

Van Wallach* & Benedetto Lanza**

Taxonomic reassessment of Giuseppe Scortecci's scolecophidian type and non-type specimens from Eritrea, Ethiopia, Somalia, and Yemen, in the Museo Civico di Storia Naturale in Milano (Reptilia: Serpentes)

Abstract - All of the scolecophidian types of Scortecci (1928, 1929, 1933) were examined and redetermined. The holotype of *Typhlops brevis* (MSNM 2033) represents a valid species of *Rhinotyphlops* that is separate from *R. schlegelii* although the type is unfortunately an aberrant individual. The holotype of *Typhlops erythraeus* (MSNM 3353) also represents a distinct species of *Rhinotyphlops*. The holotype of *Glauconia braccianii* (MSNM 3351) represents a valid species and is resurrected from the synonymy of *Leptotyphlops macrorhynchus*. The holotype and two paratypes of *Glauconia variabilis* (MSNM 3348a-b, 3350) are conspecific with *L. braccianii*, so *L. variabilis* is placed in the synonymy of *L. braccianii*. The two syntypes of *Glauconia fiechteri* (MSNM 2032a-b) are examples of two different taxa, one (MSNM 2032b) being *L. braccianii* and the other (MSNM 2032a) *L. macrorhynchus*. The holotype of *Leptotyphlops yemenicus* (MSNM 3354) represents a distinct species and is removed from the synonymy of *L. nursii*. The status of the holotype of *Glauconia erythraea* (MSNM 3349) is problematical; it is provisionally recognized as a good species, *Leptotyphlops erythraeus*, although it resembles *L. nursii* and may eventually prove to be conspecific. Non-type material in the collection was also identified.

Key words: Scolecophidia, Eritrea, Ethiopia, Somalia, Yemen.

Riassunto - Nuova valutazione tassonomica degli esemplari tipici e non tipici di Scortecci degli Scolecofidi dell'Eritrea, dell'Etiopia, della Somalia e dello Yemen al Museo Civico di Storia Naturale di Milano (Reptilia: Serpentes).

Sono stati esaminati e rideterminati tutti i tipi di Scolecophidia descritti da Scortecci (1928, 1929, 1933). L'olotipo di *Typhlops brevis* (MSNM 2033), sfortunatamente rappresentato da un individuo aberrante, corrisponde a una specie valida di *Rhinotyphlops*, distinta da *R. schlegelii*. L'olotipo di *Typhlops erythraeus* (MSNM 3353) rappresenta ugualmente una specie valida di *Rhinotyphlops*. L'olotipo di *Glauconia braccianii* (MSNM 3351) rappresenta una specie valida ed è pertanto riesumata dalla sinonimia con *Leptotyphlops macrorhynchus*. L'olotipo e i due paratipi di *Glauconia variabilis* (MSNM 3348a-b, 3350) sono conspecifici con *L. braccianii* e pertanto *L. variabilis* è messo in sinonimia con *L. braccianii*. I due sintipi di *Glauconia fiechteri* (MSNM 2032a-b) appartengono a due taxa diversi, uno (MSNM 2032b) riferibile a *L. braccianii*, l'altro (MSNM 2032a) a *L. macrorhynchus*. L'olotipo di *Leptotyphlops yemenicus* (MSNM 3354) rappresenta una specie distinta ed è perciò rimossa dalla sinonimia con *L. nursii*. Lo status dell'olotipo di *Glauconia erythraea* (MSNM 3349) è problematico e pertanto il taxon è provvisoriamente considerato una buona specie, *Leptotyphlops erythraeus*, e ciò malgrado le sue rassomiglianze con *L. nursii*, col quale in futuro potrebbe risultare conspecifico. È stato identificato anche il materiale non tipico presente nella collezione.

Key words: Scolecophidia, Eritrea, Etiopia, Somalia, Yemen.

*Museum of Comparative Zoology, Harvard University, 26 Oxford St., Cambridge, MA 02138, USA, e-mail: vwallach@oeb.harvard.edu

**Museo di Storia Naturale, Sezione Zoologica "La Specola" & Dipartimento di Biologia Animale e Genetica, Università degli Studi di Firenze, Via Romana 17, 50125 Firenze, Italy, e-mail: benedetto.lanza@tin.it

Introduction

Giuseppe Scortecci described numerous snakes from the Horn of Africa during his illustrious career. Included among these are seven nominal taxa from two scolecophidian families (five Leptotyphlopidae and two Typhlopidae), described between 1928 and 1933. All Scortecci's types were deposited in the Museo Civico di Storia Naturale in Milano, Italy, and no one examined this material since it was deposited (e.g. Largen & Rasmussen, 1993: 325). Thus, based solely on Scortecci's descriptions and figures, his names have been recognized or synonymized, sometimes under several different epithets, depending upon the author. One of us (VW) has been engaged in the revision of the Scolecophidia of northeastern Africa in conjunction with Donald Broadley and the lack of knowledge of the status of Scortecci's types posed several problems regarding the resolution of African scolecophidian taxonomy. It thus became desirable to examine the Scortecci's material. Through the diligent efforts of one of us (BL) and the cooperation of Stefano Scali, Michela Podestà and Giorgio Bardelli from Museo di Storia Naturale di Milano, the Scortecci's types were made available in Florence.

Materials and methods

All specimens were examined in the laboratory of one of us (BL) under a binocular dissecting microscope. Measurements were made to the nearest 0.5 mm with vernier calipers and a metric ruler. Scale rows were counted 20 scales posterior to mental, at midbody, and 10 scales anterior to vent. Midbody and midtail diameters were measured in the horizontal plane. Relative rostral width is dorsal midrostral diameter/head width at ocular level. The four supralabials of typhlopids are abbreviated as SL with 1, 2, 3, and 4 indicating the shields from anterior to posterior; the supralabial imbrication pattern (SIP) is discussed in Wallach (1993). Relative tail length is tail length/total length. Bilateral counts and measurements are listed as left/right.

Geographical coordinates and elevations of the majority of localities were taken from Largen & Rasmussen (1993).

Museum acronyms include ANSP (Academy of Natural Sciences, Philadelphia, PA), CAS (California Academy of Sciences, San Francisco, CA), MCZ (Museum of Comparative Zoology, Cambridge, MA), MNHN (Muséum National d'Histoire Naturelle, Paris, France), MSNM (Museo Civico di Storia Naturale di Milano, Italy), and NHMAA (Natural History Museum of Addis Abeba, Ethiopia).

Results

1. Scortecci (1928: 291, Fig. 1) described a new blind typhlopids, *Typhlos* [sic=*Typhlops*] *erythraeus*, from Saganeiti, Eritrea (15°04'N, 39°12'E), collected by Captain L. Fossati at an elevation of 2,200 m. Originally listed as MSNM 2015 (and cited thusly by Roux-Estève, 1974, Largen, 1978, 1997, Hahn, 1980, and McDiarmid *et al.*, 1999), it is now catalogued as MSNM 3353. It was compared with and distinguished from *T. acutirostris* Mocquard, 1905 (= *Rhinotyphlops somalicus* [Boulenger, 1895]) of Ethiopia, *T. naveli* Angel, 1920 (= *R. newtoni*

[Bocage, 1890]) of São Tomé et Príncipe, and *T. preocularis* [sic] Stejneger, 1894 (= *Rhinotyphlops praeocularis*) of the Congo. Without examining the type specimen, Roux-Estève (1974: 200) placed Scortecci's *T. erythraeus* in the synonymy of *Rhinotyphlops somalicus*. Largen (1978) resurrected *T. erythraeus* from the synonymy of *R. somalicus* as *R. erythraeus*, an action that was followed by Largen & Rasmussen (1993), Largen (1997), and McDiarmid *et al.* (1999).

MSNM 3353 is brown above and gold below; total length 205 mm, tail length 4.0 mm, midbody diameter 3.0 mm, body diameter 2.7 mm throughout; length/width ratio 68.3, relative tail length 1.95%, tail length/width ratio 1.48; scale rows 26-20 [21]-20, total middorsals 462, subcaudals 15, dorsocaudals 14; dorsal head profile rounded with median projecting tip; rostral sagittate, relative head width 0.61; frontal twice as broad as deep with rounded posterior border; supraoculars transverse, subequal in size to the frontal; lacking enlarged parietals or occipitals; lateral head profile tapered and obtusely pointed, rostral lacking a sharp cutting edge and terminating in a conical point; nasals divided, inferior nasal suture contacts SL 2, nostril in contact with rostral, directed laterally and angled 60° to the horizontal; preocular large, slightly broader than supranasal, which lacks a concavity along posterior border; ocular divided into two subequal shields, a dorsal ocular and ventral subocular; eye invisible; postoculars 3/4; supralabials 4, supralabial imbrication pattern (SIP) T-0, SL 2 three times the size of SL 1, SL 3 twice the size of SL 2, SL 4 slightly larger than SL 3, not the result of fusion of two scales; cutaneous touch corpuscles present on all head shields and chin region, 4 scales posterior to mental shield, which is slightly projecting; ventral rostral broad with tapered edges, convex; lacking apical spine, tail terminating in a rounded cone.

Largen (1978) pointed out differences mentioned by Scortecci such as "23" midbody scale rows (vs. 28) and presence of a subocular (vs. none) as being worthy of specific status. We count 26-20-20 (or 26-21-20 due to a few irregularly divided scales) midbody rows in Scortecci's type and the range of scale rows in *R. somalicus* is now known to be 24-30 (from 26-24-24 to 30-30-28) so the difference is still significant. The horizontal division of the ocular shield in *R. erythraeus* is a derived feature separating it from most other *Rhinotyphlops*.

Additionally, *R. erythraeus* has fewer middorsal scales with 462 than does *R. somalicus* with 555-696. In dorsal view the rostral of *R. erythraeus* is acutely pointed with a conical terminal projection but in *R. somalicus* the tapered rostral terminates in a point but without any projecting tip. A discrete corneal cutting edge is absent on the rostral in *R. erythraeus* but present along the anterior border in *R. somalicus*. The nostril of *R. erythraeus* is inclined at a 60° angle to the horizontal and is directed laterally whereas the nostril of *R. somalicus* lies nearly horizontal and is directed posterolaterally from the inferior surface of the head. The preocular of *R. somalicus* is narrower than both the ocular and supranasal; in *R. erythraeus* the preocular is enlarged, nearly twice as broad as the ocular-subocular and slightly broader than the supranasal. All supralabials in *R. erythraeus* are broader than tall but the second supralabial in *R. somalicus* is twice as tall as broad. In relative sizes, the fourth supralabial is subequal to the third in *R. erythraeus* but twice its size in *R. somalicus*. The supralabial imbrication pattern of *R. erythraeus* is T-0

whereas in *R. somalicus* it may be T-II (MNHN 1904.603; MSNM 2904a-c), T-0 (ANSP 4692-93; NHMAA/H470), or even both in one specimen (MCZ 126236: T-0 left, T-II right).

The apical spine is minute but present in *R. somalicus* whereas it is lacking in *R. erythraeus* and only a rounded cone covers the tail terminus. Also noteworthy is a uniform body diameter in *R. erythraeus* from head to tail whereas in *R. somalicus* the body diameter continuously increases from anterior to posterior as in many *Rhinotyphlops*. *Rhinotyphlops erythraeus* appears to be a smaller species with a length of 205 mm vs. 220-670 mm in *R. somalicus*. Thus, the holotype of *Typhlops erythraeus* clearly represents a valid species of the *R. simoni* species group (Franzen & Wallach, 2002) inhabiting the southern highlands of Eritrea and is presently known as *Rhinotyphlops erythraeus* (Scortecci).

2. *Typhlops brevis* Scortecci (1929: 267, unnumbered Fig. of p. 268) was described from a subadult male specimen from Chisimajo (= Kismayu), Somalia, collected by Luppi on 25 January 1926. Originally labelled as MSNM 2033 (and so noted by Lagen, 1978; Hahn, 1980; McDiarmid *et al.*, 1999), it has been recatalogued as MSNM 748. Scortecci apparently had at one time considered naming the new species *Typhlops "cornii"* based upon a label still attached to the specimen bearing this manuscript name. Loveridge (1957) first regarded it as a northern race of *Typhlops schlegelii* Bianconi, 1847 (*Typhlops schlegelii brevis*). When Roux-Estève (1974) separated *Rhinotyphlops* from African *Typhlops*, the taxon became known as *Rhinotyphlops schlegelii brevis* (Lagen, 1978, Hahn, 1980, Lanza, 1983, 1990, Lagen & Rasmussen, 1993, and McDiarmid *et al.*, 1999). A revision of the *R. schlegelii* complex (Broadley & Wallach, in prep.) has demonstrated that at least three valid species are present, the northernmost being *R. brevis*. Based on this information, Spawls *et al.* (2002) have recognized *R. brevis* as a full species.

Scortecci's type specimen is most unusual in having a stout body with a low number of scale rows and middorsals. The specimen is uniformly light brown with the following data: total length 181.0 mm, tail length 4.0 mm, midbody diameter 9.3 mm, midtail diameter 6.0 mm; length/width ratio 19.5, relative tail length 2.2%, tail length/width ratio 0.67; scale rows 30-29-25, total middorsals 288, subcaudals 9; head narrower than neck, dorsal head profile tapered with rounded rostral; dorsal rostral sagittate, relative rostral width 0.47, extending nearly to eye level; frontal small, rounded posteriorly; supraoculars oblique and subequal in size to frontal; parietals oblique and three times the width of costals; interparietal transversely enlarged, occipitals not enlarged; lateral head profile obtusely pointed, anterior rostral lacking a corneal cutting edge; nasals semidivided, left/right superior nasal suture 0.60/0.67 nostril-rostral distance, inferior nasal suture contacting second supralabial, infranasal small and narrow, supranasal large, lacking postnasal concavity and extending beyond rostral dorsally; nostril directed laterally, oriented at a 60° angle to the horizontal; preocular narrow, half the width of ocular, with a medial bulge along posterior border; eye moderate in size with distinct pupil, centered beneath upper portion of large ocular shield; postoculars 3, supralabials 4 with T-0 imbrication pattern, SL 1 three times as broad as deep, larger than SL 2, SL 2 subequal to SL 3, SL 4 four times as large as SL 3 (obviously formed from the fusion of SL 4 with the lowermost postocular as seen in most typhlopids);

ventral rostral wide, mental projecting beyond lip border; small apical spine with broad base.

Scortecci's original measurements of 181 mm total length and 10 mm diameter resulted in a length/width ratio of 18.2. Present measurements (with shrinkage in ethanol) indicate a length/width ratio of 19.5. In either case these values are far below the range of 26-34 in other *R. brevis* (although CAS 147886 also has a value of 19.5). Only a few scolecophidian species have individuals with length/width ratios less than 20 (*Typhlops paucisquamus* - 16; *Ramphotyphlops becki*, *T. congestus*, *T. cuneirostris* - 17; *Acutotyphlops solomonis*, *R. pinguis*, *T. reticulatus* - 18; *T. punctatus* - 19). MSNM 748 is also unusual in having only 288 middorsals and 29 midbody scale rows. The recorded range in *R. brevis* is 377-557 middorsals and 34-40 midbody scale rows. So for several of the key characters the holotype of *R. brevis* is unfortunately an abnormal specimen that does not typify the species. There is a specimen of *Rhinotyphlops* cf. *brevis* (CAS-LGH 696) from southern Somalia that has intermediate values: it has 348 middorsals, 32 midbody scale rows, and a length/width ratio of 33.2. It also differs from typical *R. brevis* in having the inferior nasal suture contacting SL 1, a trilobed dorsal profile, and a very depressed head with acutely pointed lateral profile.

Rhinotyphlops brevis is a member of the *R. schlegelii* species group known from Ethiopia, Somalia, southern Sudan, and Kenya, possibly also occurring in Uganda (Parker, 1949; Roux-Estève, 1974; Spawls *et al.*, 2002).

3. The holotype of *Glauconia braccianii* Scortecci (1928: 294, Fig. 3), collected by G. F. Turati, originated from Adi Ugri, Eritrea (14°53'N, 38°49'E) at 1,900 m elevation. Originally catalogued as MSNM 1917 (and cited thusly by Hahn, 1978, 1980, Hahn & Wallach, 1998, and McDiarmid *et al.*, 1999), it is now registered as MSNM 3351. Scortecci compared his new species with the holotype of *Glauconia macrorhynchus* (Jan, 1860), which was still extant at that time in the Milan Museum. It was separated by the shape of the snout (absence of a prominent beak in *G. braccianii*) and a more robust body form (length/width ratio of 77 in *G. braccianii* vs. 113 in the type of *G. macrorhynchus*). He originally applied the manuscript name *Glauconia "calciatii"* to this taxon, as evidenced by his tag bearing this name attached to the specimen. It was recognized as a valid species of *Leptotyphlops* by Parker (1949) and Hahn (1980) but was relegated to the synonymy of *L. macrorhynchus* by Hahn (1978). Hahn's (1978) conclusions about Scortecci's name took precedence over his 1980 work as the latter was submitted in manuscript form before the work that led to his 1978 paper. Since then *Glauconia braccianii* has remained in the synonymy of *Leptotyphlops macrorhynchus* (Lanza, 1983, Largen & Rasmussen, 1993, Largen, 1997, Hahn & Wallach, 1998, and McDiarmid *et al.*, 1999).

MSNM 3351 is light brown dorsally and ventrally; total length 119.0 mm, tail length 10.0 mm, midbody diameter 1.7 mm, midtail diameter 1.4 mm; length/width ratio 70.0, relative tail length 8.40%, tail length/width ratio 7.1; scale rows 14-14-14, midtail scale rows 10, total middorsals 284, subcaudals 31; head broader than neck, dorsal profile tapering with rounded snout; rostral sagittate, relative rostral width 0.38; frontal larger than supraoculars, postfrontal, interparietal and interoccipital; parietals transverse, occipitals transverse, 0.75 width of pari-

etals; fronto-parietal foramen present; head depressed in lateral profile, terminating in an obtusely rounded snout; nasals divided, nostril located midway along suture, infranasal small, supranasal large, extending slightly beyond rostrally; supralabials 2, anterior supralabial short, equal in width to infranasal along lip border; posterior supralabial moderate in height, not reaching level of eye; ocular large, broader than supranasal, with small eyespot (lacking discernible pupil) located beneath the upper posterior corner; ventral rostral with weak preoral cavity and weak beak in lateral view; anal shield semilunate in shape; tail terminus covered in a cone because the spine is broken off.

This species is a member of the *L. longicaudus* species group and appears to be most closely related to *Leptotyphlops cairi* (Duméril & Bibron, 1844) from which it is distinguished by its lower number of middorsals (278-300 vs. 322-370), enlarged occipitals, and smaller size (maximum length 144 mm vs. 253 mm). Ironically, one of the species recognized in a revision of northeast African *Leptotyphlops* (Broadley & Wallach, in prep.) under the manuscript name of *L. "sudanensis"* turns out to be identical to *L. braccianii* and thus a synonym. The distribution of *Leptotyphlops braccianii* is extensive, including Eritrea, Ethiopia, Somalia, southern Sudan, and Kenya.

4. *Glauconia variabilis* Scortecci (1928 : 295, Fig. 4) was described on the basis of a holotype and two paratypes. The holotype (MSNM 1915b, now MSNM 3348b) has the same type locality as *Leptotyphlops braccianii*, being collected by G. F. Turati in Adi Ugri, Eritrea. One paratype (MSNM 1915a, now MSNM 3348a) also has the same collecting data. The other paratype (MSNM 2106, now MSNM 3350) originated from Cheren (= Keren), Eritrea (15°46'N, 38°27'E, elevation 1,400 m), was attributed to P. Magretti by Scortecci (1928) but specimen label reads "G. Borione and P. Magretti, 1900." Scortecci compared these specimens with *L. macrorhynchus* (separating them on body thickness) and *L. braccianii* (separating them on body proportions and head form).

As the name implies, the nomenclatural history of this taxon has been variable. Parker (1949) listed *Leptotyphlops variabilis* as a questionable species and suggested it may be *L. cairii* [sic= *cairi*]. Hahn & Wallach (1998) placed it in the synonymy of *L. cairi*. Largen & Rasmussen (1993) and Largen (1997) provisionally considered it a synonym of *L. macrorhynchus*. It was recognized as a valid species by Hahn (1980) and McDiarmid *et al.* (1999), who cited MSNM 1915 as two syntypes. [In order to prevent any further confusion, for those who interpret two syntypes to be present, we designate MSNM 3348b as the lectotype].

The three specimens are uniformly beige above and below. MSNM 3348b has the following data: total length 139 mm, tail length 12.0 mm, midbody diameter 2.0 mm, midtail diameter 1.9 mm; length/width ratio 69.5, relative tail length 8.63%, tail length/width ratio 6.32; scale rows 14-14-14, midtail rows 10, total middorsals 282, subcaudals 29; head barely wider than neck, dorsal head profile rounded; rostral sagittate, relative rostral width 0.40, reaching level of eyes; frontal larger than supraoculars and postfrontal; parietals and occipitals enlarged and transverse, occipitals 0.75 width of parietals; fronto-parietal foramen present; snout rounded in lateral view, lacking visible beak; nasals divided, nostril midway along nasal suture; superior nasal suture with abrupt right angle curve before meet-

ing rostral; infranasal taller than anterior supralabial and broader along lip border; two supralabials, anterior supralabial short, posterior supralabial moderate; ocular narrower and more inclined than in the type of *L. braccianii*, eyespot small and located near the posterior border beneath the upper ocular; cloacal shield semilunate; tip of apical spine broken off but a recurved basal cone remains.

The two paratypes differ only in the following features (MSNM 3348a first, MSNM 3350 second): total length (139.0, 133.0 mm), tail length (12.5, 12.0 mm), relative tail length (8.99, 9.02%), midbody diameter (1.6, 2.0 mm), length/width ratio (86.9, 66.5), midtail diameter (1.7, 1.4 mm), tail length/width (7.35, 8.57), total middorsals (286, 298), subcaudals (30, 28), and relative rostral width (0.31, 0.40). The cloacal shield of MSNM 3348a is subtriangular.

Glauconia variabilis differs from *Leptotyphlops braccianii* only in the orientation of the ocular shield and the shape of the cloacal shield (in one of three specimens), all of which can be considered intraspecific variation. Therefore, *G. variabilis* Scortecci is placed in the synonymy of *L. braccianii* (Scortecci).

5. The description of *Glauconia fiechteri* Scortecci (1929: 266, unnumbered Fig. of p. 267) was based on two syntypes collected by Ugo Fiechter from "Villaggio Duca degli Abruzzi" (= Villabruzzi, Giohar, Giauher or Jawhar, Somalia, 02°46'N, 45°31'E, elevation 100 m). MSNM 2032a (now MSNM 582), figured by Scortecci (1929), was collected on 9 December 1928. MSNM 2032b (now MSNM 583) was collected in April 1929. This taxon was considered valid by Parker (1949), Loveridge (1957), and Spawls (1978) although Loveridge (1936) had earlier suggested that it did not differ from *L. longicaudus*. Hahn (1980), Lanza (1983), and McDiarmid *et al.* (1999) placed *G. fiechteri* as a synonym of *L. longicaudus*. Examination of the types reveals that *Glauconia fiechteri* is a composite of two different taxa, one (MSNM 2032a, now 582) being a *L. macrorhynchus* and the other (MSNM 2032b, now 583) a *L. braccianii*.

MSNM 582 (the figured specimen and presently designated lectotype of *Glauconia fiechteri*) has a light brown dorsum (7 scale rows) and tan venter (7 scale rows). Total length 134.0 mm, tail length 11.0 mm, midbody diameter 1.4 mm, midtail diameter 1.3 mm; length/width ratio 95.7, relative tail length 8.21%, tail length/width ratio 8.46; scale rows 14-14-14, midtail rows 10, total middorsals 315, subcaudals 31; head broader than neck, rounded in dorsal view; fronto-parietal foramen present; rostral subtriangular, broad anteriorly with rounded apex, relative rostral width 0.54; frontal, supraoculars, and postfrontal subequal, about as deep as broad; next three vertebrae broader than frontal; parietals enlarged, transverse; occipitals 0.75 width of parietals; lateral head profile distinguished by moderate beak that descends below level of mouth; nasal divided, nostril midway along suture; infranasal twice the height of anterior supralabial but equal to its breadth along lip; supralabials two, anterior supralabial short, rectangular, posterior supralabial moderate in height; ocular broader than nasal, slightly angled posteriorly with small eyespot beneath shield near upper posterior corner; deep preoral concavity present, cloacal shield subtriangular.

Scortecci compared this specimen only with his *G. braccianii* and *G. variabilis*, noting the rostral beak and head shield proportions (which are characteristic of *L. macrorhynchus*). It agrees with *L. macrorhynchus* in all respects except in the

shape of the cloacal shield (subtriangular vs. semilunate) and thus is considered a synonym of *L. macrorhynchus* (Jan).

MSNM 583 (which becomes the paralectotype of *Glaucania fiechteri*) has the 9 dorsal scale rows brown and 5 ventral rows tan. Total length 142.0 mm, tail length 11.5 mm, midbody diameter 1.8 mm, midtail diameter 1.2 mm; length/width ratio 78.9, relative tail length 8.10%, tail length/width ratio 9.58; scale rows 14-14-14, midtail scale rows 10, total middorsals 304, subcaudals 33; head broader than neck, tapered with rounded snout in dorsal view; fronto-parietal foramen present; rostral subtriangular with rounded apex, relative rostral width 0.540; frontal, supraoculars, and postfrontal subequal, about as deep as broad; parietals transverse, enlarged; lacking enlarged occipitals; lateral head profile blunt with broad, weak beak above the level of mouth; nasal divided, nostril nearer supralabial than rostral; infranasal three times as tall as anterior supralabial but equal to its breadth along lip; supralabials two, anterior supralabial short, square, posterior supralabial moderate in height; ocular broader than nasal, vertically oriented with small eyespot beneath shield near anterior edge dorsally; deep preoral groove present, cloacal shield subtriangular; lacking apical spine, tail with terminal cone.

This specimen falls within the range of variation of *L. braccianii* except for middorsal count, extending the range from a maximum of 300 to 304. It differs from *L. macrorhynchus* in the form of the beak: it is weak (discernible in lateral view but above the level of the mouth) and nearly as broad as the dorsal rostral whereas in *L. macrorhynchus* the beak is more prominent laterally, extending below the level of the mouth, but narrow ventrally.

6. The holotype of *Leptotyphlops yemenicus* Scortecci (1933: 165, unnumbered of p. 165), originated from an unknown locality in Yemen in 1933 and was donated to Scortecci by G. Franchini. Catalogued as MSNM 3354, this taxon has not been recognized since its description. Scortecci compared the holotype with *Leptotyphlops nursii* and noted differences in frontal size, rostral length, body proportions, and relative tail length. Schmidt (1953) first placed *L. yemenicus* in the synonymy of *L. nursii* (Boulenger, 1896). Hahn (1978) considered it as a synonym of *Leptotyphlops blanfordi nursii*. Later, when *L. nursii* was again elevated to full species status, *L. yemenicus* was placed in its synonymy (Hahn, 1980, Gasperetti, 1988, McDiarmid *et al.*, 1999).

MSNM 3354 is uniformly light brown above and below with total length 91.0 mm, tail length 10.5 mm, midbody diameter 1.3 mm, midtail diameter 1.1 mm; length/width ratio 70.0, relative tail length 11.5%, tail length/width ratio 9.55; scale rows 14-14-14, midtail rows 12, total middorsals 287, subcaudals 42; head not distinct from neck, tapering to a rounded snout, rostral sagittate, narrow, relative rostral width 0.36, not reaching eye level; supranasals larger and broader than rostral dorsally, extending well beyond posterior border of rostral; interocular line centered between frontal and postfrontal shields; frontal narrower than postfrontal, which is narrower than interparietal; parietals transverse, enlarged, occipitals transverse, 0.75 parietal width; small fronto-parietal foramen present beneath three scales posterior to interparietal; lateral head profile depressed with rounded snout; nasal divided, nostril nearer to supralabial than rostral, infranasal twice the height

of anterior supralabial, supranasal large and broad with angled posterior border; supralabials two, anterior supralabial short, equal in width along lip to infranasal; posterior supralabial subtriangular in shape, moderate in height; ocular broader than supranasal with a wide lower portion, upper third narrowed, barely wider than the large eye (with pupil) beneath; snout projecting with distinct preoral cavity but beak lacking in lateral view; cloacal shield semilunate.

Of all the Scortecci's material, *Leptotyphlops yemenicus* is the most distinctive worm snake. With 12 midtail scale rows it appears allied to *L. buri* and *L. nursii* but the middorsal count (287 vs. 314-408), subcaudals (42 vs. 28-34), relative tail length (11.5% vs. 6.0-9.5%), head width (narrower than neck vs. wider than neck), head shape (depressed vs. not depressed), rostral width (0.36 vs. 0.43-0.62), rostral length (not reaching eye level vs. extending to or beyond eye level), position of eyes (along frontal-postfrontal border vs. across frontal), frontal shape (broader than deep vs. deeper than broad), supranasal and ocular shapes (broad vs. narrow), anterior supralabial height (short vs. moderate), and cloacal shield shape (semilunate vs. subtriangular) are very different. Additionally, *L. yemenicus* differs from *L. nursii* in occipitals (present vs. absent), frontal size (subequal to supraoculars and postfrontal vs. larger than either), beak (absent vs. weak, above mouth level). Most likely this is a diminutive species, unless MSNM 3354 is a juvenile, with a total length of 91 mm (vs. 242 in *L. nursii* and 202 in *L. buri*). We therefore recognize *L. yemenicus* as a valid species endemic to Yemen.

7. The status of the holotype of *Glauconia erythraea* Scortecci (1928: 293, Fig. 2) is still uncertain, but it seems likely that it represents a valid species. It was collected near Massaua, Eritrea (15°32'N, 39°26'E, near sea level) by F. Fatigati. Originally catalogued as MSNM 1916 (and cited thusly by Hahn, 1978, 1980, Hahn & Wallach, 1998, and McDiarmid *et al.*, 1999), it is now registered as MSNM 3349. Scortecci compared this taxon with *Glauconia debilis* Chabanaud (1918) of Cameroon, now a synonym of *Leptotyphlops boueti* (Chabanaud, 1917). Parker (1949) and Hahn (1980) recognized it as a valid species but it was considered a synonym of *Leptotyphlops macrorhynchus* by Hahn (1978), Lanza (1983), Largen & Rasmussen (1993), Largen (1997), Hahn & Wallach (1998), and McDiarmid *et al.* (1999).

MSNM 3349 is unpigmented, being uniformly pink above and below. Total length 158.0 mm, tail length 11.5 mm, midbody diameter 1.6 mm, midtail diameter 1.6 mm; length/width ratio 98.8, relative tail length 7.28%, tail length/width ratio 7.19; scale rows 14-14-14; midtail rows 12; total middorsals 312, subcaudals 28; head wider than neck in dorsal view, rounded, with anterior rostral barely protruding beyond curvature of snout; fronto-parietal foramen present; rostral broad, relative rostral width 0.53, parallel, extending posteriorly to mideye level, posterior border in hexagonal configuration, broader than supranasals; frontal semilunate, more than twice as broad as deep, larger than supraoculars and postfrontal; interocular line along rostral-frontal suture; parietals and occipitals enlarged, transverse; interparietal and interoccipital broader than frontal or postfrontal; lateral head profile rounded with a weak beak that extends below lip level; nasals divided, nostril midway along nasal suture between supralabial and rostral; infranasal 1.5 times as tall as anterior supralabial; supralabials two, anterior supralabial short, twice as

broad along lip as infranasal; posterior supralabial moderate; ocular alightly oblique, small eye with distinct pupil beneath upper portion along anterior border; ventral rostral with deep preoral cavity, narrow beak ventrally; cloacal shield semi-lunate; lacking apical spine, tail terminating in a smooth cone.

Scortecci's (1928: Fig. 2) dorsal illustration of the head is inaccurate in some respects: dorsal head shape (head wider than neck vs. not distinct from neck), rostral shape (parallel, rostral barely projecting vs. sagittate, significantly projecting), posterior rostral border (angled sharply in hexagonal shape vs. smoothly tapered and rounded), occipitals (enlarged vs. not enlarged), and eye form (distinct pupil vs. eyespot).

Leptotyphlops erythraeus closely resembles *L. nursii*, and may be conspecific with it, but differs in several ways that may or may not reflect individual variation. In comparison with *L. nursii* it has fewer subcaudals (28 vs. 32-48), a greater length/width ratio (99 vs. 48-88), a smaller maximum size (158 mm vs. 242 mm), pigmentation (absent vs. pigmented dorsally), and the beak is more downward projecting (below lip level vs. above lip level). Until further material becomes available, it seems preferable to recognize *L. erythraeus* as a possibly valid species.

The non-type MSNM scolecophidian material was reidentified as follows: MSNM 2979, listed as *Leptotyphlops emini* = *Leptotyphlops* n. sp. 1 Broadley & Wallach, MSNM 2882, listed as *Leptotyphlops* sp. = *Leptotyphlops* n. sp. 2 Broadley & Wallach, MSNM 2904a-c, listed as *Rhinotyphlops acutirostris* = *R. somalicus*, and MSNM 2995a-b, listed as *Typhlops punctatus* (Leach, 1819) = *T. blanfordii* Boulenger, 1889.

Conclusions

Based on the above discussion, the following taxonomy is adopted concerning Scortecci's scolecophidian type material.

Leptotyphlops braccianii (Scortecci, 1928)

Glauconia braccianii Scortecci, 1928, Atti Soc. Ital. Sci. Nat. Mus. Civ. Stor. Nat. Milano 67: 294, Fig. 3. Type locality: "Adi Ugri," Eritrea. Holotype: MSNM 3351 (ex-MSNM 1917).

Glauconia variabilis Scortecci, 1928, Atti Soc. Ital. Sci. Nat. Mus. Civ. Stor. Nat. Milano 67: 295, Fig. 4. Type locality: "Adi Ugri," Eritrea. Holotype: MSNM 3348b (ex-MSNM 1915b), paratypes: MSNM 3348 (ex-MSNM 1915a), 3350 (ex-MSNM 2016).

Glauconia fiechteri Scortecci, 1929, Atti Soc. Ital. Sci. Nat. Mus. Civ. Stor. Nat. Milano 68: 266 (part), Fig. [1]. Type locality: "Villaggio Duca degli Abruzzi, Somalia Italiana" [= Giohar, Giahuer, Jawhar, Villabruzzi, Somalia]. Paralectotype: MSNM 583 (ex-MSNM 2032b).

? *Leptotyphlops erythraeus* (Scortecci, 1928)

Glauconia erythraea Scortecci, 1928, Atti Soc. Ital. Sci. Nat. Mus. Civ. Stor. Nat. Milano 67: 293, Fig. 2. Type locality: "Massaua," Eritrea. Holotype: MSNM 3349 (ex-MSNM 1916).

Leptotyphlops macrorhynchus (Jan, 1860)

Stenostoma macrorhynchum Jan, 1860 in Jan and Sordelli, 1860-66, Icon. Gén.

Ophid., livr. 1, pl. 5, Fig. 12, pl. 6, Fig. 12; 1861, Arch. Zool. Anat. Fisiol., 1: 190. Type locality: "Sennaar," [on the Blue Nile], Sudan. Holotype: MSNM, destroyed during WW II.

Glauconia fiechteri Scortecci, 1929, Atti Soc. Ital. Sci. Nat. Mus. Civ. Stor. Nat. Milano 68: 266 (part). Type locality: "Villaggio Duca degli Abruzzi, Somalia Italiana" [= Giohar, Giahuer, Jawhar, Villabruzzi, Somalia]. Lectotype: MSNM 582 (ex-MSNM 2032a).

Leptotyphlops yemenicus Scortecci, 1933

Leptotyphlops yemenicus Scortecci, 1933, Atti Soc. Ital. Sci. Nat. Mus. Civ. Stor. Nat. Milano 72: 165-166, Fig.... Type locality: "Yemen." Holotype: MSNM 3354.

Rhinotyphlops brevis (Scortecci, 1929)

Typhlops brevis Scortecci, 1929, Atti Soc. Ital. Sci. Nat. Mus. Civ. Stor. Nat. Milano 68: 267, Fig. [2]. Type locality: "Chisimajo," Somalia [= Chisimaio, Kismayu]. Holotype: MSNM 748 (ex-MSNM 2033).

Rhinotyphlops erythraeus (Scortecci, 1928)

Typhlops erythraeus Scortecci, 1928, Atti Soc. Ital. Sci. Nat. Milano 67: 291, Fig. 1 Type locality: "Saganeiti, Ethiopia." Holotype: MSNM 3353 (ex-MSNM 2015).

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