The indigenous association KUNASPAWA provided logistical support in Bosawas. JHT was supported by an NSF GK-12 Fellowship from the University of Florida SPICE Program. JS was supported by the DAAD (Deutscher Akademischer Austauschdienst). We are grateful to J. B. Iverson for some background information and J. R. McCranie for helpful suggestions to improve the manuscript.

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Manuscript received: 17 July 2008

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