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Studies on Neotropical Phasmatodea IV. *Jeremiodes*, gen. nov., a new genus of the subfamily Cladomorphinae, and the description of two new species

(Insecta, Phasmatodea, Cladomorphinae, Cladomorphini)

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The new genus *Jeremiodes*, gen. nov. is established with *J. guianensis*, spec. nov. designated as the type-species. The new genus includes three species, two of which are described as new. *Jeremiodes guianensis*, spec. nov. from French Guiana is described and illustrated from both sexes. *Jeremiodes bolivianus*, spec. nov. from the Chapare Province of Bolivia is described and illustrated from the males only. *Bacteria pachycerca* Redtenbacher, 1908 from SE-Peru is transferred to *Jeremiodes*, gen. nov. (comb. nov.). *Bacteria pichisina* Giglio-Tos, 1910 was described from a single female from eastern Peru and has proven to be the opposite sex of *B. pachycerca* Redtenbacher, 1908 (syn. nov.).

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Introduction

The Phasmid fauna of the Neotropical Region is apparently rich but still just fractionally studied. Frequently, new genera and species are discovered in all subregions. The present paper is the second part of an extensive ongoing study of the Neotropical Phasmatodea and describes a new genus and two new species from the subfamily Cladomorphinae. The genus presently includes three known species which are recorded from French Guiana, Bolivia and eastern Peru, but is believed to be distributed all over the Amazon basin.

The two new species were discovered whilst working in the collections of the Museum d'Histoire naturelle Paris and the Munich State Zoological Collections (Germany) and were kindly given to the

authors on loan for examination and description. Type-material of the third taxon was briefly examined during visits in the corresponding institutions and from detailed photographs. Type material of the two newly described species is deposited in ZSMC and MNHN.

Abbreviations

MCSN	Museo Civico di Storia Naturale “Giacomo Doria”, Genova, Italy
MNHN	Museum d'Histoire naturelle, Paris, France
NHMW	Naturhistorisches Museum, Vienna, Austria.
ZSMC	Zoologische Staatssammlung, Munich, Germany.
HT	Holotype
PT	Paratype

Cladomorphinae Bradley & Galil, 1977

Günther (1953: 557) established the subfamily Phibalosominae and included four tribes, namely Cladomorphini, Hesperophasmatini, Cranidiini and Cladoxerini. Bradley & Galil (1977: 186) changed the subfamily name to Cladomorphinae, consequently re-named Günther's Phibalosomini and Haplopodini into Cladomorphini and Hesperophasmatini, and generally took over this authors arrangement of the tribes. Both treated Cladomorphinae (= Phibalosominae) as a subfamily of Phasmatidae. The tribe Cladomorphini includes most of the subfamily's continental members and differs from the three other tribes of Cladomorphinae by the medioventral carina of the profemora strongly approaching the anteroventral carina instead of being midways on the ventral surface. Furthermore, it is characteristic for the specializations of the male poculum.

Presently the following genera are included in Cladomorphini: *Cladomorphus* Gray, 1835 (= *Phibalosoma* Gray, 1835), *Jeremiodes*, gen. nov., *Hirtuleius* Stål, 1875, *Jeremia* Redtenbacher, 1908, *Otocrania* Redtenbacher, 1908, *Otocraniella* Zompro, 2004 and *Xylodus* Saussure, 1859. The here newly described genus is apparently closely related to *Jeremia* Redtenbacher (see differentiation and table 1 below).

Jeremiodes, gen. nov.

Type-species: *Jeremiodes guianensis*, spec. nov., by present designation.

Bacteria Redtenbacher, 1908: 415. (in part). – Giglio-Tos, 1910: 42. (in part); Brock, 1998: 48; Otte & Brock, 2003: 74 ff. (in part); 2005: 61. (in part).

Description

Small to medium sized (body lengths: ♀♀ 104.0–147.7 mm incl. subgenital plate, ♂♂ 60.0–79.4 mm), moderately elongate and slender Cladomorphini. Ocelli lacking in ♀♀, reduced but visible in ♂♂. Body of ♀♀ slightly oval in cross-section, cylindrical in ♂♂. ♀♀ apterous, ♂♂ with fully developed alae (24.2–39.4 mm) and scale-like tegmina. Complete surface of thorax densely granulate in ♀♀; more minutely and sparingly granulate in ♂♂. Abdomen smooth or very sparingly granulate. Head longer than pronotum, longer than wide, oval; vertex either flat or very gently rounded, unarmed. Antennae of ♀♀ longer than head, pro- and mesonotum combined, of ♂♂ longer than combined length of head and complete thorax. Scapus rectangular, about 1.5× longer than wide and dorsoventrally compressed. Mesothorax elongate, at least 2× longer than head

and pronotum combined. Meso-, metasternum and sternites II–VII of ♂♂ with a more or less distinct, longitudinal median carina; simple in ♀♀. Median segment slightly longer (♀♀), or about 3× longer than metanotum in ♂♂. Tegmina of ♂♂ oval, slightly convex and indistinctly longer than metanotum. Alae at least covering tergites II–IV; anal region transparent. Abdomen longer than head and complete thorax combined. Abdominal segments II–VII of both sexes distinctly longer than wide and parallel-sided. Sternite VII of ♀♀ lacking a praeopercular organ. Tergite IX of ♂♂ strongly elongated, of bone-like appearance and at least 2× longer than anal segment. Anal segment of ♀♀ with a fine median carina; of ♂♂ strongly broadened towards the posterior, transverse. Cerci of ♀♀ very small, slender and distinctly tapered towards the apex. Cerci of ♂♂ prominent, dorsoventrally flattened, and broadened towards the apex which is obtuse and angled inward. Vomer elongate, roughly triangular and distinctly pointed apically. Poculum of ♂♂ prominent and strongly convex, posterior margin bi-dentate. Gonapophyses of ♀♀ filiform and projecting considerably over the anal segment. Subgenital plate of ♀♀ very elongate, lanceolate, pointed apically and projecting over the anal segment by at least the combined length of tergites VIII–X. Legs very slender, elongate and completely destitute of spines or teeth in ♂♂. In ♀♀ rather short and stout, with all carinae of the femora and tibiae distinct and more or less elevated or undulate. All carinae unarmed (at best minutely granulate) and 1 or 2 sub-apical teeth on the antero- and posterventral carinae of the meso- and meta-femora. Profemora triangular in cross-section; medioventral carina very prominent, ledge-like and strongly approaching anteroventral carina. Meso- and metafemora and tibiae trapezoidal in cross-section, medioventral carina distinct. Basitarsi as long as following three tarsomeres (♀♀), or distinctly longer than remaining tarsomeres (♂♂) combined, simple. Dorsal carina of probasitarsus very slightly raised in ♀♀.

Eggs unknown.

Differential diagnosis. Characterized amongst Cladomorphini by the densely granulate thorax of ♀♀, and prominent, distinctly hook-like and dorsoventrally flattened cerci of ♂♂.

Related to *Jeremia* Redtenbacher, 1908 (Type-species: *Jeremia grossedentata* Redtenbacher, 1908), but distinguished by: the more slender body; more elongate and less globose head; densely granulate thorax; lack of distinct spines on the meso- and metapleurae and sterna; lack of dorsal lobes on tergite VII; considerably longer, lanceolate subgenital plate and lack of distinct spines on the me-

dioventral carinae of the meso- and metafemora and tibiae. From *Hirtuleius* Stål, 1875 (Type-species: *Hirtuleius laeviceps* Stål, 1875) *Jeremiodes* **gen. nov.** differs by: the flat and elongate head; lack of tubercles on the meso- and metanotum; lack of lateral lobes on tergites VI and VII and apically pointed subgenital plate. For a more detailed differentiation between *Jeremiodes* **gen. nov.**, *Jeremia* and *Hirtuleius* see table 1 below. As the males of both *Jeremia* and *Hirtuleius* are not known, the distinguishing characters define to females only.

Etymology. The generic name “*Jeremiodes*” mirrors the relation to *Jeremia* Redtenbacher, 1908.

Distribution. So far recorded from French Guiana and the tropical lowland regions of eastern Peru and Bolivia, east of the Andes. Most certainly this genus is distributed in the complete Amazon basin.

Species included

- 1. *Jeremiodes bolivianus*, spec. nov.
Bolivia: Chapare Province
- 2. *Bacteria pachycerca* Redtenbacher, 1908: 415.
Peru: Marcapata
= *Bacteria pichisina* Giglio-Tos, 1910: 42, syn. nov.
Peru: Rio Pichis
- 3. *Jeremiodes guianensis*, spec. nov.
French Guiana: Mont. de Kaw

Key to the species of *Jeremiodes*, gen. nov.

♂♂

- 1. Large (body length >70 mm)2.
- Small (body length 60 mm); Peru
.....*pachycercus* (Redtenbacher)

- 2. Mesothorax 2.5 × longer than head and pronotum combined, smooth; alae reaching half way along tergite IV; tibiae reddish brown; Bolivia
..... *bolivianus*, spec. nov.
- Mesothorax 2 × longer than head and pronotum combined, granulose; alae reaching posterior of tergite V; tibiae green; French Guiana
..... *guianensis*, spec. nov.

♀♀

The ♀ of *J. bolivianus* spec. nov. is not known.

- 1. Small (body length incl. subgenital plate 104.0 mm); head granulose; posterior margin of mesonotum flat; Peru *pachycercus* (Redtenbacher)
- Large (body length incl. subgenital plate 147.7 mm); head smooth; posterior margin of mesonotum strongly raised; French Guiana
..... *guianensis*, spec. nov.

***Jeremiodes bolivianus*, spec. nov.**

Figs 1-3, 11

Types. Holotype: ♂, Bolivia – Region Chapare – 400 m – leg. Zischka 2. XI. 54 (ZSMC). – Paratype: 1 ♂, Bolivia trop., Prov. Chapare, 400 m, leg. 15. XI. 1949 Zischka (ZSMC).

Differential diagnosis. Closely related to *J. pachycerca* (Redtenbacher) from Peru, but distinguished by: the distinctly larger size; shorter and more globose head; smooth and glabrous bluish green mesonotum and mesopleurae, the first having a fine, longitudinal, black median line; and relatively shorter alae which do not exceed the posterior mar-

Tab. 1. Comparison of *Jeremiodes*, gen. nov., *Hirtuleius* Stål and *Jeremia* Redtenbacher (♀♀).

♀♀	<i>Hirtuleius</i>	<i>Jeremiodes</i>	<i>Jeremia</i>
Head	Globose	Elongate, ovoid	Globose
Thorax (general surface)	Rugulose/tuberculose	Densely granulose	Smooth
Meso- and metanotum (armature)	With irregular blunt tubercles	Unarmed	Unarmed or sparsely covered with prominent spines
Meso- and metasternum	Unarmed	Unarmed	Spinose
Meso- and metaplaeurae	Unarmed	Unarmed	Spinose
Abdomen	Tergite VI and VII with a posterolateral lobe	Tergites VI and VII parallel-sided, simple	Tergite VII with two postero-medial lobes dorsally
Subgenital plate	Elongate, spatulate, apex truncate	Elongate, lanceolate, apex pointed	Short, apex rounded
Medioventral carinae of mid and hind legs	Unarmed	Unarmed	Armed with prominent, triangular teeth
Basitarsi (dorsal carina)	Distinctly raised and truncate	Simple to very slightly rounded	Gently rounded or simple

gin of tergite IV. From *J. guianensis*, spec. nov. from French Guiana it differs by: the shorter and more globose head; relatively longer mesothorax; smooth and glabrous bluish green mesonotum and mesopleurae, the first of which has a fine, longitudinal, black median line; shorter tergite IX; shorter alae which do not reach tergite V and reddish brown instead of green tibiae.

Description

The PT appears to have been a just newly adult specimen when it was captured and has the typical colouration, especially of the mesothorax, less developed than the HT.

♂♂: Medium sized (body length 75.0–75.8 mm), slender (maximum body width 2.5 mm) species with long, slender legs and shortened alae (24.2–24.4 mm). Head, prothorax, metasternum and abdomen plain yellowish or mid brown. The HT has the head with two very faint oval dark markings and another very faint dark marking close to lateral margin. Lateral margins of pronotum black. Mesonotum glabrous pale bluish green (greyish in the PT) with a very fine, black longitudinal median line and a slightly broader, dark brown longitudinal line about 0.5 mm off the lateral margins, each of which gradually widens to a broad dark brown marking in posterior section of mesonotum; these markings melted with

another. Lateral margins of mesonotum marked by a distinct black line. Mesopleurae pale blueish green, posterior margin black. Mesosternum only blueish green in anterior section but soon becoming dark brown and with the median longitudinal keel black. Metapleurae greenish brown. Abdominal tergite IX with a pale anterolateral marking. Tegmina plain mid brown with anterior margin straw. Costal region of alae pale to mid brown with a bold rounded patch at the base, a slightly paler anterior margin and all longitudinal veins dark brown. Anal region very slightly brownish, transparent and with the veins brown. Ventral surfaces of all coxae black. Meso- and metafemora green to greyish green; all femora with apex black. Profemora and all tibiae and tarsi orange to reddish brown; apices of tibiae brown (HT) or black (PT). Antennae dark brown and almost black ventrally.

Head. Oval, subcylindrical, $2 \times$ longer than wide, broadest slightly behind the eyes, smooth; vertex gently rounded. Between bases of the antennae with a distinct impression and a minute granule at the anterior margin of the head capsule. Between the eyes with two oval, very slightly raised areas. Eyes circular, strongly convex, projecting hemispherically. Antennae long, filiform and reaching to posterior margin of abdominal tergite VIII. Scapus oval in cross-section, $1.5 \times$ longer than wide, parallel-sided. Pedicellus cylindrical, $\frac{2}{3}$ the length of scapus.

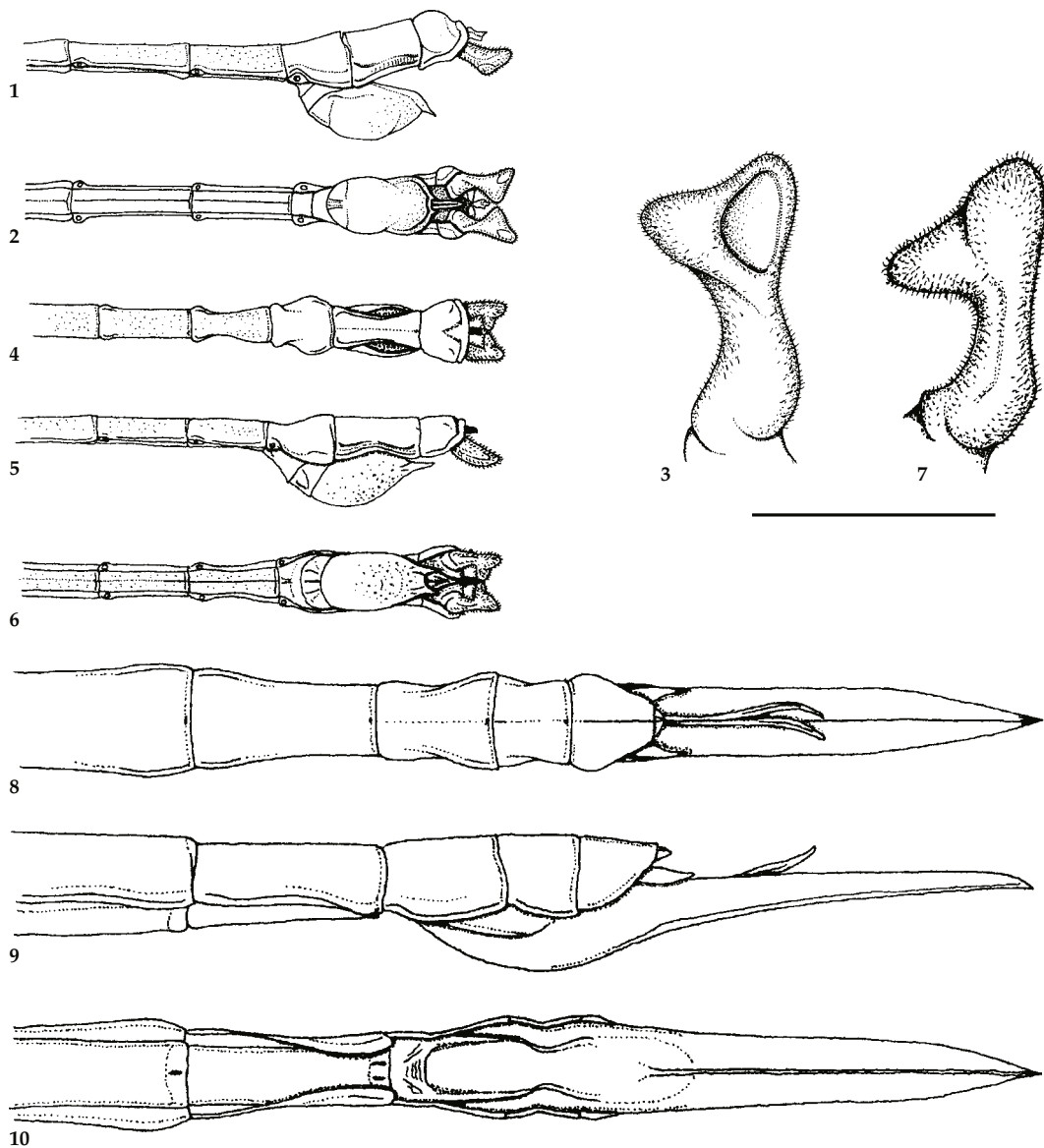
Tab. 2. Measurements (in mm) of the species of *Jeremiodes*, gen. nov.

	<i>J. guianensis</i>		<i>J. pachycercus</i>		<i>J. bolivianus</i>	
	♂, HT (MNHN)	♀, PT (MNHN)	♂, HT (NHMW)	♀, HT (MCSN)***	♂, HT (ZSMC)	♂, PT (ZSMC)
Body (incl. subgen. plate)	–	147.7	–	–	–	–
Body	79.4	129.5	60.0*	104.0	75.0	75.8
Head	3.7	7.6	3.5	–	3.9	4.1
Pronotum	2.9	5.5	2.3	–	3.4	3.5
Mesonotum	13.8	22.8	11.7	21.0	16.1	16.3
Metanotum	3.8	8.7	11.0**	7.0	3.1	11.2**
Median segment	11.3	10.3	–	9.0	7.9	–
Subgenital plate	–	30.9	–	23.0	–	–
Tegmina	6.3	–	4.0	–	5.3	5.2
Alae	39.4	–	27.0	–	24.2	24.4
Profemora	20.1	20.8	18.1	22.0	22.6	22.8
Mesofemora	15.7	18.3	13.2	17.0	16.0	18.6
Metafemora	20.3	23.3	17.0	21.0	20.8	23.7
Protibiae	20.6	20.2	18.4	–	23.1	24.0
Mesotibiae	13.8	17.5	13.1	–	17.9	17.6
Metatibiae	20.1	24.0	17.9	–	22.2	23.2
Antennae	53.7	42.4	45.0	–	65.0	>46.0

* after Redtenbacher (1908: 415)

** including median segment

*** HT of *Bacteria pichisina* Giglio-Tos, 1910, after Giglio-Tos (1910: 42)



Figs 1-10. 1-3. *Jeremiodes bolivianus*, spec. nov. ♂ (HT), terminal abdominal segments. 1. Dorsal view. 2. Lateral view. 3. Right cercus in ventral view (greatly enlarged). Scale = 10 mm

4-7. *Jeremiodes guianensis*, spec. nov. ♂ (HT), terminal abdominal segments. 4. Dorsal view. 5. Lateral view. 6. Ventral view. 7. Right cercus in ventral aspect (greatly enlarged).

8-10. *Jeremiodes guianensis*, spec. nov. ♀ (PT), terminal abdominal segments. 8. Dorsal view. 9. Lateral view. 10. Ventral view.

Antennomere III slightly longer than pedicellus but distinctly narrower. IV less than half the length of III. Following antennomeres increasing to about mid if antennae, then decreasing in length.

Thorax. Pronotum slightly shorter and considerably narrower than head, almost 2 × longer than

wide and parallel-sided with anterior margin broadened. Lateral margins raised, transverse median depression very slightly curved and anterior half with an impressed median line. Otherwise smooth except for a very few minute granules. Mesothorax elongate, 2.2 × longer head and pronotum combined,

slightly narrower than pronotum and of constant width except for being slightly widened at the posterior. Mesonotum with a very faint and lightly raised longitudinal median carina and with a few minute, black granules; otherwise smooth. Mesopleurae with a longitudinal row of minute, black granules. Mesosternum with a distinct longitudinal median keel. Metanotum broader than mesonotum, $1.5\times$ longer than wide. Metapleurae and metasternum with a faint longitudinal median carina. Tegmina elongate, oval, narrowed towards the base and with a small, conical central hump; slightly projecting over posterior margin of metanotum. Alae reaching half way along tergite IV.

Abdomen. Median segment $2.5\times$ longer than metanotum, smooth, parallel-sided. Segments II-V of equal length, $4\times$ longer than wide and parallel-sided. VII and VIII slightly shorter; VII slightly broadened at posterior margin. Tergites smooth except for a very minute granules which can only be seen at $4\times$ magnification. Sternites II-VII with distinct, longitudinal median keel. Tergite VIII less than $\frac{2}{3}$ the length of VII and strongly widened towards the posterior. IX $\frac{3}{4}$ the length of VII strongly convex and prominently medially constricted. Anal segment half the length of IX but broader, transverse, laterally rounded and with a broad medial indentation at posterior margin. Cerci $\frac{2}{3}$ the length of anal segment, very prominent, dorsoventrally flattened with apices truncate, angled inwards and strongly broadened. Vomer very elongate, gradually pointed towards a pointed tip which almost reaches the posterior margin of the anal segment, lateral margins raised. Subgenital plate convex, cup-like, slightly projecting over posterior margin of tergite IX and with two small medial teeth at posterior margin.

Legs. All long, rather slender and destitute of spines or teeth. Profemora longer than mesothorax, mesofemora about as long as mesothorax and hind legs projecting over apex of abdomen. Medioventral carina of femora distinct. Pro- and mesobasitarsus $1.5\times$ longer, metabasitarsus $2\times$ longer than remaining tarsomeres combined.

Etymology. The specific name "*bolivianus*" refers to the type-locality Bolivia.

Comments. ♀ and egg unknown.

Jeremiodes guianensis, spec. nov.

Figs 4-10, 12-13

Types. Holotype: ♂, Guyane Française, Montagnes de Kaw, Piste de Kaw, Roubaud rec. (MNHN). – Paratypes: 1♀, Guyane Française, Montagnes de Kaw, Piste de Kaw, Roubaud rec. (MNHN); 1♀ (subadult nymph),

Guyane Française, Montagnes de Kaw, Piste de Kaw, Cerdan leg., J. Solard, Roubaud Coll. (MNHN).

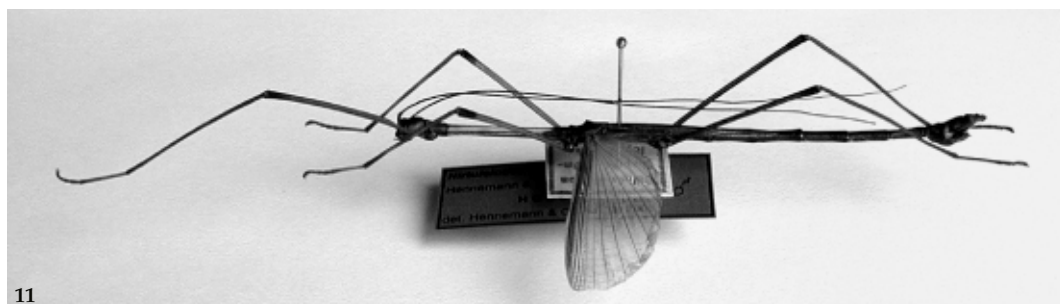
Differential diagnosis. The ♂♂ are similar to *J. pachycercus* (Redtenbacher) from Peru but easily distinguished by: the distinctly larger size; relatively shorter mesothorax and granulose mesonotum; brown instead of yellowish brown abdomen; green instead of reddish brown meso- and metatibiae and the slightly longer alae which reach as far as to the posterior margin of tergite V. The ♀♀ are easily distinguished from *J. pachycercus* by: the distinctly larger size; slightly more elongate and completely smooth head; slightly broader meso- and metathorax; strongly raised posterior margin of the mesonotum and distinct sub-apical spine of the antero- and posteroventral carinae of the meso- and metafemora.

Description

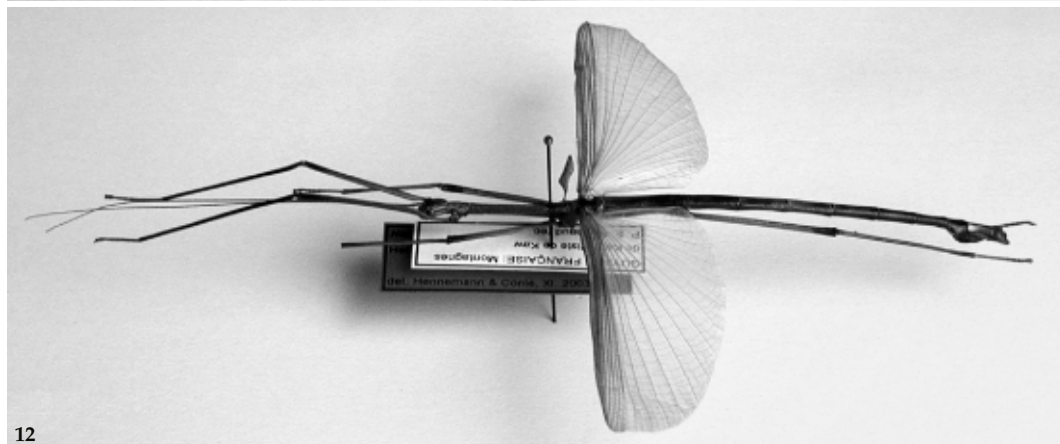
The following descriptions of the ♀ and ♂ are based on the almost perfect HT & PT in MNHN. The ♂ HT is complete except for the left mesotarsus, the left hind claw and the apical segments of the left antennae. The ♀ PT has the right hind leg regenerated and considerably shorter than the left.

♀♀. Medium-sized (body length 129.5 mm excluding subgenital plate) rather slender (maximum body width 6.6 mm) and apterous, with a long and lanceolate subgenital plate (30.9 mm); large for the genus. General colouration of body pale greyish brown with some lighter dots on the abdomen and a bold bright green lateral marking on the tergites II-V. Ventral surface of thorax greenish brown and with very indistinct, darker markings. Ventral surface of abdomen slightly whitish and with white markings. Head creamish grey-brown with several darker brown longitudinal bands, especially the postocular one being very broad and distinct. Antennae greyish brown basally but becoming darker and almost black towards the apex. Profemora yellowish brown, protibiae slightly darker brown; meso- and metafemora as well as meso- and metatibiae green. Apices of all femora and tibiae brown. Tarsi and operculum dark brown. Fila ovipositoris brown and shiny black towards apex.

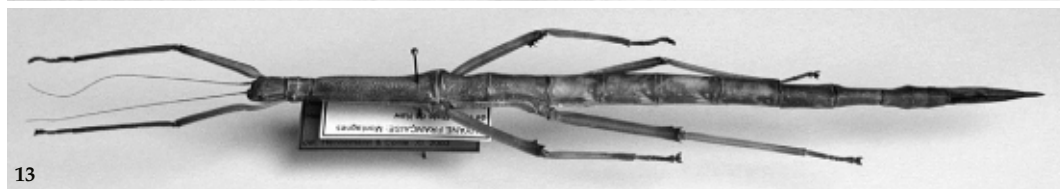
Head. Elongate, $1.3\times$ longer than wide, parallel-sided, oval in cross-section. Vertex almost flat and destitute of granules or tubercles. Eyes dark greyish brown, of moderate size, circular and strongly convex. Between the eyes with an almost circular, slightly raised and distinctly bordered area. Antennae slightly longer than head, pro- and mesonotum combined (42.4 mm), antennomeres very short and distinctly decreasing in length to-



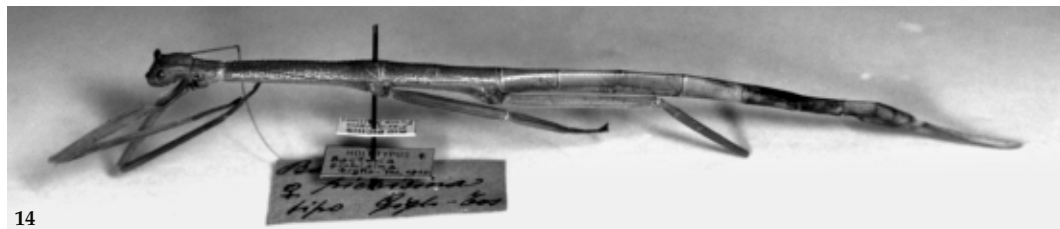
11



12



13



14

Figs 11-14. Habitus. 11. *Jeremiodes bolivianus*, spec. nov., HT, ♂ (ZSMC). 12. *J. guianensis*, spec. nov., HT, ♂ (MNHN). 13. *J. guianensis*, spec. nov., PT, ♀ (MNHN). 14. *J. pachycercus* (Redtenbacher, 1908), HT ♀ of *Bacteria pichisina* Giglio-Tos, 1910 (MCSN).

wards apices of antennae. Scapus dorsoventrally flattened, rectangular and about $1.5\times$ longer than wide. Pedicellus cylindrical, broader than following antennomeres and about $\frac{2}{3}$ the length of scapus.

Thorax. Pronotum slightly shorter and narrower than head, less than $1.5\times$ longer than wide, constricted medially and smooth except for four central granules and some very minute granules

along lateral margins. Anterior margin slightly raised and concave, posterior margin low and slightly convex. Transverse median depression very distinct, slightly curved and reaching lateral margins of segment. Median line very indistinct. Prosternum slightly trapezoidal and densely granulose. Mesothorax about $2\times$ longer than head and pronotum combined, constricted at anterior margin, widened

afterwards and prominently broadened posteriorly; complete surface densely covered with rounded granules, those on the pleurae and sternum dark green. Mesonotum with posterior margin prominently raised and forming a transverse carina. Metathorax structured like mesothorax. Metanotum about $1.3\times$ longer than wide, medially constricted and with anterior margin broader than posterior margin.

Abdomen. Median segment more than $1.5\times$ longer than wide, longer than the metanotum, constricted medially and all over covered with minute rounded granules. Segments II-VI parallel-sided, smooth and increasing in length, II $1.3\times$ longer than wide, VI $2\times$ longer than wide. Tergite VII as long as VI but distinctly narrower and about $2.5\times$ longer than wide. VIII slightly more than half the length of VII, strongly convex and with a slight median keel; anterior half parallel-sided and as broad as VII, posterior half distinctly widened towards posterior margin. IX about $\frac{2}{3}$ the length of VII slightly transverse and with a slight median keel. Anal segment slightly longer than IX, with a fine median carina, slightly tapered and with a rounded posterior margin. Supraanal plate very short, transverse, pointed towards the apex and slightly tectiform. Cerci small, oval in cross-section and tapered towards a distinctly pointed apex; clearly projecting over posterior margin of anal segment. Gonapophyses very elongate, filiform, up-curving at the apex and projecting over the anal segment by the combined length of tergites IX and X. Subgenital plate lanceolate and tapered towards a pointed tip, strongly keeled basally and projecting over anal segment by the combined length of tergites VII-IX.

Legs. All rather short and stout, profemora shorter than mesonotum, mesofemora as long as metanotum and median segment combined and hind legs reaching to posterior margin of abdominal tergite VII. All carinae undulate, destitute of teeth or spines but densely covered with minute tubercles. Antero- and posteroventral carinae of the meso- and metafemora with a distinct, black-sub-apical tooth (anteroventral carina of mesofemora with two black teeth). Medioventral carina of profemora elevated, ledge-like and unarmed. Medioventral carina of meso- and metafemora slightly raised and with a row of very minute granules. Basitarsi as long as following three tarsomeres combined, probasitarsus with a slightly raised dorsal carina.

♂♂. Medium-sized (body length 79.4 mm) and slender (maximum body width 2.9 mm) Cladomorhini with well developed alae (39.4 mm); large for the genus. Mesothorax, metapleurae and metasternum glabrous dark green, pronotum pale greyish

with a longitudinal dark green marking on both sides of the median line. Head greyish brown with several darker brown longitudinal bands, which are identical to those in ♀♀, and an additional bold black marking between the eyes. Scapus and pedicellus blackish brown. Remaining part of antennae greyish brown and becoming black towards the apices. Abdomen plain brown with an irregular whitish anterior marking on tergite IX; sternite VIII almost entirely white. Ventral surfaces of all coxae glabrous black. Profemora yellowish brown, protibiae blackish brown, meso- and metafemora and meso- and metatibiae bright mid green. Apices of all femora and tibiae black. Tarsi yellowish to greenish brown. Tegmina and costal region of alae transparent yellowish brown with the veins dark brown and a bold white longitudinal band at the anterior margin. Costal region of alae with a further very fine longitudinal green line which begins at the base of the alae and covers almost $\frac{2}{3}$ of its length. Anal region transparent.

Head. About $1.3\times$ longer than wide, oval, vertex slightly convex and entirely smooth. Eyes dark brown, circular, strongly convex and prominently projecting from head capsule. Between the eyes with a black, almost circular and distinctly marginated convex area. Antennae generally as in ♀♀ but relatively longer, reaching to posterior margin of abdominal tergite III.

Thorax. Pronotum generally as in ♀♀ but less distinctly medially constricted. Prosternum trapezoidal and covered with minute granules. Mesothorax very slender, elongate, more than $4\times$ longer than pronotum, parallel-sided; complete surface densely covered with small granules. Lateral margins of mesonotum raised and with a row of small, pointed tubercles. Mesosternum with a faint median keel. Metanotum prominently shorter than mesonotum and median segment, indistinctly longer than wide. Metapleurae and metasternum densely granulose; metasternum with a very faint median keel. Tegmina small, oval, tapered towards base and slightly convex; slightly longer than the metanotum. Alae reaching half way along tergite V.

Abdomen. Median segment about $4\times$ longer than metanotum, slightly narrowed towards the posterior and smooth. Segments II-VI very indistinctly granulose, parallel-sided and of equal width, II almost $4\times$ longer than wide, II-VI of equal length and about $3\times$ longer than wide. VII shorter than previous, less than $2.5\times$ longer than wide and medially constricted; of bone-like appearance. Sternites II-VII with a very faint median carina. Tergite VIII about $\frac{2}{3}$ the length of VII and distinctly broadened medially. IX distinctly narrower than VIII, medially constricted and $2.5\times$ longer than wide. Anal segment

half the length of IX, strongly convex and prominently widened towards the posterior. Posterior margin raised and with a faint medial gap. Cerci very prominent, slightly dorsoventrally flattened with apices prominently broadened, truncate and angled inward. Vomer dark brown, elongate gradually narrowed and with a pointed tip. Subgenital plate large, rounded, strongly convex and reaching to posterior margin of tergite IX. Complete surface irregularly covered with $\pm$ distinct and pointed granules; posterior margin with a rounded median gap and a triangular tooth at each angle.

Legs. All long and slender, and less distinctly carinated than in ♀♀, completely destitute of spines or teeth. Profemora about as long as head, pro- and mesonotum combined, mesofemora slightly longer than mesonotum and metafemora projecting over posterior margin of tergite IV. All carinae covered with a row of very minute tubercles. All tarsi simple, basitarsi longer than remaining tarsomeres combined.

Nymph. The subadult ♀ nymph (PT) has the legs relatively broader, and the subgenital plate and gonapophyses shorter than the adult specimen. Due to a former preservation or killing in ethanol the colour has changed to dark yellow and pale brown on the abdomen. The specimen is believed to have been plain mid green when alive.

Etymology. The name refers to the type-locality French Guiana.

Comments. Egg unknown.

Jeremiodes pachycercus (Redtenbacher, 1908),
comb. nov.

Fig 14

Bacteria pachycerca Redtenbacher, 1908: 415. Holotypus: ♂, Marcapata, Peru, Staudinger; Collectio Br. v. W.; det. Redtenb. *Bacteria pachycerca*; 24.144 (NHMW, No. 801). – Brock, 1998: 48; Otte & Brock, 2003: 80; 2005: 65.

Bacteria pichisina Giglio-Tos, 1910: 42. Holotypus: ♀, Rio Pichis, Perú, 1903, Pesce Maineri; Holotypus, *Bacteria pichisina*, Giglio-Tos, 1910 ♀; *Bacteria pichisina* Giglio-Tos ♀ tipo (MCSN). syn. nov. – Otte & Brock, 2003: 80, 2005: 66.

Differential diagnosis. The very small size and elongate head clearly distinguish this from the two other species in the genus. ♂♂ are very similar to *J. bolivianus*, spec. nov. but differ by: the much smaller size; plain brownish green mesothorax; more elongate and less globose head and relatively longer alae, which reach as far as to the posterior margin of tergite IV. From the type-species *J. guian-*

ensis, spec. nov. ♂♂ are distinguished by: the distinctly smaller body and more elongate head of both sexes; relatively longer mesothorax; yellowish brown instead of brown abdomen and reddish brown instead of green tibiae which exhibit some irregular, transverse dark bands. ♀♀ differ from *J. guianensis*, spec. nov. by: the granulose head; slightly more slender meso- and metathorax; flat, not distinctly raised posterior margin of the mesonotum and lack of a distinct sub-apical spine on the antero- and posteroventral carinae of the meso- and metafemora.

Description

The following descriptions of the ♀ and ♂ are based on the type-specimens in MCSN and NHMW. The ♂ HT of *B. pachycerca* is complete except for the terminal four abdominal segments; both metatarsi and apical segments of the left antenna. The ♀ HT *B. pichisina* lacks the right mid and hind leg, right metatarsus as well as the apices of the antennae and has the gonapophyses broken.

♀♀. Small (body length 104.0 mm excluding subgenital plate) rather slender and apterous, with a very long and lanceolate subgenital plate (23.0 mm). General colouration of body and legs yellowish mid brown, the subgenital plate green. Certainly the specimen is discoloured due to a former preservation in ethanol and is believed to have been greenish when alive. Abdominal segments VI and VII darker brown (caused by preservation). Eyes dark reddish brown, antennae dark brown and becoming black towards apex.

Head. Ovoid, elongate, $1.6 \times$ longer than wide, broadest at the eyes and gently narrowing towards the posterior. Vertex very slightly rounded and covered with several acute granules. Eyes of moderate size, circular and strongly convex. Between the eyes with a slightly raised area. Antennae at least as long as head, pro- and mesonotum combined (apices broken in the HT), antennomeres very short and distinctly decreasing in length towards apices of antennae. Scapus dorsoventrally flattened, about $1.5 \times$ longer than wide and slightly narrowed towards the base. Pedicellus cylindrical, broader than following antennomeres and about $\frac{2}{3}$ the length of scapus.

Thorax. Pronotum distinctly shorter and slightly narrower than head, about $1.3 \times$ longer than wide, roughly rectangular densely granulose. Longitudinal median line and transverse median depression distinct, the latter slightly curved and almost reaching to lateral margins of segment. Prosternum slightly trapezoidal and densely granulose. Mesothorax elongate, slightly more than $2 \times$ longer than head and pronotum combined, slightly constricted

at anterior margin, parallel-sided medially and gently widened at posterior margin; complete surface densely granulose. Metathorax structured like mesothorax. Metanotum about 1.3x longer than wide and gradually narrowing towards posterior margin.

Abdomen. Median segment almost 2x longer than wide, distinctly longer than metanotum, medially constricted and all over covered with minute rounded granules. Segments II-VII parallel-sided, very minutely granulose. II-VI slightly increasing in length (relations hard to define as the segments are laterally compressed in the HT). Tergite VII $\frac{2}{3}$ the length of VI but distinctly narrower and about 2.5x longer than wide. VIII about $\frac{3}{4}$ the length of VII, strongly convex and with a slight median keel; slightly widened towards posterior margin. IX half the length of VIII quadrate and with a slight median keel. Anal segment about as long as IX, with a fine median carina, slightly tapered towards the posterior, with posterior margin rounded. Supraanal plate very short. Cerci small, oval in cross-section and tapered towards a pointed apex; clearly projecting over posterior margin of anal segment. Gonapophyses elongate, filiform and distinctly projecting over the anal segment (broken in the HT). Subgenital plate very elongate and lanceolate, tapered towards a pointed tip and projecting over anal segment by the combined length of tergites VII-X. Basal section strongly keeled.

Legs. All rather short and stout, profemora about as long as mesonotum, mesofemora as long as metanotum and median segment combined and metatibiae reaching $\frac{1}{3}$ the way along abdominal tergite VI. All carinae undulate and destitute of teeth or spines but densely covered with minute tubercles. Antero- and posteroventral carinae of the meso- and metafemora with a very indistinct sub-apical tooth. Medioventral carina of profemora elevated and ledge-like, unarmed. Medioventral carina of meso- and metafemora slightly raised and with a row of very minute granules. Basitarsi slightly longer than following three tarsomeres combined, probasitarsus with a slightly raised dorsal carina.

♂♂. Very small (body length 60.0 mm, according to Redtenbacher, 1908: 415) and slender with well developed alae (27.0 mm). Mesonotum and bases of profemora pale bluish green, abdomen yellowish green. Mesonotum with a very fine, dark green longitudinal median line and a slightly broader, dark green longitudinal line about 0.5 mm off the lateral margins, each of which widens to a broad brownish green marking in posterior section of mesonotum; these markings melted with another. Lateral margins of mesonotum broadly whitish. Metapleurae pale

green, meso- and metasternum brown. Head and pronotum mid brown. Tegmina pale brown basally and with a broad longitudinal pale yellowish marking along lateral margin. Costal region of alae pale green with the main longitudinal veins broadly brown and a pale yellowish longitudinal stripe along anterior margin. Anal region transparent. Meso- and metafemora green. Profemora, all tibiae and tarsi orange brown, the tibiae with two distinct straw transverse bands (faint on protibiae). Apices of all femora, ventral surface of procoxae as well as meso- and metacoxae black. Antennae greyish but becoming very dark brown towards the apex. Scapus and pedicellus of same colour as head.

Head. About 1.6x longer than wide, oval, vertex almost flat and smooth. Broadest at the eyes and gently narrowed towards the posterior. Eyes reddish brown, circular, very prominent and projecting hemispherically. Between the eyes with two slightly raised, oval areas. Antennae generally as in ♀♀ but relatively longer, extending as far back as to posterior margin of abdominal tergite V.

Thorax. Pronotum distinctly shorter and narrower than head, generally as in ♀♀. Transverse median depression distinct. Prosternum trapezoidal and minutely granulose. Mesothorax very slender, elongate, parallel-sided and about 2.3x longer than head and pronotum combined. Surface smooth except for a few small, scattered granules. Mesosternum with a faint median keel. Metanotum prominently shorter than mesonotum and median segment, indistinctly longer than wide. Metapleurae and metasternum very minutely granulose; metasternum with a very indistinct median keel. Tegmina small, oval, tapered towards the base and slightly convex. Alae reaching $\frac{1}{3}$ the way along tergite V.

Abdomen. Median segment distinctly longer than metanotum, unarmed (covered by alae in the HT). Segments II-VI very minutely granulose, parallel-sided and of uniform width, being about 3.5x longer than wide. Segments VII-X lacking in the HT. Redtenbacher (1908: 415) described these segments as follows: "Segmentum anale globoso-convexum, apice truncatum. Cerci breves, crassi, obtusi, leviter incurvi. Lamina subgenitalis fornicata, apice bispinosa [Anal segment globose, convex and truncate apically. Cerci short, very prominent, broadened and in-curving. Subgenital plate convex with the apex bi-spinose]".

Legs. All long and slender, less distinctly carinated than in ♀♀ and completely destitute of spines or teeth. Profemora about as long as head, pro- and mesonotum combined, mesofemora as long as mesonotum and metafemora reaching to posterior margin of tergite V. All carinae covered with a row of very minute tubercles. Tarsi simple, proasitarsus dis-

tinctly longer than remaining tarsomeres combined, mesobasitarsus as long as remaining tarsomeres combined. Metatarsi missing in the HT.

Comments. Redtenbacher (1908: 415) described *Bacteria pachycerca* from a single ♂ in NHMW which has since its description suffered from damage, having the four terminal abdominal segments broken off and missing, or destroyed by parasites. Redtenbacher's description of these segments however "Segmentum anale globoso-convexum, apice truncatum. Cerci breves, crassi, obtusi, leviter incurvi. Lamina subgenitalis fornicata, apice bispinosa" clearly places *B. pachycerca* in *Jeremiodes*, gen. nov. The data "Peru, Marcapata" were not recorded by Redtenbacher, who erroneously stated the exact locality to be not known.

Bacteria pichisina Giglio-Tos, 1910 was described from a single ♀ in MCSN, collected along Rio Pichis in eastern Peru. Examination of the HT has shown this as well to be a member of the new genus *Jeremiodes*. Comparison with *B. pachycerca* Redtenbacher has proven *B. pichisina* Giglio-Tos to be the opposite sex of Redtenbacher's species, which is e.g. seen in the conspicuously small size; very elongate head and long mesothorax.

The type-localities in Peru, "Marcapata" and "Rio Pichis", are both situated east of the Andes and are less than 500 kilometres away from each other. Marcapata lies some 70 km east of Cuzco in the eastern slopes of the Cordillera de Carabaya, and Rio Pichis is the most southern affluent of Rio Pachitea about 200 km south of Pucallpa. Both regions exhibit a very similar Phasmatodean fauna and are known to share several species.

Egg unknown.

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Buchbesprechungen

1. O'Shea, M.: Giftschlangen. Alle Arten der Welt in ihren Lebensräumen. – Franckh-Kosmos Verlags GmbH & Co., Stuttgart, 2006. 160 S., zahlr. Farbfotos. ISBN 978-3-440-10619-8

Giftschlangen ängstigen und faszinieren zugleich die Menschen seit Urzeiten, Und das gilt selbst für uns Mitteleuropäer, die wir kaum in Kontakt mit gefährlichen Giftschlangen kommen, da es bei uns nur wenige Arten gibt, die überdies relativ ungefährlich sind, und da unsere Giftschlangen außerdem in neuerer Zeit auf wenige Gebiete wie Moore und Heiden zurückgedrängt wurden. Die meisten Menschen haben deshalb bei uns noch niemals eine Giftschlange mit Bewußtsein gesehen.

Im Zuge unserer Reiselust in ferne Länder hat sich das aber geändert. Viele Mitteleuropäer reisen in Länder oder Gegenden, in denen durchaus Giftschlangen leben oder sogar häufig sind, auch wenn die meisten Arten ein eher heimliches Leben führen. Dennoch ist es für den Touristen wichtig, zu wissen, auf welche gefährlichen Schlangen er treffen könnte, bzw. wie er möglicherweise gefährliche von harmlosen Arten unterscheiden kann.

Das geht natürlich im Feld nicht mit Hilfe wissenschaftlicher Bestimmungsliteratur, denn dazu müßte man die Schlange in die Hand nehmen oder sich ihr jedenfalls so weit nähern, daß man in Gefahr gerät, gebissen zu werden. Man braucht also Bilder, und zwar möglichst gute und aussagekräftige Bilder, dazu auch noch leicht verständliche Hinweise auf Verbreitungsgebiete, Habitatsprüche, das Verhalten und natürlich auf die Giftigkeit bzw. Gefährlichkeit der vorkommenden Arten.

Dieses Buch, das sei vorausgeschickt, besticht durch die zahlreichen, sehr guten und charakteristischen Fotos, die sehr viele Arten in ihrer natürlichen Umgebung zeigen. Es sind selbstverständlich nicht alle Arten abgebildet oder wenigstens behandelt, wie es im Untertitel heißt, denn das würde sicher den Rahmen eines solchen Buches sprengen. Doch ist die Anzahl der behandelten Arten beträchtlich und die allermeisten der häufigen und der potentiell gefährlichen Arten sind abgebildet und unter den Überschriften "Verbreitung", "Maximale Länge", "Gift", "Lebensraum", "Nahrung", "Fortpflanzung" und "Ähnliche Arten" kurz charakterisiert. Erfreulicherweise sind auch viele der "seltenen", weil auf sehr kleine Areale beschränkten Arten abgebildet, die man in den meisten anderen Büchern vergebens sucht.

Die Anordnung der Arten unterscheidet sich in charakteristischer Weise von der in den meisten anderen Büchern über Schlangen gewählten Reihenfolge. Während sonst in der Regel phylogenetisch vorgegangen wird, also dem Stammbaum gemäß, hat der Verfasser hier eine geographische Reihenfolge gewählt – und wie ich glaube, hat er dabei eine glückliche Hand gehabt. Denn einerseits ist der hergebrachte Stammbaum der Schlangen durch neuere Forschungen durchaus substantiell verändert worden, so daß die alten "Familien" teilweise aufgespalten und sogar neu verteilt worden sind, andererseits wird gerade der Reisende gern diejenigen Giftschlangen in komprimierter Form beisammen sehen,

die er in einem bestimmten Erdteil antreffen könnte. Daß innerhalb dieser geographischen Anordnung dann doch eine gewisse systematische Ordnung beibehalten wird, steigert die Anschaulichkeit wiederum.

Dieses Buch ist sicher keine wissenschaftliche Abhandlung, obgleich ihm anzumerken ist, daß viele der neuesten Ergebnisse der Systematik und Phylogenie der Schlangen eingearbeitet wurden, doch enthält es im einführenden Teil gut und eingängig dargestellte allgemeine Informationen zu Körperbau, Artenvielfalt, Verbreitung, Giften und ihre Wirkung und nicht zuletzt auch über den – durchaus sehr notwendigen – Schutz der Giftschlangen, nicht nur der sogenannten "gefährdeten" Arten. Interessante und lesenswerte Erlebnisberichte des Autors mit verschiedenen Schlangen in verschiedenen Erdteilen lockern darüber hinaus den Text auf. Einige Hinweise zu weiterführender Literatur, ebenfalls in geographischer Reihenfolge, und ein Namensregister schließen das Buch ab, das, es sei wiederholt, auch in Anbetracht des Preises, unbedingt zu empfehlen ist, sei es dem allgemein Interessierten, sei es dem Tropenreisenden, sei es dem Liebhaber schöner Fotos.

M. Baehr

2. Sideleva V. G.: The endemic fishes of Lake Baikal. – Backhuys Publishers, Leiden, 2003. 270 S. ISBN 90-5782-133-8

61 Fischarten und -unterarten aus 32 Gattungen und 15 Familien sind aus dem sibirischen Baikalsee beschrieben. Die weitaus meisten gehören zu den Koppen (Cottoidei), die in dem ältesten Süßwassersee der Erde einen Artenschwarm ("species flock") hervorgebracht haben, der unter anderem auch die einzigen echten Tiefseefische des Süßwassers beinhaltet. Sideleva hat ein Forscherleben mit der Bearbeitung der Baikal-Cottoidei zugebracht, und faßt in dieser Synopsis zum ersten Mal in englischer Sprache die vielfach nur auf russisch publizierten Erkenntnisse zu dieser Fischgruppe vollständig zusammen. Die Systematik, Taxonomie, Morphologie und Morphometrie jeder Art wird einzeln behandelt; Viele Arten werden erstmals in Farbfotos abgebildet. Die ersten Kapitel geben einen Überblick über Geologie und Ökologie des Lebensraums "Baikal". Weitere Kapitel fassen publizierte und zum Teil unpublizierte Erkenntnisse zum Verdauungstrakt, Wachstum, zur Fortpflanzung, zu physiologischen Anpassungen an das Tiefseemilieu, zum Seitenliniensystem, zu den Karyotypen und zu den Otolithen der Baikal-Cottoidei zusammen. Die letzten Kapitel beschäftigen sich mit ihrer Evolutionsgeschichte.

Das Buch stellt die einzig verfügbare englische Zusammenfassung der seit Dekaden andauernden russischen Forschung an einem der faszinierendsten Artenschwarme der Erde dar. Es gehört daher in den Bücherschrank jedes evolutionsbiologisch interessierten Ichthyologen, auch wenn die aktuellsten Ergebnisse, die auch von nichtrussischen Wissenschaftlern erbracht wurden, in dem Werk nicht ausreichend berücksichtigt sind.

U. Schliwien

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