BIG4: Biosystematics, informatics and genomics of the big 4 insect groups- training tomorrow's researchers and entrepreneurs

> Kick-Off Meeting 14-18 September 2015 Copenhagen, Denmark





This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No 642241 Scholarly publishing becomes part of the research process From open access to open science

Lyubomir Penev

Bulgarian Academy of Sciences & Pensoft Publishers



BIG4 Kick-Off Meeting, Copenhagen, 14-18 Sept 2015



(Most) publishers are bad guys...



Publishers and researchers together create huge bottlenecks that hamper progress in biodiversity science!



Launched by scientists for the scientists



Pensoft Open Access Journals



BIG4 Workpackage 5 Semantic publishing, outreach and dissemination

Objectives

- Effectively disseminate the research process and outcomes to a wide range of relevant target groups
- Develop novel publishing and data management methods and technologies.

Tasks

- Technological implications of an Open Biodiversity Knowledge Management System (OBKMS)
- Development of project image (logo, promotional materials, templates), external and internal communication web platform, and online libraries

The Research Cycle



Credit: <u>CC BY</u> Cameron Neylon, modified by Daniel Mietchen (Wikimedia.org)

The Research Cycle in biodiversity science











Drawings: slavenapeneva.com; DNA sequencer image: Wikimedia



Primary data

Raveniola bellula sp. n. http://zoobank.org/CAB030BD-41D7-43E9-978F-0C0FE340CE19 Figs 3–5

Type material. Holotype ♂ – CHINA, Yunnan Province, Mengla County, Xishuangbanna, Menglun Town, primary tropical seasonal rainforest in Menglun Nature Reserve [21°57.445'N, 101°12.997'E, 744 m], January 16–31, 2007, G. Zheng (IZ-CAS). Paratypes: 26♂, 2♀ (IZCAS), same data as holotype.

Etymology. The specific name is taken from the Latin adjective "bellulus" (the dimin fect shape of the Di nnanensis n that in but ca R. cha ; a longer cymbi having a Zonstein ventra and M shape of the rert, knobshapectaking care of freedomtern of R. bellula y generic charac onger and denser unour ocopuna.

Description. Male (holotype): TL 7.90, CL 3.50, CW 2.55, AL 3.60, AW 2.25. Eye diameters and interdistances: AME 0.20, ALE 0.24, PLE 0.16, PME 0.12, AME–AME 0.09, AME–ALE 0.04, PME–PME 0.35, PME–PLE 0.03. Leg lengths: I: 10.04 (2.75+1.65+2.65+1.80+1.55), II: 9.70 (2.75+1.30+2.30+1.85+1.50), III: 0.05 (2.50 + 1.15 + 1.65 + 2.55 + 1.50). IV: 12.60 (2.25 + 1.25 + 2.10 + 2.15 + 1.65).

Now imagine ...



that you can just download all data you need straight from the article



Andhra Pradesh), Sri Lanka and Ceylon, east to Thailand, Vietnam, and Sabah. It has previously been recorded from Guangdong in China. The new data are additional records from Nanling Reserve in Guangdong and Hangzhou in Zhejiang Province of eastern China. Link to dynamic distribution map: http://hol.osu.edu/map-large.html?id=5010

Oxyscelio convergens Burks, 2013

- Hymenoptera Name Server http://lsid.tdwg.org/urn:lsid:biosci.ohiostate.edu:osuc_concepts:275500
- ZooBank urn:lsid:zoobank.org:act:E03A3DFC-3859-4097-9D95-508F16CF1C04
- Species-ID http://species-id.net/wiki/Oxyscelio_convergens

Nomenclature

Oxyscelio convergens Burks et al. 2013

Materials



state.edu:osuc names:275500; country: China; stateProvince: Zhejiang; locality: Gutianshan National Nature Reserve, Zhejiang Prov, China; locationRemarks: label transliteration: "Zhejiang, Gutianshan, 2005.07.03, Shi Min"; [浙江古田山, 2005.07.03, 时敏]; decimalLatitude: 29.2636; decimalLongitude: 118.1339; georeferenceProtocol: GEOnet: eventID: urn:lsid:biosci.ohio-state.edu:osuc_occurrences:SCAU_2011000646; samplingProtocol: none specified; eventDate: 2005-07-03; individualCount: 1; sex: female; lifeStage: adult; catalogNumber: SCAU 2011000646; recordedBy: Shi Min; identifiedBy: Norman F. Johnson; dateIdentified: 2012; modified: 2013-07-17T11:04:01Z; language: en; collectionID: urn:lsid:biocol.org:col:34252; collectionCode: Insects; basisOfRecord: PreservedSpecimen; source: http://hol.osu.edu/spmInfo.html?id=SCAU%202011000646

b. scientificName: Oxyscelio convergens; taxonID: urn:lsid:biosci.ohiostate.edu:osuc names:275500; country: China; stateProvince: Zhejiang; locality: Mt Qingliangfeng, Zhejiang Prov., China; locationRemarks: label transliteration: "Zhejiang, Qingliangfeng, 2005.08.09, Zhang Hongying"; [浙江清凉峰 2005.08.09 张红英]; decimalLatitude: 30.0703; decimalLongitude: 118.8944; georeferenceProtocol: Google Earth; georeferenceRemarks: GPS coords. adjusted to place within Zhejiang Prov.; eventID: urn:lsid:biosci.ohio-state.edu:osuc occurrences:SCAU 2011000621; samplingProtocol: none specified; eventDate: 2005-08-09; individualCount: 1; sex: female; lifeStage: adult; catalogNumber: SCAU 2011000621; recordedBy: Zhang Hong-Ying; identifiedBy: Norman F. laboran, dataldantifiadi 2012, madifiadi 2012 07 17711102:507, languagai an, callastianDi



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Biodiversity Data Journal 2: e1071 (10 Mar 2014) doi: 10.3897/BDJ.2.e1071		XXXII	Contents Article info Citation Metrics Share Review it
Taxonomic paper			Figures Tables Map Taxa Data References
Review of the genus Namadytes Hes	se, 1969		$\mathbf{\widehat{Q}}$ Tables and Figures, if present, can be downloaded from the article.
(Insecta: Diptera: Mydidae: Syllegom	ydinae)	•	Download all occurrences as Darwin Core Archive
 Torsten Dikow, Stephanie Leon 			Download all treatments as Darwin Core Archive
Abstract			Supplementary material 1 Natural-language species descriptions in SDD format
The Mydidae genus <i>Namadytes</i> Hesse, 1969 is reviewed. It is known occurring in Namibia. The study of newly available material from bot deposited in several natural history collections results in the recognitic synonymy of two, <i>i.e., Namadytes pallidus</i> Hesse, 1972 is a new jun <i>maculiventris</i> (Hesse, 1969) and <i>Namadytes prozeskyi</i> Hesse, 1969: 282		Authors: Dikow, T. and Leon, S. Data type: morphological Brief description: The XML file includes the natural-language species descriptions SDD (Structure of Descriptive Data) format. Filename: namadytes_dikow+leon_2014.sdd Download file (238.32 kb)	
Namadytes vansoni Hesse, 1969: 280. All three species are re-describ dimorphism and intraspecific variation are made, a dichotomous ke presented, and illustrations and photographs are provided to support t future identification. Distribution, occurrence in biodiversity hotspots sense and seasonal incidence with associated weather and climatic data are morphological structure ventral to the halter and posterior to the metather		Supplementary material 2 Average annual temperature at Aus Authors: World Weather Online Data type: image, graph Brief description: Average temperature Aus	
sclerite, is here newly termed. Keywords			Filename: worldweatheronline_aus_temp_2013_10_06_pag Download file (77.71 kb) Supplementary material 3 Average annual rainfall at Aus
Jiptera, Miydidae, Syllegomydinae, <i>Namadytes</i> , Afrotropical Region, ta E	Encyclopedia of Life		Authors: World Weather Online



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A new species of Lygistorrhina Skuse (Diptera: Sciaroidea: Lygistorrhinidae) from South Africa Published by Biodiversity Data Journal.

CHECKLIST DATASET

Scutellista caerulea (Fonscolombe, 1832) (Hymenoptera: Pteromalidae), new to New Zealand for the second time! Published by Biodiversity Data Journal. METADATA AUTHOR Torsten Dikow ORIGINATOR Torsten Dikow



68 Georeferenced data

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Dikow T, Leon S (2014) Review of the genus Namadytes Hesse, 1969 (Insecta: Diptera: Mydidae: Syllegomydinae). Biodiversity Data Journal 2: e1071. doi: 10.3897/BDJ.2.e1071

Yet another dream...



...or how to make species descriptions machinereadable?



- c. island: Luzon Island; country: Philippines; stateProvince: Mountain Province; verbatimLocality: Mt Polis Checkpoint on the road Banaue – Sagada; verbatimElevation: 1800-1900 m; locationRemarks: under stones and logs; verbatimLatitude: 16°57'58"N; verbatimLongitude: 121°1'37"E; eventDate: 6 July 2012; individualCount: 1; lifeStage: juvenile; recordedBy: P. Stoev & L. Penev; institutionCode: NMNHS
- d. island: Luzon Island; country: Philippines; stateProvince: Mountain Province; verbatimLocality: Mt Polis Checkpoint on the road Banaue – Sagada; verbatimElevation: 1800-1900 m; locationRemarks: under stones and logs; verbatimLatitude: 16°57'58"N; verbatimLongitude: 121°1'37"E; eventDate: 6 July 2012; individualCount: 1; sex: male; recordedBy: P. Stoev & L. Penev; institutionCode: ZMUM

Description

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Length 18-22 (δ) or 23 mm (\mathcal{Q}), width of midbody pro- and metazona 1.1-1.3 and 1.5-1.7 mm (δ), or 1.9 and 2.1 mm (\mathcal{Q}), respectively. Holotype *ca* 22 mm long, width of pro- and metazona 1.3 and 1.6 mm, respectively. Coloration black to light grey-brown (Fig. 1 a). Pattern mostly cingulate due to a large light grey band on prozona dorsally in front of stricture extending down until level of paraterga (Fig. 1 a, b). Legs light grey-brown (Antennae increasingly infuscate distad, from light brown to blackish (Fig. 1 a).



Contents	Articl	e info	Citation		Related	Metrics	Share	
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The Paper/PDF impediment



Little or NO machine readability!

The solution ?

Publish in machinereadable formats Facilitate open data export and reuse from publications Make it easy for the authors

This presentation will focus on

- What is open access publishing?
- What is open data publishing?
- How we can work together in BIG4, so that to come to open research cycles and open science?

Traditional publishing



Readers

Open access publishing



Readers

But open access is not enough!



PDF and XML (eXtensible Markup Language)



Type material. Holotype male. SOUTH AFRICA, Western Cape, Kogelberg Nature Reserve, 34°16.481'S 19°01.033'E, 16 Jan–16 Feb 2000, S. van Noort, Malaise trap, KO98-M53, Mesic Mountain Fynbos, last burnt c. 1978, SAM-HYM-P025052, OSUC 256956 (SAMC). Paratypes: 2 males, same data SAM-HYM-P025052, OSUC 256940 (SAMC, OSUC); 1 male: South Africa, Northern Cape, Avontuur Farm,

<taxon-name-part taxon-name-part-type="genus">Nixonia</taxon-name-part> <taxon-name-part taxon-name-part-type="species">masneri</taxon-name-part>

- </taxon-name>
- <taxon-author>
- <string-name>van Noort & Johnson</string-name>
- </taxon-author>
- <taxon-status>**sp. n.**</taxon-status>
- xref>Figures 1A-F</xref>

From open access to open data publishing

FOUR main data publishing models

- Tables, graphs or data in the text of classical, nonstructured publications (paper/PDF).
- Supplementary data files published with the articles on the journal's website or linked from external repositories.
- Data papers, describing data deposited in institutional or disciplinary repositories.
- Publication of small data in a structured and/or marked up format within the article, in both humanand machine-readable form

But why publish my data?



Next-Gen taxonomy requires Next-Gen publishing



- Data import
- Authoring
- Peer-review
- Publication
- Dissemination



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Torsten van der Heyden					
Torsten Wappler	Universität Bonn				
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The first row co	ntains vcolumn labels that match exactly the Darwin Core terms (see template)
 The content of 	the column contesponds to its iddel
Each occurrence	e record is in a separate row
Each occurrentThe column type	e record is in a separate row)eStatus contains one of the following (without the quotes): "Other material", "Holotype", "Paratype", "Hapantotype", "Syntype", "Isotype",
 Each occurrence The column type "Neotype", "Le 	e record is in a separate row >eStatus contains one of the following (without the quotes): "Other material", "Holotype", "Paratype", "Hapantotype", "Syntype", "Isotype", :totype", "Paralectotype", "Isoparatype", "Isolectotype", "Isoneotype", "Isosyntype".
 Each occurrence The column typ "Neotype", "Le 	e record is in a separate row DeStatus contains one of the following (without the quotes): "Other material", "Holotype", "Paratype", "Hapantotype", "Syntype", "Isotype", Ctotype", "Paralectotype", "Isoparatype", "Isolectotype", "Isoneotype", "Isosyntype".
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Each occurrent The column typ "Neotype", "Le mport specimen rec You may place multiple	the record is in a separate row beStatus contains one of the following (without the quotes): "Other material", "Holotype", "Paratype", "Hapantotype", "Syntype", "Isotype", ctotype", "Paralectotype", "Isoparatype", "Isolectotype", "Isoneotype", "Isosyntype". ford(s) from GBIF or BOLD ID's separated by " " here (weerels: 105202050211052020502)
Each occurrend The column typ "Neotype", "Le mport specimen red /ou may place multiple GBIF record ID	ee record is in a separate row beStatus contains one of the following (without the quotes): "Other material", "Holotype", "Paratype", "Hapantotype", "Syntype", "Isotype", ctotype", "Paralectotype", "Isoparatype", "Isolectotype", "Isoneotype", "Isosyntype". cord(s) from GBIF or BOLD ID's separated by " " here (example: 1052929592 1052929593)
Each occurrent The column typ "Neotype", "Le mport specimen red You may place multiple GBIF record ID GBIF occurance ID	ee record is in a separate row beStatus contains one of the following (without the quotes): "Other material", "Holotype", "Paratype", "Hapantotype", "Syntype", "Isotype", ctotype", "Paralectotype", "Isoparatype", "Isolectotype", "Isoneotype", "Isosyntype", cord(s) from GBIF or BOLD ID's separated by " " here (example: 1052929592 1052929593) (example: http://www.inaturalist.org/observations/1360510)
 Each occurrent The column typ "Neotype", "Le mport specimen red You may place multiple GBIF record ID GBIF occurance ID BOLD record ID 	ee record is in a separate row beStatus contains one of the following (without the quotes): "Other material", "Holotype", "Paratype", "Hapantotype", "Syntype", "Isotype", ctotype", "Paralectotype", "Isoparatype", "Isolectotype", "Isoneotype", "Isosyntype". sord(s) from GBIF or BOLD iD's separated by " " here (example: 1052929592 1052929593) (example: http://www.inaturalist.org/observations/1360510) (example: ACRJP618-11 ACRJP619-11)

Sava Cancel

Excell spreadsheet from BOLD

1

	Α	В	С	D	E	F	G	н	I.	J	К	L
1	Taxon_Local_ID	typeStatus	catalogNumber	occurrenceDetails	occurrenceRemarks	recordNumber	recordedBy	individualID	individualCount	sex	lifeStage	reproductiveCondition
2	1	Other materi	CAM0023				H. Goulet				Adult	
3	1	Other materi	BIOUG01088-A03				James Sones				Adult	
4	1	Other materi	CAM0036				H. Goulet				Adult	
5	1	Other materi	MIC 000034				Dom. Par. Lab	o.		Female	Adult	
6	1	Other materi	MIC 000041				N. C. D. A			Male	Adult	
7	1	Other materi	MIC 000036				Phillips			Female	Adult	
8	1	Other materi	BIOUG01631-B09				James Sones				Adult	
9	1	Other materi	CAM0104				H. Goulet				Adult	
10	1	Other materi	MIC 000035				J. Vockeroth			Female	Adult	
11	1	Other materi	CNCHYM 00081				N. C. D. A				Adult	
12	1	Other materi	CAM0117				H. Goulet				Adult	
13	1	Other materi	CAM0021				H. Goulet				Adult	
14	1	Other materi	CAM0046				H. Goulet				Adult	
15	1	Other materi	MIC 000040				N. C. D. A			Male	Adult	
16	1	Other materi	CAM0053				H. Goulet				Adult	
17	1	Other materi	CAM0063				H. Goulet				Adult	
18	1	Other materi	CAM0020				H. Goulet				Adult	
19	1	Other materi	CAM0058				H. Goulet				Adult	
20	1	Other materi	CAM0026				H. Goulet				Adult	
21	1	Other materi	CAM0049				H. Goulet				Adult	
22	1	Other materi	MIC 000037				D. Finnamore	•		Female	Adult	
23	1	Other materi	MIC 000033				C. Twinn			Female	Adult	
24	1	Other materi	MIC 000038							Female	Adult	
25	1	Other materi	CAM0042				H. Goulet				Adult	
26	2	Other materi	CNCHYM 00088				N. C. D. A				Adult	
27	2	Other materi	MIC 000908				H. Goulet, A.	Badiss, C. Bou	deault		Adult	
28	2	Other materi	BIOUG10353-H05				F.Tremblay				Adult	
29	2	Other materi	MIC 000905				H. Goulet, A.	Badiss, C. Bou	deault		Adult	
30	2	Other materi	BIOUG00989-E12				Alex Smith				Adult	
31	2	Other materi	BIOUG01252-E11				James Sones				Adult	
32	2	Other materi	BIOUG07019-B11				Cyndi Smith				Adult	
33	2	Other materi	BIOUG10403-A09				F.Tremblay				Adult	
34	2	Other materi	MIC 000063							Female	Adult	
35	2	Other materi	BIOUG10360-E02				F.Tremblay				Adult	
36	2	Other materi	BIOUG10358-C12				F.Tremblay				Adult	
37	2	Other materi	BIOUG00989-F01				Alex Smith				Adult	
38	2	Other materi	BIOUG11905-C04				F.Tremblay				Adult	
39	2	Other materi	MIC 000902				H. Goulet, A.	Badiss, C. Bou	deault		Adult	
40	2	Other materi	MIC 000058				J. McDunnou	gh		Female	Adult	
41	2	Other materi	CAM0096				L. Masner				Adult	
42	2	Other materi	BIOUG11907-E10				F.Tremblay				Adult	
43	2	Other materi	CAM1013				H. Goulet				Adult	
44	2	Other materi	BIOUG01631-H02				James Sones				Adult	
45	2	Other materi	CNCHYM 00089				N. C. D. A				Adult	
46	2	Other materi	BIOUG04245-B10				Jarret Hardist	v			Adult	

Data conversion into/from text

- ZooBank urn:lsid:zoobank.org:act:9A79187E-FC75-4CB7-B634-ABBD4B471D2A
- GenBank HM065035
- MorphBank 123456
- Species-ID http://species-id.net/wiki/Eupolybothrus sp.n.



Materials

Holotype:

 a. recordedBy: M. Lukić, sex: male, country: Croatia, stateProvince: Knin, Kistanje, verbatimLocality: Hydroelectric power plant Miljacka, cave Miljacka II, samplingProtocol: hand collected under clay sediment, eventDate: 8 February 2013, institutionCode: HBSD.

Paratype:

 a. recordedBy: A. Komerički, individualCount: 1, sex: female, country: Croatia, stateProvince: Knin, Kistanje, verbatimLocality: Hydroelectric power plant Miljacka, cave Miljacka II, samplingProtocol: hand collected under lump of clay, eventDate: 18 November 2012, institutionCode: HBSD.

Description

Body length (measured from the anterior margin of cephalic plate to posterior margin of telson) approx. 30 mm; cephalic plate broader then long; head 3.6 mm long, 4.0 mm wide; leg 15 approx. 22.6 mm long, or 88-89% length of body. Color uniformly ve

Materials

Holotype:



 a. recordedBy: M. Lukić, sex: male, country: Croatia, stateProvince: Knin, Kistanje, verbatimLocality: Hydroelectric power plant Miljacka, cave Miljacka II, samplingProtocol: hand collected under clay sediment, eventDate: 8 February 2013, institutionCode: HBSD.

Paratype:

 a. recordedBy: A. Komerički, individualCount: 1, sex: female, country: Croatia, stateProvince: Knin, Kistanje, verbatimLocality: Hydroelectric power plant Miljacka, cave Miljacka II, samplingProtocol: hand collected under lump of clay, eventDate: 18 November 2012, institutionCode: HBSD.



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Article structure	
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Title & Authors	Description*
Abstract & Keywords	
Contributors	Image: Sub state
Classifications	Holotype, entire animal, with 25 chaetigers, length 1.9 mm with palps but without anal circles with the same transmission of the same transmission
Funding agencies	parapodia. Body small, slender, widest at level of proventricle (Fig. 1). Dorsal paparton on anterior chaetigers irregular, after proventricle in four longitudinal
Introduction	rows: two mid-dorsal rows with two papillae per segment, lateral rows with three papillae near dorsal cirri (Fig. 2a). Ventrum without visible papillation.
Material and methods	Prostomium wider than long with 4 coalescent lensed eyes in trapezoidal arrangement. Anterior eyespots absent. Antennae pyriform with bulbous bases and elongated tips, median antenna 40 µm long, lateral ones 33 µm, longer than prostomium and palps together. Median antenna inserted between anterior pair
Data resources	of eyes, lateral ones attached on anterior margin of prostomium (Fig. 1). Palps directed ventrally, fused along their length, with a dorsal notch and few small
Results	papillae. Peristomium indistinct, dorsal fold partly covering prostomium. One pair of tentacular cirri, shaped like antennae but shorter (23 μm). Second
Checklist 🕒	chaetiger without dorsal cirri but with large papilla instead. Dorsal cirri similar in shape and length to tentacular cirri, anteriorly as long as parapodial lobes (23 µm), posteriorly slightly longer (28 µm). Ventral cirri conical, half as long as parapodial lobe, originating at bases of parapodia. Parapodial lobes
▼ Taxon treatments 🕒	triangular, with small papilla on each side of distal end. Parapodial glands with fibrillar material and with conical opening; from fourth chaetiger. Anterior
▼ Treatment	parapodia with 4–5, rarely with 6 falcigers per fascicle; blades slender, unidentate with small subdistal spine and strong serration on 1–2 dorsalmost
Taxon name	faicigers (Figs $2D-d$, $3a$). Dorso-ventral gradation in length of blades, dorsal ones maximally 14 μ m, ventral ones 10 μ m. Postenory, dorsal blades of similar length (13 μ m), but stouter and more curved with robust subdistal spine and strong servation as long as subdistal spine (Figs 2e, f, 3b, c). Dorsalmost
External links	falciger posteriorly thicker than remaining ones in fascicle. Blades of ventral falcigers similar throughout body (Fig. 2g). All shafts with fine servation (Fig. 2c).
External links	Dorsal simple chaeta from chaetiger 1, subdistally serrated (Figs 2h, 4a). Ventral simple chaeta on posterior chaetigers, sigmoid, smooth (Fig. 4b).
Materials	Anteriorly two aciculae per parapodium, one distally bent at right angle, acuminate tip curved upwards, the other straight and blunt (Fig. 4c): posteriorly

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ſ	Dikow et al.	2004 Diabetische Nephropathie	CrossRef
\$ I	Beimler et al.	2008 Dialyse	CrossRef
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	Dikow	1999 Individuelle Moral und politischer Kompromiß	CrossRef
	Dikow et al.	2014 Review of the genus Namadytes Hesse, 1969 (Insecta: Diptera: Mydidae: Syllegomydinae).	PubMed
	Smith et al.	2013 Beyond dead trees: integrating the scientific process in the Biodiversity Data Journal.	PubMed
	Miller et al.	2012 From taxonomic literature to cybertaxonomic content.	PubMed
	Lyons et al.	2010 Taxonomic revision of Ectyphus Gerstaecker, 1868 and Parectyphus Hesse, 1972 with a key to world Ectyphina	PubMed
	Ang et al.	2008 Secondarily reduced foreleg armature in Perochaeta dikowi sp. n. (Diptera: Cyclorrhapha: Sepsidae) due to a nov	RefBank
	Dikow	2009 Phylogeny of Asilidae inferred from morphological characters of imagines (Insecta: Diptera: Brachycera: Asiloidea)	RefBank
-	Dikow	2009 Phylogeny of Asilidae inferred from morphological characters of imagines (Insecta: Diptera: Brachycera: Asiloidea).	RefBank
	Dikow et al.	Biodiversity Research Based on Taxonomic Revisions - A Tale of Unrealized Opportunities	RefBank

Create plates



Identification key builder

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	2 Papillae on dorsum absent					
			Next couplet or	Taxon name Sphaerosyllis clape	aredei Ehlers, 1864	
		Antithesis Papillae on dorsum p	resent			
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3	Parapodial	glands absent	Sphaerosyllis papillifer	a Naville, 1933		▶ ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►
-	Parapodial	glands with fibrillar mate	erial Sphaerosyllis ovigera	Langerhans, 1879		

Identification keys

Key to the Mediterranean Sphaerosyllis species

The three species *Sphaerosyllis claparedei* Ehlers, 1864, *Sphaerosyllis papillifera* Naville, 1933 and *Sphaerosyllis ovigera* Langerhans, 1879 are poorly known. All have been described as having dorsal cirri on the second chaetiger, however, other species, such as *Sphaerosyllis hystrix*, were also originally described or illustrated with dorsal cirri on the second chaetiger whereas they are in fact absent. Since the three aforementioned species are exclusively known from their original description (or partly reproductions of these) and have never been redescribed based on new material, they are tentatively included in the key below, but their identity remains questionable.

1	Dorsal cirri on chaetiger 2 present	2
_	Dorsal cirri on chaetiger 2 absent	4
2	Papillae on dorsum absent	<i>Sphaerosyllis claparedei</i> Ehlers, 1864
_	Papillae on dorsum present	3

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Map distributions during reading



Biodiversity Data Journal 1: e979 (01-09-2013) doi: 10.3897/BDJ.1.e979

Feeds on: Adults and larvae feed on horse dung (Fig. 5).



Figure 5. Aphodius bimaculatus. Dosang environs, Astrakhan Province, Russia.

Distribution: Central and Eastern Europe, Western Asia up to East Kazakhstan in the east. The species is mostly occur in forest-steppe and steppe zones.

Aphodius (Melaphodius) caspius Ménétriés, 1832

Material

Download as CSV 🖾

 a. country: Russia; stateProvince: Astrakhan'; locality: Dosang environs, left bank of Akhtuba River, floodplain; decimalLatitude: 46.91; decimalLongitude: 47.91; samplingProtocol: horse dung washing; eventDate: 2006-10-06; individualCount: 1; recordedBy: A. V. Frolov, L. A. Akhmetova; collectionID: urn:lsid:biocol.org:col:35005; institutionCode: ZIN; collectionCode: Coleoptera

Feeds on: Cattle dung.

Distribution: Steppe zone from Caucasus to West Siberia.

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M Aphodius (Erytus) aequalis

🖉 Aphodius (Chilothorax) badenkoi

- 🕅 Aphodius (Acrossus) bimaculatus
- 🖉 Aphodius (Melaphodius) caspius





Biodiversity Data Journal 2: e1054 (04 Feb 2014) doi: 10.3897/BDJ.2.e1054

Taxonomic paper

Evidence for the continued presence in New Zealand of *Homotrysis macleayi* (Borchmann, 1909) (Coleoptera: Tenebrionidae: Alleculinae)

Stephen E. Thorpe

Abstract

The first detailed specimen records are presented for the Australian beetle *Homotrysis macleayi* (Borchmann, 1909) in New Zealand. Evaluation of this evidence clearly indicates that the species is fully established in the wild in New Zealand. It is therefore recommended that the species be added to the New Zealand Organisms Register (NZOR), as exotic and present in the wild. Some general comments are offered on the importance of data and evidence in faunistics.

Keywords

Homotrysis macleayi, NZOR, Auckland, New Zealand, Australia, faunistics, data, evidence

Introduction

In 2004, I collected what is probably the first New Zealand specimen of the Australian beetle *Homotrysis* macleayi (Borchmann, 1909). Although I immediately recognised it as a species of alleculine tenebrionid unknown in New Zealand, it was not identified until I found others in 2012. These were identified as *H. macleayi* by Australian tenebrionid expert Dr. Eric Matthews (South Australian Museum). The species was validated new to N.Z., based on this material identified by Matthews, by Ministry for Primary Industries 2013. Only scant details were published by MPI (i.e. insect, *Homotrysis macleayi* (tenebrionid beetle), *Acacia* sp. (wattle), Auckland, General Surveillance). Nothing more has been published regarding the presence of this beetle in New Zealand. There is currently no record of it on the New Zealand Organisms Register (NZOR). It is therefore somewhat unclear what the status is of the species in New Zealand. Is it a permanently established member of the New Zealand fauna? Faunistics is the study



Taxon names and their usages

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Biodiversity Data doi: 10.3897/BD	i Journal 2: e1(J.2.e1071)71 (10 Mar	2014)				POF MIL		Contents Article info Citat	on Metri	cs Share F	Review it
Taxonomic	baper							• 111	Figures Tables Map T	Data	References	

Review of the genus *Namadytes* Hesse, 1969 (Insecta: Diptera: Mydidae: Syllegomydinae)

Torsten Dikow, Stephanie Leon

Abstract

The Mydidae genus *Namadytes* Hesse, 1969 is reviewed. It is known from five species, primarily occurring in Namibia. The study of newly available material from both Namibia and South Africa deposited in several natural history collections results in the recognition of three species and new synonymy of two, *i.e.*, *Namadytes pallidus* Hesse, 1972 is a new junior synonym of *Namadytes maculiventris* (Hesse, 1969) and *Namadytes prozeskyi* Hesse, 1969: 282 is a new junior synonym of *Namadytes vansoni* Hesse, 1969: 280. All three species are re-described and comments on sexual dimorphism and intraspecific variation are made, a dichotomous key for their identification is presented, and illustrations and photographs are provided to support the descriptions and facilitate future identification. Distribution, occurrence in biodiversity hotspots *sensu* Conservation International, and seasonal incidence with associated weather and climatic data are discussed for all species. A morphological structure ventral to the halter and posterior to the metathoracic spiracle, the infra-halter sclerite, is here newly termed.

Keywords

Diptera, Mydidae, Syllegomydinae, Namadytes, Afrotropical Region, taxonomy

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	Namadytes maculiventris	
	Namadytes pallidus	
	Namadytes prozeskyi	
	Namadytes vansoni	
	Namamydas	
	Namamydas maculiventris	

Online taxon profiles in real time



Online taxon profiles in real time



Biodiversity Data Journal 1: e962 (16 Sep 2013) doi: 10.3897/BDJ.1.e962

Taxonomic paper

A new species of *Lygistorrhina* Skuse (Diptera: Sciaroidea: Lygistorrhinidae) from South Africa

Vladimir Blagoderov, Laszlo Papp, Heikki Hippa

Abstract

A new species of *Lygistorrhina* (Diptera, Sciaroidea, Lygistorrhinidae) from South Africa is described and a key for Afrotropical species of the genus is provided.

Keywords

Taxonomy, new species, South Africa, Lygistorrhinidae

Introduction

Lygistorrhinidae is a small family of fungus gnats (Diptera, Sciaroidea) represented by 15 genera and 41 species (http://sciaroidea.info/taxonomy/41555). The genus *Lygistorrhina* includes 21 species which are distributed worldwide in tropical and warm temperate regions. Twelve species of the subgenus *Lygistorrhina* (*L*.) are known from the Old World (Africa, Eastern Palaearcti), South East Asia, Australasia and Oceania). In addition, an undescribed species of *Lygistorrhina* (*L*.) were described from Mexico (Huerta and Ibanez-Bernal 2008). Five Afrotropical species of *Lygistorrhina* (*L*.) were described from Kenya, Uganda, Côte d'Ivoire, Central African Republic, Gabon, Democratic Republic of Congo and Comoros (Matile 1978, Matile 1990, Matile 1996). In addition, an unnamed species is known from Madagascar (Matile 1996). In this paper we describe a new species of *Lygistorrhina* from South Africa in course of preparation of the chapter on Lygistorrhinidae for the Manual of Afrotropical Diptera.

Figures Map Taxa Data	References
Lygistorrhina Occurrences Genomics Nomenclature	Treatments Literature Images Other
Literature Biodiversity Heritage Library The Annals and magazine of natural history; 8th ser. v. 10 (1912): 646, 203 Annals of the Missouri Botanical Garden v. 86 1999: 381, 650 Annual report of the Maine Agricultural Experiment 1909 (incl. Bull. 164-175): 275 Archiv für Naturgeschichte. Jahrg. 57, bd. 2 (1891): 134 Berliner entomologische Zeitschrift / 37.Jahrg. (1892): 441 Bibliographia zoologica. v. 24 (1913): 54	<section-header><section-header><section-header><text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text></section-header></section-header></section-header>
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Will DNA barcoding 'eat up' Linnaeus?



... or how to integrate Linnean and DNA taxonomies?

Dark taxa: The gap (or mess?) between DNA and Linnean taxonomies



Rod Page, iPhylo blog, 12 April 2011

Level 1: Create Barcode Data Release Papers from BOLD metadata



assembled a library of DNA barcodes using the standard genetic marker for animals, i.e. a portion of the COI mitochondrial gene. In the present contribution, we release a library including 656 records representing 410 species in 40 different families. Species were identified by expert taxonomists, and each record is linked to a voucher specimen to enable future morphological examination. We also highlight and briefly discuss cases of low interspecific divergences, as well as cases of high intraspecific divergences that might represent cases of overlooked or cryptic diversity.

Julien Delnatte 📼



Independent researcher, Avignon, France Articles by this author in: CrossRef | PubMed | Google Scholar

Nicolas Moulin 📼

Entreprise Nicolas Moulin Entomologiste, Bihorel, France Articles by this author in: CrossRef | PubMed | Google Scholar

Level 2: Create machine-readable Species (re-)Descriptions from **BIN**s, by "pressing a button"

BOLDSYSTEMS Databases | Taxonomy | Identification | Workbench | Resources

Public Baroode Clusters: 310931

Barcode Index Numbers

The Bancode Index Number(BN) system obusters sequences using well established algorithms to produce operational taxonomic units that olosaly correspond to species. Blink are unique in that obusters are indexed in a regimented way so genetically (dentical taxon encountered in different shulles reside under date. Training sets are based on established taxonomy for recognize those sequence olusters that are likely to correspond to biological species. Each novel oluster is assigned a globally unique identifier that is regimented way so genetically (dentical taxonomy for recognize those sequence olusters that are likely to correspond to biological species. Each novel oluster is assigned a globally unique identifier that is regimented way so genetical (BOLD).

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Level 3: Import BOLD data records straight into manuscripts (server-to-server)



Sequencing Center:

University of Alberta, Parks Canada Tissue Repository Biodiversity Institute of Ontario

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Now imagine ...



... to automatically export data of 100 (1000?) species (re-)descriptions from BOLD to a manuscript, just in seconds?

First records of the jewel beetles Chrysobothris desmaresti

(Laporte & Gory, 1836) and Hiperantha stempelmanni Berg.

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Lukić; institutionCode: CBSS; collectionCode: CHP536

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Biodiversity Data Journal 2: e4153 (29 Oct 2014) doi: 10.3897/BDJ.2.e4153

Taxonomic paper

Streamlining the use of BOLD specimen data to record species distributions: a case study with ten Nearctic species of Microgastrinae (Hymenoptera: Braconidae)

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 Jose L Fernandez-Triana, Lyubomir Penev, Sujeevan Ratnasingham, M. Alex Smith, Jayme Sones, Angela Telfer, Jeremy R. deWaard, Paul D. N. Hebert

Abstract

The Barcode of Life Data Systems (BOLD) is designed to support the generation and application of DNA barcode data, but it also provides a unique source of data with potential for many research uses. This paper explores the streamlining of BOLD specimen data to record species distributions - and its fast publication using the Biodiversity Data Journal (BDJ), and its authoring platform, the Pensoft Writing Tool (PWT). We selected a sample of 630 specimens and 10 species of a highly diverse group of parasitoid wasps (Hymenoptera: Braconidae, Microgastrinae) from the Nearctic region and used the information in BOLD to uncover a significant number of new records (of locality, provinces, territories and states). By converting specimen information (such as locality, collection date, collector, voucher depository) from the BOLD platform to the Excel template provided by the PWT, it is possible to quickly upload and generate long lists of "Material Examined" for papers discussing taxonomy, ecology and/or new distribution records of species. For the vast majority of publications including DNA barcodes, the generation and publication of ancillary data associated with the barcoded material is seldom highlighted and often disregarded, and the analysis of those data sets to uncover new distribution patterns of species has rarely been explored, even though many BOLD records represent new and/or significant discoveries. The introduction of journals specializing in - and streamlining - the release of these datasets, such as the BDJ, should facilitate thorough analysis of these records, as shown in this paper.

Keywords

Species distribution records, streamlining data, Barcode of Life Data Systems, Pensoft Writing Tool, Microgastrinae, Nearctic

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Jeremy R. deWaard 📼









Biodiversity Data Journal 3: e6313 (30 Aug 2015) doi: 10.3897/BDJ.3.e6313

Taxonomic paper

Biodiversity inventories in high gear: DNA barcoding facilitates a rapid biotic survey of a temperate nature reserve

Angela C Telfer, Monica R Young, Jenna Quinn, Kate Perez, Crystal N Sobel, Jayme E Sones, Valerie Levesque-Beaudin, Rachael Derbyshire, Jose Fernandez-Triana, Rodolphe Rougerie, Abinah Thevanayagam, Adrian Boskovic, Alex V Borisenko, Alex Cadel, Allison Brown, Anais Pages, Anibal H Castillo, Annegret Nicolai, Barb Mockford Glenn Mockford, Belén Bukowski, Bill Wilson, Brock Trojahn, Carole Ann Lacroix, Chris Brimblecombe, Christoper Hay, Christmas Ho, Claudia Steinke, Connor P Warne, Cristina Garrido Cortes, Daniel Engelking, Danielle Wright, Dario A Lijtmaer, David Gascoigne, David Hernandez Martich, Derek Morningstar, Dirk Neumann, Dirk Steinke, Donna DeBruin Marco DeBruin, Dylan Dobias, Elizabeth Sears, Ellen Richard, Emily Damstra, Evgeny V Zakharov, Frederic Laberge, Gemma E Collins, Gergin A Blagoev, Gerrie Grainge, Graham Ansell, Greg Meredith, Ian Hogg, Jaclyn McKeown, Janet Topan, Jason Bracey, Jerry Guenther, Jesse Sills-Gilligan, Joseph Addesi, Joshua Persi, Kara K S Layton, Kareina D'Souza, Kencho Dorji, Kevin Grundy, Kirsti Nghidinwa, Kylee Ronnenberg, Kyung Min Lee, Linxi Xie, Liugiong Lu, Lyubomir Penev, Mailyn Gonzalez, Margaret E Rosati, Mari Kekkonen, Maria Kuzmina, Marianne Iskandar, Marko Mutanen, Maryam Fatahi, Mikko Pentinsaari, Miriam Bauman, Nadya Nikolova, Natalia V Ivanova, Nathaniel Jones, Nimalka Weerasuriya, Norman Monkhouse, Pablo D Lavinia, Paul Jannetta, Priscila E Hanisch, R. Troy McMullin, Rafael Ojeda Flores, Raphaëlle Mouttet, Reid Vender, Renee N Labbee, Robert Forsyth, Rob Lauder, Ross Dickson, Ruth Kroft, Scott E Miller, Shannon MacDonald, Sishir Panthi, Stephanie Pedersen, Stephanie Sobek-Swant, Suresh Naik, Tatsiana Lipinskaya, Thanushi Eagalle, Thibaud Decaëns, Thibault Kosuth, Thomas Braukmann, Tom Woodcock, Tomas Roslin, Tony Zammit, Victoria Campbell, Vlad Dinca, Vlada Peneva, Paul D N Hebert, Jeremy R deWaard

Abstract

Background

Comprehensive biotic surveys, or 'all taxon biodiversity inventories' (ATBI), have traditionally been limited in scale or scope due to the complications surrounding specimen sorting and species identification. To circumvent these issues, several ATBI projects have successfully integrated DNA barcoding into their identification procedures and witnessed acceleration in their surveys and subsequent increase in project scope and scale. The Biodiversity Institute of Ontario partnered with the



Cumulative taxonomy? What's this?



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4



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Long life and reuse of precious data



But even this is not the end!

The end (for our decade) will be the open science

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- > Open data
- > Open source software
- Open methodology
- Open research objects
- Open & transparent peer-review
- Reproducible research
- > Open innovation
- Collaborate rather than compete

Publish the whole research cycle



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BIG4 Kick-Off Meeting, Copenhagen, 14-18 Sept 2015

