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# On *Scolopocryptops* species from the Fiji Islands (Chilopoda, Scolopendromorpha, Scolopocryptopidae)

**Amazonas Chagas Júnior**

Departamento de Invertebrados, Museu Nacional/UFRJ, Quinta da Boa Vista, s/nº, São Cristóvão, Rio de Janeiro, RJ, CEP-20940-040, Brazil. E-mail: amazonaschagas@gmail.com

**Abstract**

The scolopocryptopine centipedes from Fiji Islands are revised. Two species belonging to the genus *Scolopocryptops* – *S. aberrans* (Chamberlin, 1920) and *S. melanostoma* Newport, 1845 – are recorded. *Scolopocryptops aberrans* is redescribed and illustrated for the first time. *Scolopocryptops miersii fijiensis* is a junior subjective synonym of *S. aberrans*, and *S. verdescens* is a junior subjective synonym of *S. melanostoma*. An emended diagnosis for *S. melanostoma* is presented.

**Key words**

centipede, Scolopocryptopinae, *Dinocryptops*, taxonomy

## Introduction

The centipedes of the subfamily Scolopocryptopinae are blind scolopendromorphs with 23 pairs of legs, the prefemur of the ultimate legs with at least one dorsomedial and one ventral "spinous process", a trochanteroprefemoral process on the forcipules (Shelley & Mercurio 2005), and most antennal sensilla emerging from a collar or tubercle (Koch et al. 2010). The subfamily comprises two genera, *Scolopocryptops* Newport, 1845 and *Dinocryptops* Crabill, 1953, and 27 species and 10 subspecies (unpublished data). The Scolopocryptopinae occur throughout much of the New World, in West Africa, and along the Pacific Rim of Asia from Japan to Indonesia and the Fiji Islands (Chagas-Junior & Shelley 2003).

The centipede fauna of Fiji Islands comprises 33 species – 16 geophilomorphs, 3 lithobiomorphs, one scutigeromorph, and 13 species of scolopendromorphs – two



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species and one subspecies belong to Scolopocryptopinae (Evenhuis 2006). The first record of a Scolopocryptopinae from Fiji Islands was published by Chamberlin (1920). He described two new species, *Otocryptops verdescens* Chamberlin, 1920 and *O. aberrans* Chamberlin, 1920, and one subspecies *Scolopocryptops miersii fijiensis* Chamberlin, 1920. The descriptions of the new taxa of Scolopocryptopinae presented by Chamberlin (1920) are too brief and without illustrations, making their identification and comparison with other species of the subfamily an almost impossible task. Herein the species formally included in Scolopocryptopinae from the Fiji Islands are revised based on type material and additional specimens. The acronyms of institutions are: MCZ – Museum of Comparative Zoology, Cambridge, Mass., USA. NMNH – National Museum of Natural History, Smithsonian Institution, Washington D. C., USA. ZMH - Zoologisches Institut und Zoologisches Museum, Hamburg, Germany. Descriptive terminology follows Lewis et al. (2005).

## Taxonomy

**Family Scolopocryptopidae Pocock, 1896**
**Subfamily Scolopocryptopinae Pocock, 1896**
**Genus *Scolopocryptops* Newport, 1845**

***Scolopocryptops aberrans* (Chamberlin, 1920), New combination**
Figsures 1–9

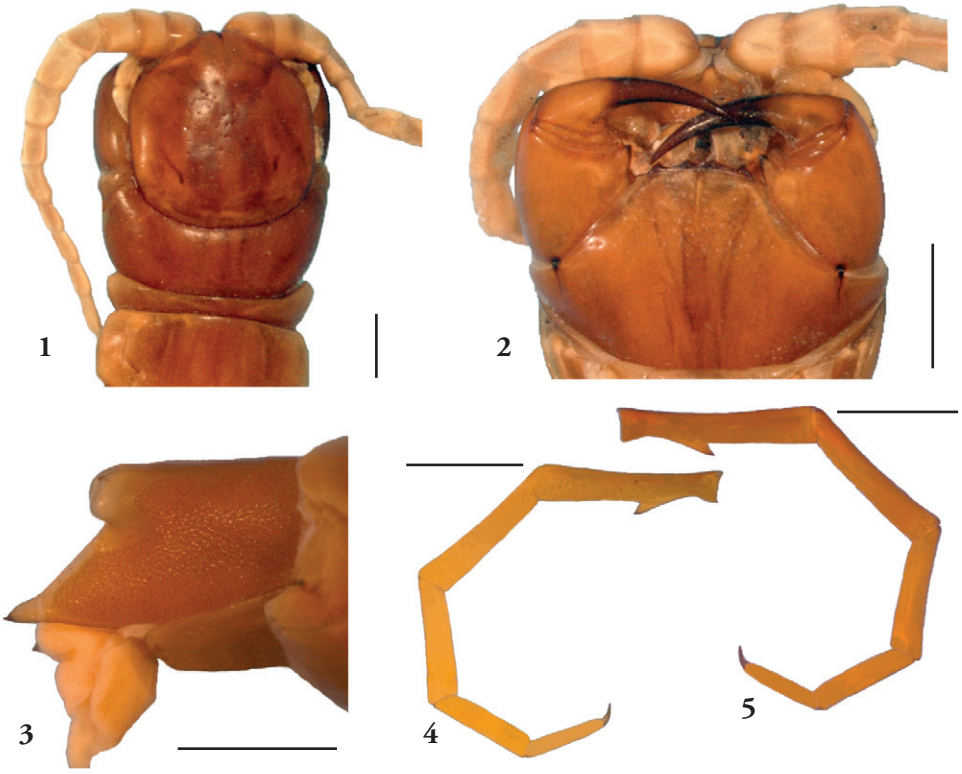
*Otocryptops aberrans* Chamberlin, 1920:11; Attems 1930: 256.
*Scolopocryptops miersii fijiensis* Chamberlin, 1920: 11; Attems 1930: 256, **New synonymy**
*Dinocryptops miersii fijiensis*: Chagas 2003: 2.

**Type material examined:** *Otocryptops aberrans*, **Fiji Islands**, Nansori (correct spelling Nausori), Vesari, W. M. Mann, MCZ 14218 (Holotype); *Scolopocryptops miersii fijiensis*, **Fiji Islands**, Nasoqo (correct spelling Nasogo), W. M. Mann, MCZ 14335 (Holotype); Nadarivatu, W. M. Mann, 31582 (Paratype).

**Additional material examined: Fiji Islands**, Suva, H. Nederschelmann, 11-II-1999, ZMH, 2 specimens; Suva, E. C. Zimmerman, 25-VII-1938, NMNH 31272, 1 specimen; Nadarivatu, E. C. Zimmerman, 10-IX-1938, NMNH 31272, 2 specimens; Wailotua Cave, Yui hui Wang, J. M. Valentine, NMNH 31272, 1 specimen.

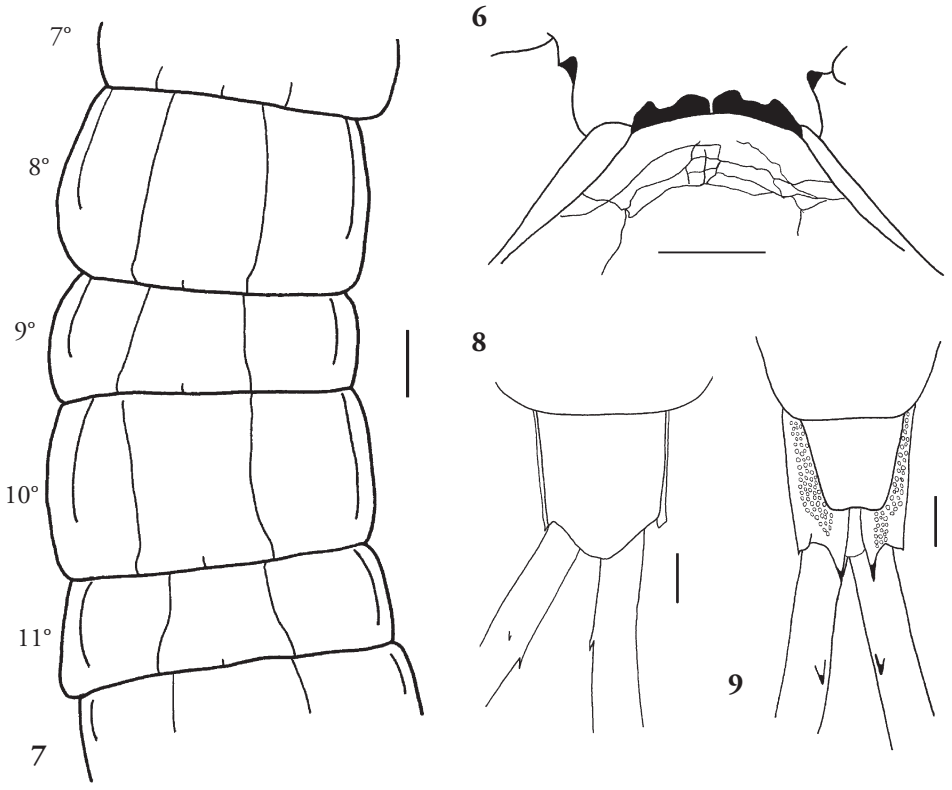
## Diagnosis

A *Scolopocryptop*s species with the body orange-yellow; cephalic plate not marginate, longer than wide, without sutures or depressions, but with fine puncta; first two




**Figures 1–5.** *Scolopocryptops aberrans*, MCZ 14218 (Holotype): **1.** Cephalic plate and tergites 1-3, dorsal view. **2.** Coxosternum and forcipules, ventral view. **3.** Right 23rd segment, lateral view. **4.** Right ultimate leg, inner view. **5.** Right ultimate leg, external view. Scale bars 1mm.

antennomeres devoid of short bristles, but with few widely separated long reddish bristles distributed on both antennomeres; third antennomere as long as the first two taken together, but with short bristles on the ventral face; forcipular coxosternum with anterior margin slightly convex, almost straight, with longitudinal sutures and several transverse sutures forming a mosaic; each tooth plate strongly chitinised, with the external and internal side elevated like a tooth; tergites 4 and 5 with incomplete paramedian sutures, tergites 6 (7) to 19 (20) with complete paramedian sutures; without spiracle on the seventh pedal segment; coxopleuron with coxopleural process, relatively long and terminating in a single spine; two tibial spurs on leg pairs 1 to 19, 20th with one and leg pairs 21-23 without tibial spur; ventral prefemoral spinous process of the ultimate legs large, dorsomedial process short (shorter than in the other *Scolopocryptops* species).




**Figures 6–9.** *Scolopocryptops aberrans*, MCZ 14335 (Holotype of *S. miersi fijiensis*): **6.** coxosternum and tooth plates, ventral view. **7.** Tergites 7-11, dorsal view. **8.** 23rd segment and ultimate prefemur, dorsal view. **9.** 23rd segment and ultimate prefemur, ventral view. Scale bars 1mm.

## Redescription

**Length:** 43–55 mm.

**Color:** Body trunk orange-yellow. Cephalic plate and first and last tergites darker than remaining tergites; legs yellow.

**Antennae:** with 17 antennomeres. Basal two antennomeres devoid of short bristles, but with few long widely spaced reddish bristles on both antennomeres; third antennomere as long as the first two, with short bristles on its ventral face. Remaining antennomeres with short golden bristles uniformly distributed.

**Cephalic plate:** longer than wide, without sutures or depressions, but with fine puncta (Fig. 1); posterior border overlying the anterior transverse sulcus of the first tergite.

**Forcipular coxosternum:** anterior margin slightly convex, almost straight and with a longitudinal sutures and several transversal sutures forming a mosaic; each tooth plate strongly chitinised, with the external and internal side elevated like a tooth (Fig. 6). Trochanteroprefemoral process of forcipular coxosternum short with acute apex (Figs 2 and 6).

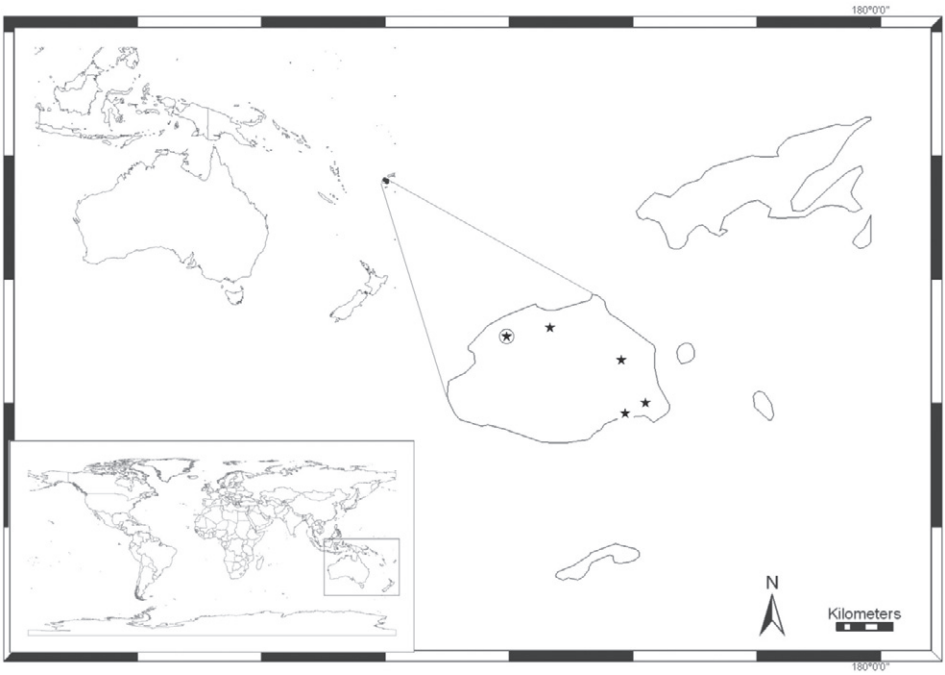



**Figure 10.** Distribution of Scolopocryptopinae in the Fiji Islands. Solid stars, *S. aberrans* and open circle, *S. melanostoma*.

**Tergites:** smooth and with fine puncta; first tergite with an anterior transverse sulcus poorly defined. Tergites 4 and 5 with incomplete paramedian sutures, tergites 6 (7) to 19 (20) tergite with complete paramedian sutures (Fig. 7), the 20th tergite with paramedian sutures poorly defined. Tergites 7 (8) to 21 (22) laterally marginate, lateral margins less clear on tergites 7 and 22. Tergite 23 without margination or carenas, but with a membranous line separating the tergite from the coxopleuron.

**Pleuron:** without spiracles on the seventh pedal segment.

**Sternites:** smooth, with fine puncta and without sutures or depressions; sternite 23 with the posterior border slightly concave.

**Coxopleuron:** with a coxopleural process relatively long and terminating in a single spine; pore field almost reaches the dorsal edge of the coxopleuron (Fig. 3). Dorsal margin with a small spine in posterior corner.

**Legs:** two tibial spurs from 1st to 19th pairs of legs, 20th with one and 21st-23rd without tibial spur. A tarsal spur from 1st to 21st pair of legs; 22 and 23 without tarsal spur. The ventral prefemoral spinous process of the ultimate legs (23rd) situated medially (Figs 5 and 8) and a dorsomedial process short (Figs. 4 and 9) (shorter than in other species of *Scolopocryptops*).

**Type locality:** Nansori, Fiji Islands.

**Distribution:** Fiji Islands.

### ***Scolopocryptops melanostoma* Newport, 1845**

*Scolopocryptops melanostoma* Newport, 1845: 406; Gervais 1847: 298. Newport 1856: 56.
*Scolopocryptops luzonicus* Kohlrausch, 1879: 21; 1881: 57; Meinert 1886: 113; Haase 1887: 98.
*Scolopocryptops megacephalus* Kohlrausch, 1881: 57 [junior subjective synonym of *Otocryptops melanostomus* fide Kraepelin (1903)].
*Scolopocryptops boholiensis* Kohlrausch, 1881: 58 [junior subjective synonym of *Scolopocryptops luzonica* Kohlrausch, 1881 fide Haase (1887)].
*Scolopocryptops geophilicornis* Tömösváry, 1885: 65 [junior subjective synonym of *Scolopocryptops luzonica* Kohlrausch, 1881 fide Haase (1887)].
*Scolopocryptops luzonica*: Haase 1887: 98.
*Otocryptops luzonica* var. *australis* Haase, 1887: 106.
*Otocryptops luzonica* var. *celebensis* Haase, 1887: 106.
*Scolopocryptops longiceps* Pocock, 1891: 160.
*Otocryptops melanostoma*: Pocock 1893: 464 (= *Scolopocryptops longiceps* Pocock, 1891); Pocock 1895: 29.
*Otocryptops luzonicus*: Pocock 1894: 135. Silvestri 1894: 633.
*Otocryptops aculeatus* Attems, 1897: 478.
*Otocryptops melanostomus*: Kraepelin 1903: 74 [subsequent erroneous spelling] (= *Scolopocryptops luzonicus* Kohlrausch, 1879; = *Otocryptops aculeatus* Attems, 1897; = *Otocryptops luzonica* var. *australis* Haase, 1887; *Otocryptops luzonica* var. *celebensis* Haase, 1887); Brölemann 1903: 130. Attems 1930: 263. Bücherl 1939: 295. Bücherl 1941a: 331.
*Otocryptops verdescens* Chamberlin, 1920: 10, **New synonymy**
*Scolopocryptops melanostomus*: Crabill 1953: 96; Bücherl 1974: 61.

**Type material examined:** *O. verdescens*, **Fiji Islands**, Nasoqo, W.M. Mann, MCZ 14589 (Holotype); Nasoqo, W.M. Mann, MCZ 31581 two (Paratypes).

**Note:** The form of the specific epithet as originally used by Newport is correct. The derivation of the name comes from the Greek-μέλανό = "black" + στόμα = "mouth" and is a compound noun in apposition. Subsequent authors, starting with Kraepelin (1903), wrongly replaced this with "melanostomus" as an adjective (ICZN, Article 31.2).

#### Diagnosis

A *Scolopocryptops* species with body greenish brown, gray or dark brown; cephalic plate usually longer than wide, not marginate, without sutures or depressions, but with fine puncta; 1st to 4th, 5th or 6th antennomeres glabrous, without short bristles; anterior margin of the forcipular coxosternum straight, with a longitudinal suture connected to a network of transversal sutures. Each tooth plate narrow, elongated, strongly chi-

tinised and without teeth; without spiracles on the seventh pedal segment; complete paramedian sutures from 3rd (or 4th) to the 21st (or 22nd); anterior sternites with short, incomplete paramedian sutures on the posterior border; coxopleural process long, the sides converging posteriorly and terminating in a single spine (Fig. 9); Legs 1 to 18 with two tibial spurs, 19 and 20 with one, 21-23 without tibial spur. Legs 1 to 20 with a tarsal spur and 21-23 without tarsal spur; ventral spinose process of prefemur of ultimate legs (23rd) long, dorsomedial spiniform process situated medially.

**Type locality:** Saint Vincent and Grenadines.

**Distribution:** Taiwan, Philippines, Indonesia (Papua, Java, Sumatra, Sulawesi, Celebes and Ambon), Papua New Guinea, India (Nicobar Island), Fiji Islands (**new record**), Mexico, Costa Rica, Honduras, Guatemala, Panama, Puerto Rico, Martinique, Saint Vincent and Grenadines, Trinidad, Venezuela, Colombia, Ecuador, Peru and Brazil.

## Discussion

Of the two species and one subspecies of Scolopocryptopinae previously known from Fiji Islands, only *S. aberrans* remains valid and another species, *S. melanostoma*, is here recorded for the first time. The two species present in Fiji were found in Viti Levu, the biggest island in Fiji. *Scolopocryptops aberrans* is a widely distributed species and is recorded from at least five localities whereas *S. melanostoma* was found only in one locality (Nasogo), but in sympatry with *S.aberrans* (Fig. 10).

The analysis of the type and additional material of *O. aberrans* shows that this species is valid and actually belongs to *Scolopocryptops*, and it is thus formally transferred to this genus to form a new combination. *Scolopocryptops aberrans* is closest to *Scolopocryptops ferrugineus* (Linnaeus, 1767), but is easily distinguished from it by the distribution of complete paramedian sutures on the tergites, the number of tibial spurs on the locomotory legs, and the length of the dorsomedial spinous process on the prefemur of the ultimate legs. The complete sutures in *S. aberrans* are present from the 6th (7th) to 19th (20th) tergites, while in *S. ferrugineus* they are present from the 3rd (4th) to the 20th. Two tibial spurs are present on legs 1 to 19 in *S. aberrans* versus on legs 1 to 18 in *S. ferrugineus*. The dorsomedial spinous process is shorter in *S. aberrans* than it is in *S. ferrugineus*.

*Scolopocryptops aberrans* is distinguished from *S. melanostoma*, the other species from Fiji, by the characters of the tooth plates, number of glabrous antennomeres, incomplete paramedian sutures on the sternites, and length of the coxopleural process and of the ventral and dorsomedial spinous processes on the prefemur of the ultimate legs. In *S. aberrans* each tooth plate bears an acute external and a truncated internal tooth which are well separated, and in *S. melanostoma* each tooth plate is narrow, elongated, strongly chitinised and without teeth. The first two antennomeres in *S. aberrans* are glabrous while in *S. melanostoma* the first four or five are glabrous. There are no incomplete paramedian sutures on the sternites in *S. aberrans*, but they

are present in *S. melanostoma* from the 1st to 15th. Both the coxopleural process and the ventral and dorsomedial spinous processes of *S. melanostoma* are much longer than in *S. aberrans*.

Although the type material of *O. verdescens* only consists of a juvenile specimen, at least five characters: the tooth plates, length of the coxopleural process, pore fields on the coxopleura, length of the ultimate legs, and length of the ventral and dorsal spinous process easily distinguish it from the other species of Scolopocryptopinae with the exception of *S. melanostoma*. All the characters of *O. verdescens* listed above are shared with *S. melanostoma*. In both species the tooth plates lack teeth, the coxopleural process is long and pointed, the pore field almost reaches the lateral borders of the tergite, the ultimate legs are long and thin, and ventral and dorsomedial spinous processes of the prefemur of the ultimate legs are long. Therefore, *O. verdescens* is considered a junior subjective synonym of *S. melanostoma*.

*Scolopocryptops melanostoma* is the most widespread species of Scolopocrptopinae. It is a Gondwanan species, occurring in the Neotropical, Indo-Malay and Pacific Islands regions. As well as being widely distributed in the Antilles, Central and South America, *S. melanostoma* is recorded from Southeast Asia, Indonesia, Papua New Guinea and from several Pacific Islands (Haase 1887, Attems 1930, Chao & Chang 2003) and one subspecies, *S. melanostoma celebensis* Haase, 1887, is known from Celebes in Indonesia. It is possible that individuals of *S. melanostoma* from the Neotropics and Southeast Asian and Indomalayan regions, and Pacific Islands are not conspecific, but a more detailed morphological and molecular examination is required to confirm this. In the original description of *S. miersii fijiensis*, Chamberlin (1920) stated that it was very similar to *Scolopocryptops miersii* – now *Dinocryptops miersii* (Crabill, 1953) – a widespread species in the Neotropical Region, but they were differentiated by the characters of the ventral and dorsomedial spinous processes on the prefemur of the ultimate legs. He stated that in *S. miersii fijiensis* they were longer than in *D. miersii*. In the type material of *S. miersii fijiensis*, however, the ventral and dorsomedial spinous processes on the prefemur of the ultimate legs are shorter than in *D. miersii* rather than longer. Another character not described by Chamberlin in *S. miersii fijiensis* is the presence or absence of spiracles on the seventh pedal segment. This character is traditionally used to separate the genera *Scolopocryptops* (absence) and *Dinocryptops* (presence) and is exclusive to *D. miersii* and *D. broelemanni* (Kraepelin, 1903). I have examined the type material of *S. miersii fijiensis* and did not find any trace of spiracles on the seventh pedal segment, thus it does not belong to *Dinocryptops*, as stated by Chagas-Jr (2003), but rather to *Scolopocryptops*.

*Scolopocryptops miersii fijiensis* is conspecific with *O. aberrans*. The form of the tooth plates (Fig. 6), the sulci on the forcipular coxosternum, the distribution of complete paramedian sutures on the tergites (Fig. 7), and the ultimate pair of legs (Figs 8, 9) are the most striking characters shared by both taxa**.** In both the tooth plates bear two widely separated teeth and the space between the external and internal teeth is almost straight. There is a longitudinal sulcus connected to a transverse sulcus, tergites with complete paramedian sutures from 6th (7th) to 19th (20th), and the ultimate pair of

legs (23rd) have short ventral and dorsomedial spinous processes. Thus, as *O. aberrans* was described on the page before *S. miersii fijiensis*, it is chosen to consider *S. fijiensis miersii* a junior subjective synonym of *O. aberrans*.

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