

New and noteworthy records of amphibians and reptiles from Nicaragua

GUNTHER KÖHLER, ARDIEL Z. QUINTANA, FABIO BUITRAGO & HELMUT DIETHERT

Abstract

The following species of amphibians and reptiles are reported for the first time in Nicaragua: *Bufo melanochlorus*, *Cochranella albomaculata*, and *Anomalepis mexicanus*. For several poorly documented species, additional localities in Nicaragua are reported, including *Agalychnis calcarifer*, *Colostethus talamancae*, *Nototriton saslaya*, *Oedipina pseudouniformis*, *Diploglossus bilobatus*, *Enuliophis sclateri*, *Nothopsis rugosus*, and *Tantillita lintoni*.

Key words: Amphibia; Reptilia; Nicaragua; first country records: *Bufo melanochlorus*, *Cochranella albomaculata*, *Anomalepis mexicanus*; noteworthy locality records: *Agalychnis calcarifer*, *Colostethus talamancae*, *Nototriton saslaya*, *Oedipina pseudouniformis*, *Diploglossus bilobatus*, *Enuliophis sclateri*, *Nothopsis rugosus*, *Tantillita lintoni*.

1 Introduction

KÖHLER (1999a, 2001) provided summaries of the known herpetofauna of Nicaragua and stated that this Central American country is still poorly investigated. He expected that additional collecting, especially in previously inaccessible areas, and detailed studies of the herpetofauna of Nicaragua will result in the discovery of new species and new country records. Recent field work in Nicaragua by the first three authors of this paper has produced several noteworthy records of amphibians and reptiles including first country records for two species.

2 Materials and Methods

The specimens on which this study is based were collected during field work in Nicaragua: May 2002 in the Reserva Indio-Maíz (F.B.); July/August 2002 at Cerro El Toro (G.K. and A.Z.Q.); and July – October 2003 at Cerro Saslaya (A.Z.Q.). All these study sites are located on the Caribbean versant of Nicaragua and are mostly within lowland tropical rainforest, except for the higher regions of Cerros Saslaya and El Toro which are in cloud forest. Specimens were deposited in the collections of the Forschungsinstitut und Naturmuseum Senckenberg (SMF), Frankfurt a.M., Germany, and in the Museo de Ciencias Naturales de la Universidad Centroamericana (UCA), Managua, Nicaragua.

3 Results

Amphibians

Nototriton saslaya KÖHLER, 2002

In 2002, KÖHLER described *Nototriton saslaya* from Cerro Saslaya which previously represented the only known locality for this species. On 3 August 2002 G.K. and A.Z.Q. collected two specimens (SMF 82226 and one specimen deposited at the UCA) of this species on Cerro El Toro, about 1500 m elevation, Parque Nacional Saslaya, Dpto. Atlántico Norte. The habitat at this locality is virtually identical to that at the type locality on Cerro Saslaya and consists of cloud forest (Lower Montane Wet Forest formation of HOLDRIDGE 1967) with thick layers of moss covering most of the trees and

ground. The two specimens were collected during daytime in moss masses on branches about 1.5 m above the ground. The Cerro El Toro locality is about 6 km air distance SW of the type locality. Despite this proximity, the two *Nototriton* populations obviously have no contact, because the area between the two peaks is too low (mostly between 800 and 1000 m elevation) for the occurrence of this species. A direct comparison of SMF 82226 with the type series of *N. saslaya* revealed no morphological differences and we therefore consider the *Nototriton* from El Toro to be the same species as the one from Cerro Saslaya.

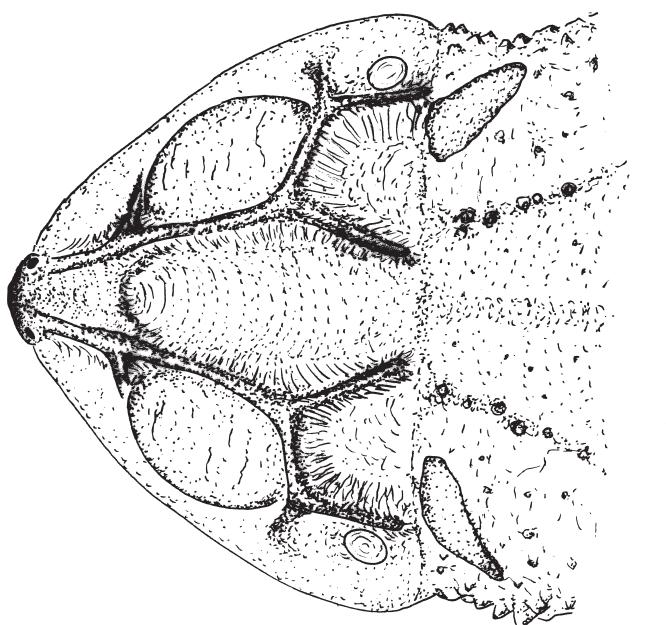


Fig. 1. *Bufo melanochlorus* (SMF 81836), dorsal view of head / Kopf-oberseite. Bar / Maßstab = 10 mm.
Drawing: MILAN VESELY.

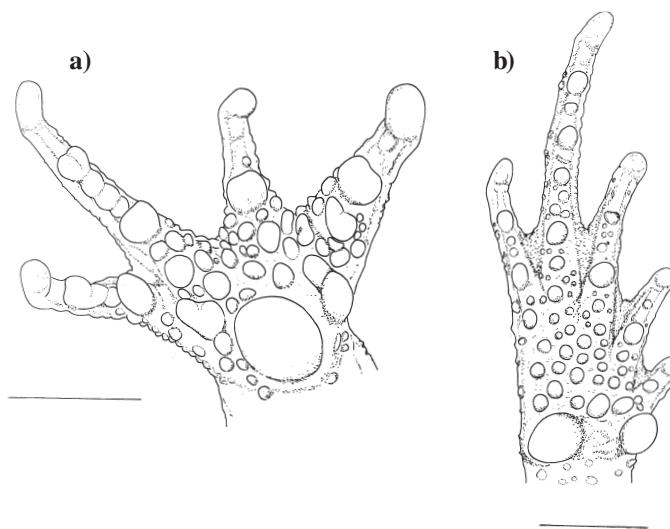


Fig. 2. *Bufo melanochlorus* (SMF 81836), ventral view of a) right hand; b) right foot / Unterseite von a) rechter Hand; b) rechtem Fuß. Bar / Maßstab = 10 mm.
Drawing: MILAN VESELY.

Fig. 3. *Cochranella albomaculata* (from series / aus Serie SMF 82879-81, 82883-84) from / vom Cerro Saslaya, Nicaragua. Photo: MAX DEHLING.

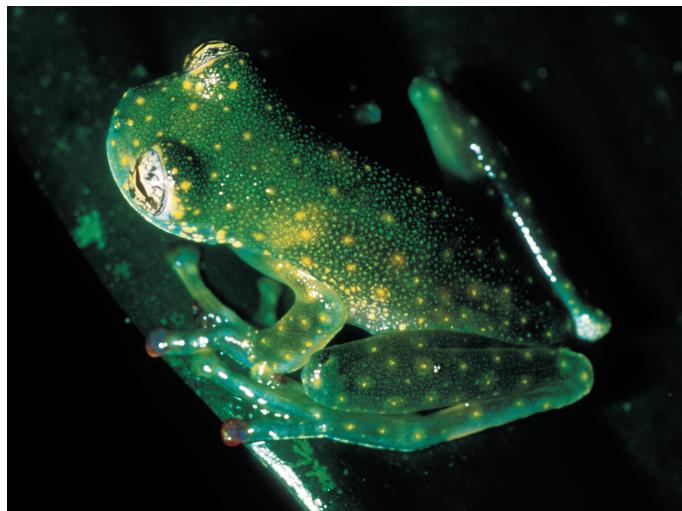
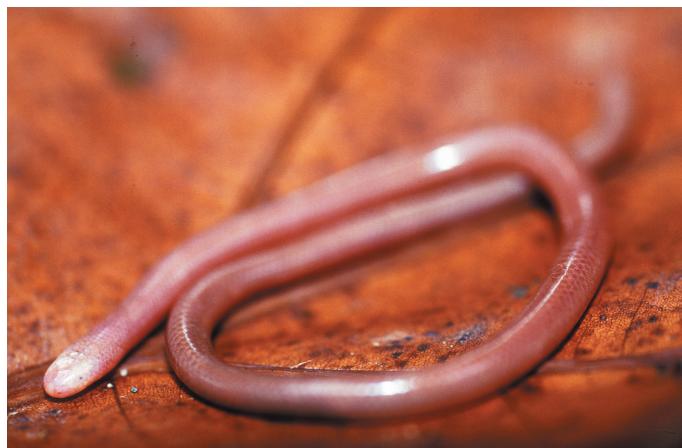


Fig. 4. *Colostethus talamancae* (from series / aus Serie UCA 467-69) at / in der Reserva Indio-Maíz, Nicaragua. Photo: FABIO BUITRAGO.



Fig. 5. *Anomalepis mexicanus* (SMF 82845) from the edge of / vom Randgebiet des Parque Nacional Saslaya, Nicaragua. Photo: ARDIEL ZEBENSUI QUINTANA.



Oedipina pseudouniformis BRAME, 1968

In Nicaragua, *Oedipina pseudouniformis* was previously known from a single locality (i. e., Hacienda La Cumplida, 1.5 km N Matagalpa, 731 m elevation; BRAME 1968, KÖHLER 1999a, 2001). On 10 August 2002, A.Z.Q. collected an adult specimen of this species (SMF 82225; SVL 48.0 mm, tail length 117.0 mm) on the south slope of Cerro Saslaya (along the trail from Campamento “Las Pavas” [13°44.5’N, 85°01.5’W] to Campamento “Los Monos” [13°45.1’N, 85°02.2’W], 945 m elevation, Parque Nacional Saslaya, Dpto. Atlántico Norte. An additional juvenile specimen (SMF 82874; SVL 29.4 mm, tail incomplete) was collected by him on 4 October 2003 in the same general area (along the trail from Campamento “El Carao” [13°42.8’N, 84°58.7’W] to Campamento “Las Pavas” [13°44.5’N, 85°01.5’W]), between 400 and 600 m elevation. The species identification of SMF 82225 is based upon the following characteristics: snout broadly rounded; dorsal surfaces of head, body and tail uniformly dark grey; ventral surfaces of head, body and tail uniformly grey with fine pale grey punctuations; limbs brown with pale brown mottling; a SVL/head width ratio of 9.42; a SVL/hind limbs length ratio of 7.60; a SVL/hind foot width ratio of 30.63; and 17 costal grooves. Because of its small size, the species identification of SMF 82874 is only tentative.

Agalychnis calcarifer BOULENGER, 1912

In Nicaragua, *Agalychnis calcarifer* was known only from a single locality close to the border to Costa Rica (i. e., adjacent to Río San Juan, about 15 km down river from the village of El Castillo; CALDWELL 1994, KÖHLER 2001). On 12 May 2002, F.B. collected an adult female of this species (UCA 479) in the Reserva Indio-Maíz at “Campamento 3” near Caño Blanco, 10°58’21.1”N, 84°06’59.8”W. The new record is about 35 km air distance ENE of the Río San Juan locality.

Bufo melanochlorus COPE, 1877

On 15 May 2002, F.B. collected a large toad (SMF 81836; Figs. 1 and 2) in the Reserva Indio-Maíz at “Campamento 4”, 10°58’24.5”N, 84°04’52.2”W. SMF 81836 is an adult female (SVL 110.4 mm) that agrees in most features with *Bufo melanochlorus*, a species previously only known from Costa Rica (SAVAGE 2002). Although SMF 81836 is somewhat larger than the largest known Costa Rican specimen of this species (103 mm; GREDING 1972, SAVAGE 2002) and it differs slightly in some morphometric ratios (most likely because of its very large size), we think that it represents the first Nicaraguan record for *B. melanochlorus*. The Nicaraguan locality is about 70 km air distance NW of the closest Costa Rican locality (Tortuguero; SAVAGE 2002).

Cochranella albomaculata (TAYLOR, 1949)

Cochranella albomaculata was previously known from north and south of Nicaragua (KÖHLER 1999a, 2001, McCARNIE & WILSON 2002, SAVAGE 2002). On 10 August 2003, A.Z.Q. collected a series of this species (SMF 82879-81, 82883-84; Fig. 3) at night at a small stream near Campamento “El Carao” (about 13°42.8’N, 84°58.7’W, about 400 m elevation), Parque Nacional Saslaya, Dpto. Atlántico Norte. This represents the first Nicaraguan record of this species.

Colostethus talamancae (COPE, 1875)

In Nicaragua, *Colostethus talamancae* was known only from a single locality close to the border to Costa Rica (i. e., adjacent to Río San Juan, about 15 km down river from the village of El Castillo; CALDWELL 1996, KÖHLER 2001). On 13 May 2002, F.B. collected a small series of this species (UCA 467-69; Fig. 4) in the Reserva Indio-Maíz at “Campamento 3” near Caño Blanco, 10°58'21.1"N, 84°06'59.8"W. The new record is about 35 km air distance ENE of the Río San Juan locality.

Reptiles

Anomalepis mexicanus JAN, 1861

Anomalepis mexicanus has been included in various checklists for Nicaragua (VILLA 1983, VILLA et al. 1988). However, the presence of this species in Nicaragua has not been supported by any specimens (SAVAGE 2002). On 19 July 2003, A.Z.Q. collected a specimen of this species (SMF 82845; Figs. 5 and 6) at the edge of Parque Nacional Saslaya, about 400 m elevation, Dpto. Atlántico Norte. The snake was under a small rotten log within primary forest in a hilly area. Underneath the log it was damp but not wet. A specimen of this species (ZFMK 57773) secured by M. FRANZEN in old secondary forest in Costa Rica (at Quebrada Zompota, south of Estacion Biologica Maritza, Guanacaste National Park, 600 m elevation) was found in a very wet environment close to a stream underneath a piece of wood (M. FRANZEN pers. comm.). SMF 82845 is an adult with 144 mm total length, 266 dorsal scales between rostral and tail spine, and 23 scales around midbody. This represents the first definite Nicaraguan record of this species.

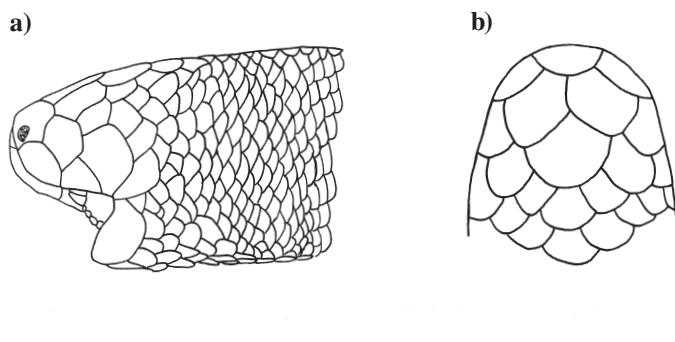


Fig. 6. *Anomalepis mexicanus* (SMF 82845), a) lateral view of head; b) dorsal view of head / a) seitlicher Kopf; b) Kopfoberseite. Bar / Maßstab = 10 mm.
Drawing: PHILIPP GROß .

Diploglossus bilobatus (O'SHAUGHNESSY, 1847)

KÖHLER (2001) reported *Diploglossus bilobatus* for the first time in Nicaragua, based on a specimen from Río San Juan at Isla de Diamante (= about 15 km down river from the village of El Castillo; see CALDWELL 1994). On 7 August 2003, A.Z.Q. collected a juvenile of this species (SMF 82895; Fig. 7) along the trail from Campamento ‘El

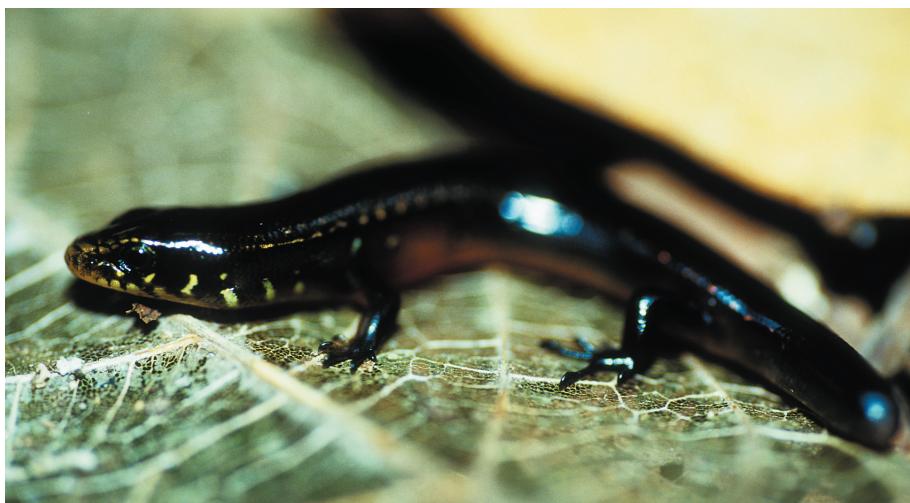


Fig. 7. *Diploglossus bilobatus* (SMF 82895) from / vom Parque Nacional Saslaya, Nicaragua.
Photo: ARDIEL ZEBENSUI QUINTANA.



Fig. 8. *Enuliophis sclateri* (SMF 82866) from the buffer zone of / aus der Pufferzone des Parque Nacional Saslaya, Nicaragua. Photo: ARDIEL ZEBENSUI QUINTANA.



Fig. 9. *Nothopsis rugosus* (from series / aus Serie SMF 82869-71) from / vom Parque Nacional Saslaya, Nicaragua. Photo: ARDIEL ZEBENSUI QUINTANA.



Fig. 10. *Tantillita lintoni* (SMF 82865) from the edge of / vom Randgebiet des Parque Nacional Saslaya, Nicaragua. Photo: ARDIEL ZEBENSUI QUINTANA.

Carao” [13°42.8’N, 84°58.7’W]) to Campamento “Las Pavas” [13°44.5’N, 85°01.5’W]), about 400 m elevation. This new record extends the known distribution of *D. bilobatus* about 310 km air distance NNW from the Río San Juan locality.

Enuliophis sclateri (BOULENGER, 1894)

The presence of *Enuliophis sclateri* in Nicaragua is poorly documented. Two specimens have been reported, one without specific locality data other than “Nicaragua”, the second one from “Matagalpa”. On 21 July, A.Z.Q. secured a specimen of *E. sclateri* (SMF 82866; Fig. 8) from “Rancho Alegre”, about 200 m elevation, buffer zone of Parque Nacional Saslaya, Dpto. Atlántico Norte. The specimen is a juvenile with the following features: SVL 125 mm; tail length 75 mm; ratio tail length/SVL 0.600; 146 ventrals; 102 subcaudals; no preocular; 1 loreal; 2 postoculars; 1-2 temporals; 7 supralabials (3rd and 4th in contact with eye); 7 infralabials; dorsal scales smooth, in 15 rows throughout; anal plate divided.

Nothopsis rugosus COPE, 1871

KÖHLER & SCHMIDT (2001) recorded the second known Nicaraguan specimen of *Nothopsis rugosus* (SMF 79406) from near Campamento “Los Monos” (13°45.1’N, 85°02.2’W, 820 m elevation, S slope of Cerro Saslaya, Parque Nacional Saslaya, Dpto. Atlántico Norte). On 7 August 2003 and 4 October 2003, A.Z.Q. collected three additional specimens of this species (SMF 82869-71; Fig. 9) from the same general area (Campamento “Las Pavas”, 13°44.5’N, 85°01.5’W, 780 m elevation). Variation in scalation features in SMF 82869-71 is as follows: ratio tail length/SVL 0.434-0.459; ventrals 151-156; subcaudals 91-96; 11-13 supralabials (none in contact with eye); 13-15 infralabials; dorsal scales keeled, in 26-27 rows at midbody and in 22-24 rows one head length anterior to cloaca; anal plate entire.

Tantillita lintoni (SMITH, 1940)

KÖHLER (1999b) recorded a specimen of *Tantillita lintoni* (SMF 78606) from about 3 km SO Ayapal at Río Curiwas, Dpto. Jinotega, thereby reporting this species for the first time in Nicaragua. We have collected two additional specimens of this species from different localities. On 31 July 2002, G.K. found an adult specimen (SMF 82162; SVL 148 mm, tail length 48 mm) under a fallen log at Estación Biológica Salto Labú, 13°39'51.0"N, 85°0'55.5"W, 250 m elevation. On 10 August 2003, A.Z.Q. secured a subadult specimen (SMF 82865; SVL 64 mm, tail length 20 mm; Fig. 10) at the edge of Parque Nacional Saslaya, Municipio El Carao, Dpto. Atlántico Norte. Variation in scalation features in the three known Nicaraguan specimens of this species is as follows: ratio tail length/SVL 0.313-0.324; ventrals 104-113; subcaudals 42-46; 1 preocular, 1 loreal, 1-2 postoculars, 1 anterior and 1 posterior temporals, 7 supralabials (3rd and 4th in contact with eye); 5-7 infralabials; dorsal scales smooth, in 15 rows throughout; anal plate divided.

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Erstnachweise und bemerkenswerte Funde von Amphibien und Reptilien in Nicaragua

Es werden bemerkenswerte neue Funde von Amphibien und Reptilien aus Nicaragua mitgeteilt. Ein adultes Weibchen von *Agalychnis calcarifer* wurde in der Reserva Indio-Maíz gesammelt, was den zweiten Fund dieser Art in Nicaragua darstellt. Ebenfalls in der Reserva Indio-Maíz wurde eine große Kröte (Kopf-Rumpflänge 110,4 mm) gefunden, die als *Bufo melanochlorus* bestimmt wurde, aber etwas größer als die bisher dokumentierte Kopf-Rumpflänge ist und sich auch in mehreren morphometrischen Merkmalen geringfügig von den Vergleichstieren aus Costa Rica unterscheidet. Dennoch besteht an der Artzugehörigkeit kaum Zweifel und die Art wird somit erstmals in Nicaragua nachgewiesen. Ebenfalls erstmalig in Nicaragua wird *Cochranella albomaculata* nachgewiesen. Dieser Glasfrosch wurde am Cerro Saslaya im Norden des Landes gefunden. Von *Colostethus talamancae*, einer Art, die in Nicaragua bislang nur aus dem äußersten Süden bekannt war, wurden Exemplare weiter im Landesinnern (Reserva Indio-Maíz) gefunden. Von den Salamanderarten *Nototriton saslaya* und *Oedipina pseudouniformis* wurde jeweils ein zweiter Fundort dokumentiert, beide im Norden des Landes (Cerro El Toro bzw. Cerro Saslaya, beide im Nationalpark Saslaya). Die Schleiche *Diploglossus bilobatus*, die vormals nur aus dem äußersten Süden bekannt war, wurde ebenfalls am Cerro Saslaya nachgewiesen. Auch die in Nicaragua bislang kaum dokumentierten Schlangenarten *Enuliophis sclateri*, *Nothopsis rugosus* und *Tantillita lintoni* wurden am Cerro Saslaya gefunden.

Schlagwörter: Amphibia; Reptilia; Nicaragua; Landeserstnachweise: *Bufo melanochlorus*, *Cochranella albomaculata*, *Anomalepis mexicanus*; bemerkenswerte Funde: *Agalychnis calcarifer*, *Colostethus talamancae*, *Nototriton saslaya*, *Oedipina pseudouniformis*, *Diploglossus bilobatus*, *Enuliophis sclateri*, *Nothopsis rugosus*, *Tantillita lintoni*.

Resumen

Se informa de nuevos y notables reportes de anfibios y reptiles de Nicaragua. Una hembra adulta de *Agalychnis calcarifer* fue colectada en la Reserva Indio-Maíz, tratándose del segundo ejemplar de esta especie conocido para Nicaragua. También en la Reserva Indio-Maíz se encontró un gran sapo (longitud hocico-cloaca 110,4 mm), que se ha identificado como *Bufo melanochlorus*, pero que presenta una longitud hocico-cloaca algo mayor que la documentada y que se diferencia ligeramente en varias características morfométricas de los ejemplares de referencia de Costa Rica. No obstante no queda duda de su pertenencia a la especie, por lo que queda documentada por primera vez su presencia para Nicaragua. De igual modo se reporta por primera vez a *Cochranella albomaculata* para Nicaragua. Esta rana de cristal se encontró en el Cerro Saslaya, en el norte del país. De *Colostethus talamancae*, una especie que en Nicaragua era únicamente conocida del extremo sur del país, se encontraron ejemplares más al interior (Reserva Indio-Maíz). De las especies de salamandra *Nototriton saslaya* y *Oedipina pseudouniformis* se documentó una segunda localidad para cada especie, ambas en el norte del país (Cerro El Toro, así como Cerro Saslaya, ambas en el Parque Nacional Saslaya). El ánguido *Diploglossus bilobatus*, que anteriormente sólo se conocía del extremo sur del país, fue registrado también para el Cerro Saslaya. Así mismo, las serpientes *Enuliophis sclateri*, *Nothopsis rugosus* y *Tantillita lintoni*, apenas documentadas para Nicaragua, fueron encontradas en el Cerro Saslaya.

References

- BRAME, A.H. (1968): Systematics and evolution of the Mesoamerican salamander genus *Oedipina*. – J. Herpetol., Athens, **2**: 1-64.
- CALDWELL, J.P. (1994): Natural history and survival of eggs and early larval stages of *Agalychnis calcarifer* (Anura: Hylidae). – Herpet. Nat. Hist., Riverside, **2**(2): 57-66.
- (1996): The evolution of myrmecophagy and its correlates in poison frogs (family Dendrobatidae). – J. Zool., London, **240**: 75-101.
- GREDING, E.J. (1972): An unusually large toad (Anura: Bufonidae) from the lower southeastern slope of Volcán Turrialba, with a key to the *Bufo* of Costa Rica. – Carib. J. Sci. **12**(1-2): 91-94.

- HOLDRIDGE, L.R. (1967): Life zone ecology. Revised edition. – San José, Costa Rica (Trop. Sci. Center), 206 pp.
- KÖHLER, G. (1999a): The amphibians and reptiles of Nicaragua: A distributional checklist with keys. – Courier Forschungsinstitut Senckenberg, Frankfurt a. M., **213**: 1-121.
- (1999b): Geographic distribution. *Tantillita lintoni*. – Herp. Review, **30**(1): 55.
- (2001): Anfibios y reptiles de Nicaragua. – Offenbach (Herpeton), 208 pp.
- (2002): A new species of salamander of the genus *Nototriton* from Nicaragua (Amphibia: Caudata: Plethodontidae). – Herpetologica, Emporia, **58**(2): 205-210.
- (2003): Reptiles of Central America. – Offenbach (Herpeton), 367 pp.
- & F. Schmidt (2001): Zweiter Nachweis von *Nothopsis rugosus* COPE, 1871 aus Nicaragua. – Salamandra, Rheinbach, **37**(1): 61-64.
- MCCRANIE, J.R. & L.D. WILSON (2002): The amphibians of Honduras. – Ithaca (Society for the Study of Amphibians and Reptiles), 625 pp.
- SAVAGE, J.M. (2002): The amphibians and reptiles of Costa Rica. A herpetofauna between two continents, between two seas. – Chicago and London (Univ. Chicago Press), 934 pp.
- VILLA, J.D. (1983): Nicaraguan fishes, amphibians and reptiles: checklist and bibliography. – Managua (Univ. Centroamericana), 53 pp.
- VILLA, J., L.D. WILSON & JOHNSON, J.D. (1988): Middle American herpetology. – Columbia (Univ. Missouri Press), 131 pp.

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Authors: GUNTHER KÖHLER, ARDIEL ZEBENSUI QUINTANA, and HELMUT DIETHERT, Forschungsinstitut und Naturmuseum Senckenberg, Senckenbergsanlage 25, D-60325 Frankfurt a.M., Germany; FABIO BUITRAGO, Fundación Amigos del Río San Juan (FUNDAR), Managua, Nicaragua.