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New country and departmental records of herpetofauna in Nicaragua

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Abstract. *Cochranella spinosa* and *Mesaspis moreletii* are reported for the first time in Nicaragua. Additional localities in Nicaragua are reported for several poorly documented species, including *Rhinophrynus dorsalis*, *Scinax boulengeri*, *Mesoscincus managuae*, *Norops carpenteri*, *Norops tropidonotus*, *Rhadinaea kinkelini* and *Tantilla taeniata*. Brief ecological field notes are included.

Key words. Amphibia, Reptilia, Nicaragua, first records, distribution, ecology.

Resumen. Se informa de nuevos y notables reportes de anfibios y reptiles de Nicaragua. Se colecta por primera vez a *Cochranella spinosa* (Reserva Indio-Maíz) y a *Mesaspis moreletii* (Reserva Natural Kilambé), ampliando su rango de distribución altitudinal de este último a partir de los 1300 m elevación. Se amplía el rango de distribución norte en casi 100 km de *Norops carpenteri* (Parque Nacional Saslaya). Se documentan nuevas localidades en el Pacífico para *Rhinophrynus dorsalis* y *Mesoscincus managuae* (Reserva Natural Monte Galán-Las Playitas) y en el noreste del país para *Scinax boulengeri* (Rancho Alegre, área de amortiguamiento de la Reserva de la Biosfera BOSAWAS). Se documentan nuevas localidades para *Norops tropidonotus* y *Tantilla taeniata* (Reserva Natural Kilambé) y *Rhadinaea kinkelini* (Reserva Natural Miraflor) que tienen su límite de distribución sur en las montañas del norte de Nicaragua. Se incluyen breves anotaciones ecológicas.

KÖHLER (2001) and KÖHLER et al. (2004) listed all known herpetofauna of Nicaragua and stated that many more country records and new species are expected with additional collecting. Recent fieldwork in Nicaragua has produced several noteworthy records of amphibians and reptiles including the first country records for two species. Brief ecological field notes are included. Morphometric data are provided for both new country records.

The specimens on which this study is based were collected during fieldwork in Nicaragua: 7 July-18 August 1998 (GK) at the Reserva Natural Kilambé, Dpto. Jinotega; 14-18 June 2000, 25 April-9 May 2001, 23 September-1 October (GK) and 18 April-3 May 2004 (GP and MD) at the Reserva de la Biosfera Indio-Maíz, Dpto. Río San Juan; 25-29 July 2004 (GK) at the Parque Nacional Saslaya, Dpto. Atlántico Norte; 3-7 June 2005 (JS) at the Reserva Natural Miraflor, Dpto. Estelí; 10-14 June 2005 (JS) at Rancho Ale-

gre, buffer area of the Reserva de la Biosfera BOSAWAS, Dpto. Atlántico Norte; 28 June-2 July 2005 (JS) at the Reserva Natural Monte Galán-Las Playitas, Dpto. León.

Description of tropical forest formations at the collecting sites: Reserva Natural Monte Galán-Las Playitas corresponds to the Lowland Dry Forest formation (HOLDRIDGE 1967). Rancho Alegre, in the lowlands of the Parque Nacional Saslaya and the Reserva de la Biosfera Indio-Maíz, corresponds to the Lowland Moist Forest formation. Reserva Natural Miraflor corresponds to the Premontane Moist Forest formation and Reserva Natural Kilambé corresponds to both the Premontane Wet Forest and lower portions of the Lower Montane Wet Forest formations.

Abbreviations used for morphological characters are: (1) Morphometrics: SVL (snout-vent length); TL (tail length); HL (head length, from anterior margin of ear opening to tip of snout); HW (head width,

distance between oral ricti); AGD (axilla-groin distance); SHL (shank length); FL (foot length); TYP (tympanum length); EYL (eye length); NED (posterior part of nostril to anterior part of eye distance); IOD (interorbital distance); IND (internasal distance). (2) Proportions: range followed by mean value and standard deviation in parentheses. (3) Pholidosis: scale number followed by percentage of occurrence in parentheses. Abbreviations used for collectors are DM (DARWIN MANZANARES), GK (GUNTHER KÖHLER), GP (GUILLERMO PAIZ), JS (JAVIER SUNYER), LO (LENIN OBANDO), MD (MATTHIAS DEHLING), and NT (NORVING TORRES). Specimens labelled with SMF numbers are deposited in the collections of the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt a.M., Germany. Specimens labelled with GP, JS and MD field numbers will be deposited in the Museo de Ciencias Naturales de la Universidad Centroamericana (UCA), Managua, Nicaragua.

Amphibians

Cochranella spinosa (TAYLOR, 1949)

Cochranella spinosa was previously known only from north and south of Nicaragua (McCRANIE & WILSON 2002, SAVAGE 2002). On 14 June 2000, GK collected three adult males (SMF 79753-55) at Boca de San Carlos (10°47'26"N, 84°11'70"W), 20 m elevation. On 15 June 2000, GK collected an amplexant pair (SMF 79756-57) and an adult male (SMF 79758) at Río Sarnoso, ca. 1 km above its confluence with Río San Juan (10°55'35"N, 84°17'40"W), 25 m elevation. On 1 May 2001, GK collected a juvenile (SMF 80997) and on 23 September 2001 two adult males (SMF 82087-88) at Bartola, Quebrada El Gaitán, near "Orange Trail 38" (10°58'37"N, 84°20'35"W), 30 m elevation. On 1 October 2001, GK collected two adult males (SMF 82089-90) at Bartola, along a stream near "Blue 10" (10°58'37"N, 84°20'35"W), 30 m elevation. On 18 April 2004, MD collected



Fig. 1. *Rhinophrynus dorsalis* (from series SMF 84869-70, JS 101, JS 254) collected at the Reserva Natural Monte Galán-Las Playitas, Dpto. León, Nicaragua. Photograph by JAVIER SUNYER.



Fig. 2. *Scinax boulengeri* (from series SMF 84833-34, JS 061) collected at Rancho Alegre, Dpto. Atlántico Norte, Nicaragua. Photograph by JAVIER SUNYER.

an adult female (MD 19) at Lomas de Tambor (10°47'00"N, 83°59'16"W). Between 28 April and 2 May 2004, GP and NT collected three adult males (SMF 83367-68 and GP 165) at Cerro El Bolívar, near Río Machado (10°52'02"N, 84°10'10"W). All fifteen specimens were collected during night surveys at the Reserva de la Biosfera Indio-Maíz, Dpto. Río San Juan. Morphometrics of our materi-

al: maximum SVL males 21.3 mm; maximum SVL females 21.6 mm; SHL/SVL 0.56-0.63 (0.60 ± 0.02); FL/SVL 0.40-0.44 (0.41 ± 0.01); HW/SVL 0.33-0.37 (0.35 ± 0.01); HL/SVL 0.28-0.36 (0.34 ± 0.02); TYP/EYL 0.13-0.21 (0.17 ± 0.02); NED/HL 0.18-0.25 (0.20 ± 0.02); IOD/HW 0.27-0.38 (0.37 ± 0.03); IND/HW 0.16-0.22 (0.19 ± 0.02); modal webbing formula of hand (webbing between fingers I and II is vestigial): II 2⁻-3⁺ III 2⁻-1^{3/4} IV; modal webbing formula of feet: I 1-2 II 1-2⁺ III 1-2⁺ IV 2-1 V.

Rhinophrynus dorsalis DUMÉRIL & BIBRON, 1841

Rhinophrynus dorsalis was previously known from pine savannas on the Atlantic versant of Nicaragua from Dpto. Atlántico Norte (DUELLMAN 1971) and recorded from dry forest on the Pacific versant based on a photograph of an individual from León Viejo, Dpto. León (VILLA 1984). Between 30 June and 2 July 2005, JS and DM collected four adult *R. dorsalis* (SMF 84869-70, JS 101 and JS 254; Fig. 1) at the Reserva Natural Monte Galán-Las Playitas, Dpto. León, at 12°12'14"N, 86°34'12"W, 85 m elevation. All four specimens were found between 11:00 and 13:00 h burrowed between 15 and 40 cm beneath the surface in a small banana plantation on the property of Julio Marín near the shore of a volcanic lagoon

surrounded by small disturbed Dry Forest formation patches.

Scinax boulengeri (COPE, 1887)

Previously, there was a gap of 205 km between the northernmost Nicaraguan record of *Scinax boulengeri* and the nearest known locality in Honduras (MCCRANIE & WILSON 2002). On 13 June 2005, JS and DM collected three adult males of this species (SMF 84833-34 and JS 061; Fig. 2) at Rancho Alegre, Dpto. Atlántico Norte, at 13°39'47"N, 85°01'39"W, 285 m elevation. All three frogs were calling facing downward between 20:15 and 21:00 h, on vegetation ca. 1 m above lentic water behind the Santa Teresita del Niño Jesus primary school on the property of Francisca López Góngora. This represents the first record of this species for Dpto. Atlántico Norte.



Fig. 3. *Mesaspis moreletii* (from series JS 134, JS 138, JS 282) collected at the Reserva Natural Kilambé, Dpto. Jinotega, Nicaragua. Photograph by JAVIER SUNYER.



Fig. 4. *Rhadinaea kinkelini* (SMF 84759) collected at Reserva Natural Miraflor, Dpto. Estelí, Nicaragua. Photograph by JAVIER SUNYER.



Fig. 5. *Tantilla taeniata* (SMF 84760) collected at El Diamante, Reserva Natural Kilambé, Dpto. Jinotega, Nicaragua. Photograph by JAVIER SUNYER.

Reptiles

Mesaspis moreletii (BOCOURT, 1871)

Mesaspis moreletii (Fig. 3) has been included in various checklists for Nicaragua (TIHEN 1949, PETERS & DONOSO-BARROS 1970, VILLA 1983, VILLA et al. 1988, RUIZ 1996, RUIZ & BUITRAGO 2003). However, the presence of this species in Nicaragua has not been supported by any voucher specimens (KÖHLER 2003). On 12 July 2005, JS collected two juveniles of this species: (JS 134) at 13°35'20"N, 85°43'33"W, 1440 m elevation and (JS 138) at 13°35'01"N, 85°43'04"W, 1330 m elevation. On 12 August 2005, JS collected an adult male of this species (JS 282) at 13°35'07"N, 85°42'17"W, 1305 m elevation. All three specimens were collected at the Reserva Natural Kilambé, Dpto. Jinotega. One (JS 134) was found active on ground level at 7:30 h in a deforested area on the property of José Gómez and another (JS 138) was found at 12:30 h, 1.5 m high on a mossy tree trunk in primary cloud forest. JS 282 was found at 16:30 h while basking at ground level in a transition area between old pasture and cloud forest. Morphometrics of our material: SVL adult male 71 mm; TL/SVL 1.57-1.79 (1.68±0.11); HL/SVL 0.20-0.24 (0.22±0.01); SHL/SVL 0.11-0.12 (0.11±0.01); HL/HW 1.33-1.53 (1.44±0.10); HW/SVL 0.15-0.16 (0.16±0.01); AGD/SVL 0.49-0.53 (0.51±0.02). Pholidosis of our material following VESELY & KÖHLER (2001): postmentals: 1 (100%); postnasals: 2 (83%), 1 (17%); prefrontals: 2 (100%); postloreal in contact with supralabial: Yes (100%); postcanthal in contact with prefrontal: No (100%); frontonasal in contact with frontal: No (100%); number of lowest secondary temporals in contact with lowest anterior temporal: 2 (67%), 1 (33%); dorsals at midbody: 18 (100%); ventrals at midbody: 12 (100%); transverse rows of dorsals: 50 (67%), 51 (33%); number of supralabials to mideye: 6 (100%); lamellae on fourth toe: 17 (50%), 18 (17%), 20 (33%); anterior sublabial in contact with: first infralabial (17%), second infralabial (66%), third infralabial (17%). This represents the first definite Nica-

raguan record of this species. Also, its known range of altitudinal distribution is increased by almost 200 m – the species is now known to occur from 1305 to above 3000 m (KÖHLER 2003).

Mesoscincus managuae (DUNN, 1933)

In Nicaragua, *Mesoscincus managuae* was previously known from four localities in Dptos. Managua, Granada and Chinandega (REEDER 1990, KÖHLER 2001). On 29 June 2005, JS and DM collected one juvenile (JS 93) and one adult (SMF 84761) of this species at the Reserva Natural Monte Galán-Las Playitas, Dpto. León, at 12°12'14"N, 86°34'12"W, 85 m elevation. The juvenile was found at 11:15 h under a fallen termite nest in disturbed forest on the property of Julio Marín. This represents the first record of this species for Dpto. León.

Norops carpenteri (ECHELLE, ECHELLE & FITCH, 1971)

In Nicaragua, *Norops carpenteri* was previously known from three localities in Dptos. Matagalpa and Río San Juan (KÖHLER 2001). On 26 July 2004, GK collected one subadult of this species (SMF 83193) in Parque Nacional Saslaya, Dpto. Atlántico Norte, on the trail from Salto Labú to El Revenido at 320 m elevation. The specimen was collected during the daytime on the forest floor in primary rain forest. This represents the northernmost record of this species (ca. 100 km NE from nearest known locality) and the first record for Dpto. Atlántico Norte.

Norops tropidonotus (PETERS, 1863)

In Nicaragua, *Norops tropidonotus* was previously known from two localities in the Dpto. Estelí (KÖHLER 2001). Between 7 and 10 July 1998, GK collected one adult male and two adult females of this species (SMF 84734-36) at El Diamante, Reserva Natural Kilambé, Dpto. Jinotega, at 13°36'51"N, 85°44'20"W, 1090 m elevation. The three specimens were found active at 8:25, 13:30 and 14:30 h in a coffee plantation near a dirt road of the Finca

“La Concepción” on the property of JUANA M^a SALINAS. One contains a palpable egg (SMF 84734). This represents the first record of this species for Dpto. Jinotega.

Rhadinaea kinkelini BOETTGER, 1898

In Nicaragua, *Rhadinaea kinkelini* was previously known from three localities in Dptos. Matagalpa and Jinotega (KÖHLER 2001). On 4 June 2005, JS and DM collected an adult female of this species (SMF 84759; Fig. 4) in the Reserva Natural Mirafior, Dpto. Estelí, at 13°14'50"N, 86°15'27"W, 1325 m elevation. The snake was found at 10:30 h under a medium-sized log in transition zone between a disturbed forest and a pasture. This represents the first record of this species for Dpto. Estelí.

Tantilla taeniata (BOCOURT, 1883)

In Nicaragua, *Tantilla taeniata* was previously known from three localities in Dptos. Estelí and Matagalpa, and from an unknown locality in Dpto. Zelaya (JANSEN & KÖHLER 2002, KÖHLER 2001), now divided into Dptos. Atlántico Norte and Atlántico Sur. On 10 July 1998, GK collected a juvenile of this species (SMF 84760; Fig. 5) at El Diamante, Reserva Natural Kilambé, Dpto. Jinotega, at 13°36'51.3"N, 85°44'20.2"W, 1090 m elevation. The snake was active at 14:45 h on the wooden floor of the house of the Finca “La Concepción” on the property of Juana María Salinas. This represents the first record of this species for Dpto. Jinotega.

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References

- DUELLMAN, W. E. (1971): The burrowing toad, *Rhinophrynus dorsalis*, on the Caribbean lowlands of Central America. – *Herpetologica*, **27**: 55–56.
- HOLDRIDGE, L. R. (1967): Life zone ecology. Revised edition. – San José, Costa Rica (Trop. Sci. Center), 206 pp.
- JANSEN, M. & G. KÖHLER (2002): Biogeografische Analyse der Herpetofauna von ausgewählten Hochlandgebieten Nicaraguas. – *Salamandra*, **38** (4): 269–286.
- KÖHLER, G. (2001): Anfíbios y reptiles de Nicaragua. – Offenbach (Herpeton), 208 pp.
- KÖHLER, G. (2003): Reptiles of Central America. – Herpeton Verlag, Offenbach, 367 pp.
- KÖHLER, G., A. Z. QUINTANA, F. BUITRAGO & H. DIETHERT (2004): New and noteworthy records of amphibians and reptiles from Nicaragua. – *Salamandra*, **40** (1): 15–24.
- MCCRANIE, J. R. & L. D. WILSON (2002): The amphibians of Honduras. – Society for the Study of Amphibians and Reptiles, Ithaca, 625 pp.
- PETERS, J. A. & R. DONOSO BARROS (1970): Catalogue of the Neotropical Squamata. Part II. Lizards and Amphisbaenians. – Smithsonian Institution, Washington, 293 pp.
- REEDER, T. W. (1990): *Eumeces managuae* DUNN. – Catalogue of American Amphibians and Reptiles, **467**: 1–2.
- RUÍZ, G. A. (1996): Claves preliminares para reconocer a los reptiles de Nicaragua. – CEDAPRODE, Managua, 88 pp.
- RUÍZ, G. A. & F. BUITRAGO (2003): Guía ilustrada

- de la herpetofauna de Nicaragua. – ARAUCARIA-MARENA-AECI, 331 pp.
- SAVAGE, J. M. (2002): The amphibians and reptiles of Costa Rica. A herpetofauna between two continents, between two seas. – University of Chicago Press, Chicago, London, 934 pp.
- TIHEN, J. A. (1949): A review of the lizard genus *Barisia*. – University of Kansas Science Bulletin, **33** (3): 217–256.
- VESELÝ, M. & G. KÖHLER (2001): Zur Kenntnis von *Mesaspis moreletii* (BOCOURT 1871) in El Salvador. – Salamandra, **37** (3): 185–192.
- VILLA, J. D. (1983): Nicaraguan fishes, amphibians and reptiles: checklist and bibliography. – Univ. Centroamericana, Managua, 53 pp.
- VILLA, J. D. (1984): *Rhinophrynus dorsalis*: Distribution. – Herpetological Review, **15** (2): 52.
- VILLA, J. D., L. D. WILSON & J. D. JOHNSON (1988): Middle American herpetology. – University of Missouri Press, Columbia, 131 pp.

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