

The TreatmentBank factory: Data access

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Naturalis

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Plazi is a Swiss based international association supporting and promoting the development of persistent and openly accessible scholarly digital taxonomic publications

NGO, SME owned by the NGO; Founded in 2008 as spin-off from a former US/DFG binational digital library award (2003-06); Supported by service contracts, EU-research funding, philanthropic funds, voluntary contributions. Plazi GmbH SME as service provider.

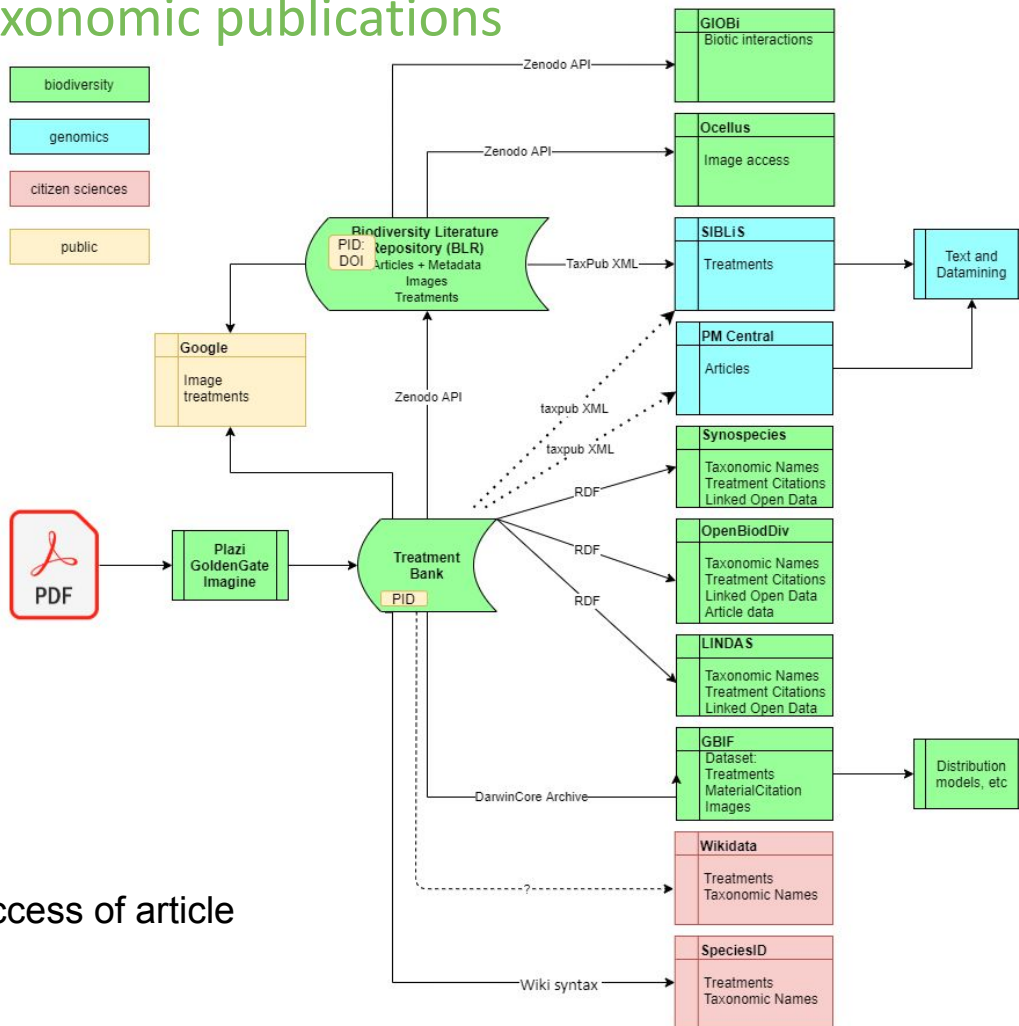
13 persons working for Plazi in Brazil, France, Germany, Spain, Switzerland, USA

Collaborations with Global Biodiversity Information Facility (GBIF), Zenodo at CERN, Pensoft Publishers Ltd, Consortium of European Taxonomic Facilities (CETAF), Swiss Institute of Bioinformatics (SIB), National Center for Biotechnology Informatics (NCBI), Muséum nationale d'Histoire Naturelle, Paris, Data Futures.

Support from Arcadia Fund, EU projects, service contracts, and voluntary contributions.

A mission of Plazi is to **discover, make accessible, and disseminate known biodiversity data**, not publications *per se* and to promote semantic enhanced publishing (TaxPub/JATS).

Access to data in taxonomic publications



Further enhancement of access of article data



Biodiversity Literature Repository



Repository for data liberated from publications

407,000 images

65,000 articles

184,000 taxonomic treatments

Collaboration with Zenodo /CERN

Recognized as EU research infrastructure

TreatmentBank



Data conversion and access service

66,000 articles

620,000 taxonomic treatments

1,050,000 materials citations

>50% of annually described new species

production in 2021: 25,000 articles, 224,000 treatments, 180,000 images



Global Biodiversity Information Facility



Reuse of treatment articles mediated by Plazi

34,000 treatment article data sets (58% of total data sets in GBIF)

342,000 taxonomic treatments (90,000 unique species)

224,000 figures

465,000 materials citations (occurrences)

The figures are lower in GBIF because of Quality Control measures

In comparison to what's in TreatmentBank



Data conversion and access service

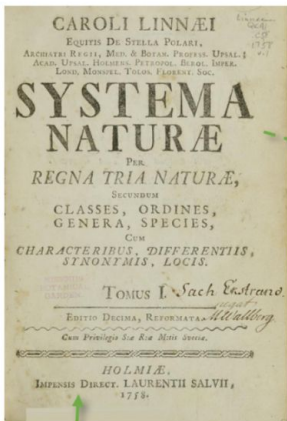
66,000 articles

620,000 taxonomic treatments

1,050,000 materials citations

>50% of annually described new species

production in 2021: 25,000 articles, 224,000 treatments, 180,000 images



Linnaeus, 1758
4,819 taxa

LINNAEUS(2818) 1758
Type of
Apis mellifera L.
European honeybee

Type specimen = Standard

Natural Science Collections:

- 3.5 Billion objects
- 10 million types
- 2 million standards

Apis mellifera L.

576 INSECTA HYMENOPTERA. Apis.

succin- 14. A. thorace flavescente subvillosa, abdomine nigro :
cta. cingulis quatuor albis.
Habitat in Terris australibus.
Rostrum subulatum, cornuum, bivulve.

zonata. 15. A. subpubescens fusca, abdomine cingulis quatuor
caruleis. M. L. U.
Habitat in Indiis.

Taxonomic treatment

mellifera. 17. A. pubescens, thorace subgriseo, abdomine fusco,
Taxonomic pedibus posticis glabris utrinque margine ciliatis.
name En. fœc. 1003.
Mokff. inf. 2. Swamm. bibl. t. 17. f. 1. operaria.
Aldr. inf. 20. f. 3. femina.
Fonst. inf. 1. t. 2. f. 1. operaria.
Raj. inf. 240. f. 2. mas.
Reaum. inf. 5. t. 23. f. 22. f. 1. operaria.
f. 2. mas.
f. 1. femina.

Treatment citations

Distribution *Habitat in Europæ arboribus cavis, frequentius evlta.*
REGINA (Femina) unica, altior, oblongior, aculeata.
FUCI (Mares) ad 1600, inermes, antennis 11-articu-
latis. OPERARIE (Spadones) ad 20000, antennis
15-articulatis, ventriculis 2 mellis ceræque, aculeate.
Euse retrosum serrato venenato latente intra vagi-
nam cuspidatum.
REPUBLICA Alocarii gynecocratica est, dum Femina
imperans semper inclusa, operariorum custodum satel-
liti assidue stipata, antennis obvium Marem quem-
cumque salutat, impetente comprimit cum illius
vita dispen. **Description.** ova ad 40000 saepe quot-
annis in aaptatis juri cœni: primum neutra, dein
mascula, demum nonnulla femina; his exclusi gradu
2do supra calorem æstatis ordinaria, adolescant Lar-
væ sextiduo, nunt ad parietes cellæ, operantur usque
dum adultæ evolant, alteroquo die mellificat. Mares,
ignavus pecus, incurri apricantur serenis diebus, gu-
le dediti. Spadones operarii, neutri, indefess, mel-
le & ceram e polline florum sedulo legunt, mil-
liaris spatio, quoties per calum licet, redeunt, favos
cereos

INSECTA HYMENOPTERA. Apis. 577

ctd. cereos struunt hexangulati-prismaticos, eoque mel-
le replent, feminam **Description** nutriunt, cellas
inhabitatas reparant, operantur, vigiliæ
& stationes ad portas instituunt, hostes arcens aculei
illa venenato sibi ipsi licet lethali, maresque demum
transactis nuptiis expellunt. Hostes imprimis sunt Mo-
zaille, Hyrundines, Pavones, Buzones, Mures, Cra-
brones, Vespa, Pediculi, Apes fures, Mellonelle, Fu-
mus &c. Flores **Biology & Ecology** mellifera non omnes, præcipui
sunt Echium, Bor- **Ecology** gram Scavis, Tilia Poloni-
ca, Rosmarinus **Ecology** sibi, Thymus Atticis,
Arbutus Conficis, Absinthium Sardinis, Aconium
Ponticis &c. hinc pretium varium mellis: Vide Reau-
murium, Aubenton.

subterra- 16. A. pubescens, thorace græco, abdomine fusco, pedi-
na. bus undique villosis.
*Habitat in Terra sabulosa siccare, quam faraminibus
pluribus parum remotis penetrant & distincte adific-
cant plures.*

variegata. 19. A. thorace abdomineque albo variegato.
Habitat in Europa.

rostrata. 20. A. labio superiore conico inflexo, abdominis fasciis
glaucis repandis.
En. fœc. 999. Apis pedibus maxillisque flavis apice ni-
gris, incisuris abdominis glabris margine nigris.
It. goul. 336.
Habitat in Europæ monticulis arenosis.

manicata. 21. A. nigra, pedibus anticis hirsutissimis, ano multident-
tato, abdomine maculis flavis.
Habitat in Europa.

4-denta- 22. A. fusca abdominis cingulis quinque albidis, ano quadri-
dentato: intermediis bidentis.
Swamm. bibl. t. 26. f. 4.
Habitat in Europa.

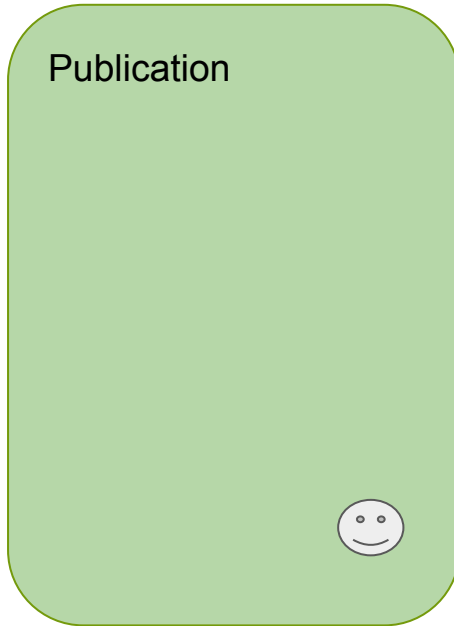
florifo- 23. A. nigra, abdomine subcylindrico incurvo apice bi-
muis. dentato, tibis posticis apice spinosis.
Habitat in Europa, per noctes floribus inhaerens.

24. A.

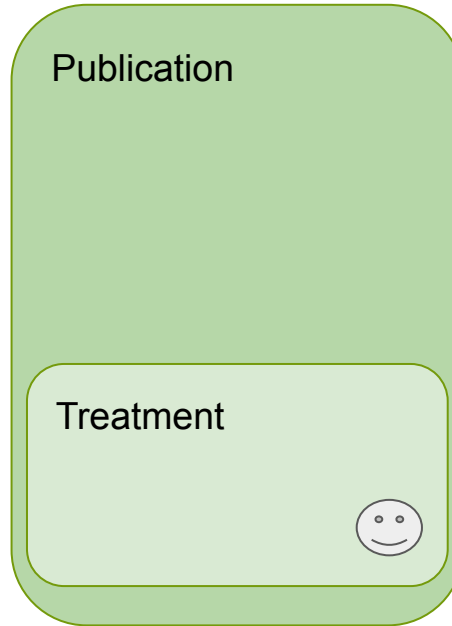
Each type has a published taxonomic treatment
Each taxonomic treatment is multiple times augmented

Tens of millions exist as part of ca 500 Million
published pages of biodiversity literature
Each includes a plethora of facts

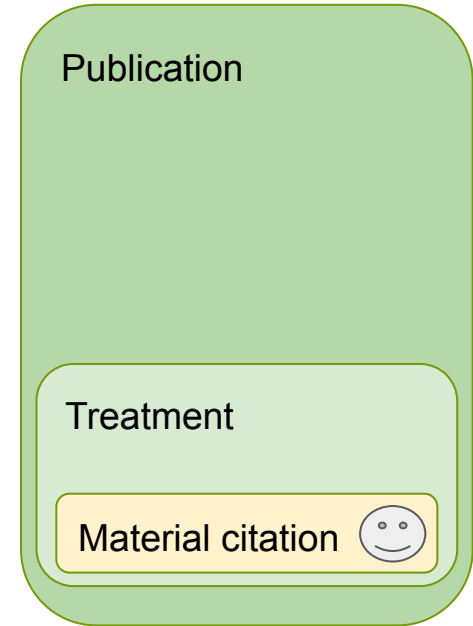
Annotations are context defining the role of named entities



Person: **role**
Public. author, authority, collector



Person: **role**
Publication
Treatment authority, collector



Person: **role**
Publication
Treatment
Material citation collector



Lestes barbarus, Fabricius, 1798

Pinhey, E., 1980. A revision of African Lestidae (Odonata) (excerpt), Occ. Pap. Nat. Mus. & Mon. Rhodesia B 6, pp. 327-479: 367-368

publication ID	http://doi.org/10.5281/zenodo.3531717
DOI	http://doi.org/10.5281/zenodo.5509658 link

LESTES (LESTES) BARBARUS (Fabricius) Text fig. 11 [View Figure](#), 21, 22 [View Figure](#), pp. 347, 366

Agrion barbara Fabricius, 1798: 286 [View Cited Treatment](#); van der Linden, 1825: 36 [View Cited Treatment](#)

Lestes barbara Hagen, 1849: 147 (type species); Hagen & Selys, 1850: 161 [View Cited Treatment](#); Selys, 1862: 318 (34 sep.); Hagen, 1863: 194 [View Cited Treatment](#); McLachlan, 1889: 348; Martin, 1910: 82 [View Cited Treatment](#); Fraser, 1933: 49 fig. 20

Lestes barbarus Selys, 1887: 67 (Egypt); Roster, 1888: 164 pl. 3 (early stages); Kirby, 1890: 162 [View Cited Treatment](#); Martin, 1910: 84, 87; Morton, 1924: 30 [View Cited Treatment](#); May, 1933: 31, 89 (adult and larva); Cowley, 1940: 174 [View Cited Treatment](#); Schmidt, 1951: 122 (quoting Hagen, 1849, **Lestes barbarus** as type species of **Lestes**); Conci & Nielsen, 1956: 65, 66 figs.; Aguesse & Pruja, 1958.: 103 (Morocco); Robert, 1958: 82; Loibl, 1958: 55-80; Corbet, 1962: 178; Lieftinck, 1966: 10 [View Cited Treatment](#) (Morocco)

Agrion nympha Hansemann, 1823: 161 [View Cited Treatment](#) (syn. Kirby, 1890 [View Cited Treatment](#))

Lestes barbata Belyshev, 1973: 509 fig. 213 (? laps. cal.)

The understanding of the taxonomic concept *Lestes barbarus*, (Fabricius) 1798 by Pinhey, 1980.

Access to data in treatments and treatment citations



Fields to Use in Statistics

Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Document UUID	B&2187B6FFA4FFF50F	Count Distinct Values	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cited Treatment HTTP URI	<input type="text"/>	Show Individual Value	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Verbatim Treatment Citation	<input type="text"/>	Show Individual Value	<input type="text"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Verbatim Cited Taxon Name	<input type="text"/>	Show Individual Value	<input type="text"/>

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Maximum Rows:
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[Get this Statistics in XML](#)

Number of Treatments	Document UUID	Verbatim Treatment Citation	Verbatim Cited Taxon Name	Cited Treatment HTTP URI
1	1	van der Linden, 1825: 36	Agrion barbara Fabricius, 1798: 286	http://treatment.plazi.org/id/03A5CD42067AFF8CF3FE468EFBCA4222
1	1	Fabricius, 1798: 286	Agrion barbara Fabricius, 1798: 286	http://treatment.plazi.org/id/03FF87A2422BC67B170C8E5479947C5E
1	1	Hansemann, 1823: 161	Agrion nympha Hansemann, 1823: 161	http://treatment.plazi.org/id/03FE87A3FFD9091CF6FFF04FE0AFBF0
1	1	Kirby, 1890	Agrion nympha Hansemann, 1823: 161	http://treatment.plazi.org/id/3B0E87C9-FFB3-5108-FF7A-FACF5F99FA61
1	1	Fraser, 1933: 49	Lestes barbara	
1	1	Hagen, 1849: 147	Lestes barbara	
1	1	McLachlan, 1889: 348	Lestes barbara	
1	1	Selys, 1862: 318	Lestes barbara	
1	1	Martin, 1910: 82	Lestes barbara	http://treatment.plazi.org/id/038887E6-FFA7-FPEA-802B-FAADC4711E72
1	1	Hagen, 1863: 194	Lestes barbara	http://treatment.plazi.org/id/03AE87CA-2D62-1530-FF61-AC85FF684E52
1	1	Hagen & Selys, 1850: 161	Lestes barbara	http://treatment.plazi.org/id/03CA934FAA5DFFC414B4FAB8FCC99D0C
1	1	Aguesse & Prnja, 1958: 103	Lestes barbarus	
1	1	Conci & Nielsen, 1956: 65	Lestes barbarus	
1	1	Corbet, 1962: 178	Lestes barbarus	
1	1	May, 1933: 31	Lestes barbarus	
1	1	Robert, 1958: 82	Lestes barbarus	
1	1	Roster, 1888: 164	Lestes barbarus	
1	1	Schmidt, 1951: 122	Lestes barbarus	
1	1	Selys, 1887: 67	Lestes barbarus	
1	1	Morton, 1924: 30	Lestes barbarus	http://treatment.plazi.org/id/03F087BBB411FFB6FCF2FC39440CFBE7
1	1	Kirby, 1890: 162	Lestes barbarus	http://treatment.plazi.org/id/3B0E87C9FFB35108FF7AFACF5F99FA61
1	1	Lieftinck, 1966: 10	Lestes barbarus	http://treatment.plazi.org/id/72188781BD1CFDFDFDC9FA7F46FFF954
1	1	Cowley, 1940: 174	Lestes barbarus	http://treatment.plazi.org/id/98348795FF940D66FD88535EFA56FC3F
1	1	Belyshev, 1973: 509	Lestes barbata Belyshev, 1973: 509	



Plazi Treatment Collection Statistics

Document & User Data

Document Type Document UUID Document LSID Document DOI Document Zenodo Deposition ID Document GBIF Taxon ID
Document Name Article UUID Article DOI Article Handle Article HNS ID Article ZooBank ID Article GBIF Dataset ID
Article Zenodo Deposition ID Book ISBN Journal ISSN Document Language User to first Upload Document
Timestamp of first Upload Year of first Upload Month of first Upload User to last Update Document Timestamp of last Update
Year of last Update Month of last Update

Bibliographic Metadata

Document Author Document Title Date of Publication Year of Publication Decade of Publication Document Origin
Journal / Publisher Volume Verbatim Volume Issue Verbatim Issue Numero Verbatim Numero First Page Last Page
Number of Pages Number of Sections Number of Tokens Article First Page Article Last Page Article Number of Pages
HNS Document ID URL of PDF Version

Bibliographic Metadata for Display

Taxonomic Data

Verbatim Taxon Name Rank of Taxon Qualification as Taxon Taxonomic Kingdom Taxonomic Phylum Taxonomic Class
Taxonomic Order Taxonomic Family Taxon Genus Taxon Species Verbatim Taxon Authority Taxon Authority Name
Taxon Authority Year Taxonomic Status Treatment Has Key Treatment Is Key

Section Data

Section Type Number of Tokens Number of Paragraphs Number of Taxon Names Number of Annotations

Citation Data

Number of Treatment Citations Number of Treatment Citations with HTTP URI Number of Treatment Citation Groups
Number of Treatment Citations in Groups Number of Bibliographic Citations Number of Figure Citations
Number of Figure Citations with HTTP URI Number of Table Citations Number of Table Citations with HTTP URI

Treatment Citation Data

Countries

Collections

Materials Data

Materials Citation Data

Plazi Article Collection Statistics

Document & User Data

Article UUID Document Name Article DOI Article Handle Article HNS ID Article ZooBank ID Article GBIF Dataset ID
Book ISBN Journal ISSN Zenodo Deposition ID Document Language User to first Upload Document Timestamp of first Upload
Year of first Upload Month of first Upload User to last Update Document Timestamp of last Update Year of last Update
Month of last Update

Bibliographic Metadata

Document Author Document Title Date of Publication Year of Publication Decade of Publication Document Origin
Journal / Publisher Volume Verbatim Volume Issue Verbatim Issue Numero Verbatim Numero First Page Last Page
HNS Document ID URL of PDF Version

Bibliographic Metadata for Display

Author Data

Content Summary Data

Number of Pages Number of Treatments Number of Treatments with DOI Treatments per Page Pages per Treatment
Tokens per Treatment (Average) Tokens per Treatment (Minimum) Tokens per Treatment (Maximum) Number of Treatment Citations
Number of Treatment Citations with HTTP URI Number of Treatment Citations with DOI Number of Materials Citations
Number of Materials Citations with HTTP URI Materials Citations per Treatment Number of Figures Number of Figures on Zenodo
Number of Figure Citations Number of Tables Number of Tables with HTTP URI Number of Table Citations
Number of Bibliographic References Bibliographic References with DOI Number of Bibliographic Citations Overall Collecting Countries

Bibliographic Data

Treatment Data

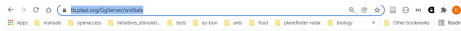
Treatment UUID Verbatim Taxon Name Rank of Taxon Qualification as Taxon Taxonomic Kingdom Taxonomic Phylum
Taxonomic Class Taxonomic Order Taxonomic Family Taxon Genus Taxon Species Taxon Authority Taxonomic Status

Materials Data

Caption Data (Figures)



A brief introduction to the statistics



TreatmentBank

TREATMENTBANK BIODIVERSITY LITERATURE REPOSITORY SERVICES HOW TO PARTICIPATE ABOUT SEARCH

Plazi Treatment Collection Statistics

- Document & User Data
- Bibliographic Metadata
- Bibliographic Metadata for Display
- Taxonomic Data
- Section Data
- Citation Data
- Treatment Citation Data
- Countries
- Collections
- Materials Data
- Materials Citation Data

Fields to Use in Statistics

Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Vegetal Taxon Name		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Genus		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Species		Show Individual Value	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxonomic Family	LeafSize	Show Individual Value	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Number of Materials Citations		Sum of Values	

Get Statistics Maximum Rows: Add Custom Filter

Get this Statistics in HTML Get this Statistics in CSV Get this Statistics for MS Excel Get this Statistics in JSON Get this Statistics in XML

TreatmentBank BIODIVERSITY LITERATURE REPOSITORY SERVICES HOW TO PARTICIPATE ABOUT SEARCH

Plazi Treatment Collection Statistics

- Document & User Data
- Bibliographic Metadata
- Bibliographic Metadata for Display
- Taxonomic Data
- Section Data
- Citation Data
- Treatment Citation Data
- Countries
- Collections
- Materials Data
- Materials Citation Data

fields

Treatments

<https://tb.plazi.org/GgServer/srsStats>



A brief introduction to the statistics

Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Verbatim Taxon Name		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Genus		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Species		Show Individual Value	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxonomic Family	Lestidae	Show Individual Value	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Number of Materials Citations		Sum of Values	

Fields to Use in Statistics					
Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Verbatim Taxon Name		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Genus		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Species		Show Individual Value	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxonomic Family	Lestidae	Show Individual Value	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Number of Materials Citations		Sum of Values	

Maximum Rows:

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values

export

Treatments

<https://tb.plazi.org/GgServer/srsStats>



A brief introduction to the statistics

Fields to Use in Statistics			
Output?	Order? (Desc?)	Field Name	Filter on Values
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	Verbatim Taxon Name	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Taxon Genus	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Taxon Species	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Taxonomic Family	<input type="text" value="Lestidae"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Number of Materials Citations	<input type="text"/>

Maximum Rows:

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Values:

Wildcard: % enter before or after a value

E.g. %type, %Miller yields all different Miller's (J. Miller, Jeremy Miller, etc.)

Composite values: "" used before and after the value, E.g. "Formica rufa", "Journal of Natural History"

AND search: enter the values each with a space inbetween E.g. holotype paratype

Operation:

Show individual values: shows the value

Count all values: counts all values

Count distinct values:

Sum of values: used in stats covering counts of values, eg number of treatments

Treatments

<https://tb.plazi.org/GgServer/srsStats>



A brief introduction to the statistics

Fields to Use in Statistics					
Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> ()	Verbatim Taxon Name	<input type="text"/>	Count Distinct Values ▾	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> ()	Taxon Genus	<input type="text"/>	Count Distinct Values ▾	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> ()	Taxon Species	<input type="text"/>	Show Individual Value ▾	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> ()	Taxonomic Family	Lestidae	Show Individual Value ▾	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> ()	Number of Materials Citations	<input type="text"/>	Sum of Values ▾	<input type="text"/>

Maximum Rows:

[Get this Statistics in HTML](#) [Get this Statistics in CSV](#) [Get this Statistics for MS Excel](#) [Get this Statistics in JSON](#) [Get this Statistics in XML](#)

Export formats

Html
CSV
XLS
JSON
XML

Treatments

<https://tb.plazi.org/GgServer/srsStats>



How many Lestidae species?

How many treatments per species?

What are the species?

Where have they been published?

Which data is reused and by whom?

.....



How many Lestidae species?

Plazi Treatment Collection Statistics

Document & User Data +

Bibliographic Metadata +

Bibliographic Metadata for Display +

Taxonomic Data -

Verbatim Taxon Name Rank of Taxon Qualification as Taxon Taxonomic Kingdom Taxonomic Phylum Taxonomic Class

Taxonomic Order Taxonomic Family Taxon Genus Taxon Species Verbatim Taxon Authority Taxon Authority Name

Taxon Authority Year Taxonomic Status Treatment Has Key Treatment Is Key

Section Data +

Citation Data +

Treatment Citation Data +

Countries +

Collections +

Materials Data +

Materials Citation Data +

Fields to Use in Statistics

Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Genus		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Species		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxonomic Family	Lestidae	Show Individual Values	

Get Statistics Maximum Rows: Add Custom Filter

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Number of Treatments	Taxonomic Family	Taxon Genus	Taxon Species
224	Lestidae	11	129

output



What are the species?

Fields to Use in Statistics					
Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Genus	<input type="text"/>	Count Distinct Values	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Species	<input type="text"/>	Show Individual Values	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxonomic Family	Lestidae	Show Individual Values	<input type="text"/>

Maximum Rows:

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[Get this Statistics in XML](#)

Number of Treatments	Taxonomic Family	Taxon Genus	Taxon Species
21	Lestidae	6	
2	Lestidae	1	alacer
1	Lestidae	1	albofasciata
1	Lestidae	1	aleison
2	Lestidae	1	alfonsoi
1	Lestidae	1	alleni
1	Lestidae	1	americana
1	Lestidae	1	amicus
1	Lestidae	1	analis
1	Lestidae	1	annulosus
1	Lestidae	1	anomalus
1	Lestidae	1	apollinaris
2	Lestidae	1	attenuatus
2	Lestidae	1	auritus
5	Lestidae	2	barbara
7	Lestidae	1	barbarus
1	Lestidae	1	basidens
1	Lestidae	1	bipupillatus
1	Lestidae	1	birmana
1	Lestidae	1	birmanus
1	Lestidae	1	californica
1	Lestidae	1	cheesmanae

output



What are the species?

How many material citations per species?

Number of Materials Citations
Number of Materials Citations with HTTP URI
Total Specimen Count (overall)
Total Specimen Count (males)

Total Specimen Count (females)
Total Specimen Count (workers)
Total Specimen Count (soldiers)
Total Specimen Count (queens)

Collecting Countries

Materials Citation Data +

Fields to Use in Statistics

Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Taxon Genus	<input type="text"/>	Count Distinct Values	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Taxon Species	<input type="text"/>	Show Individual Value	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Taxonomic Family	Lestidae	Show Individual Value	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Number of Materials Citations	<input type="text"/>	Sum of Values	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Total Specimen Count (overall)	<input type="text"/>	Sum of Values	<input type="text"/>

Get Statistics
Maximum Rows:
Add Custom Filter

[Get this Statistics in HTML](#)
[Get this Statistics in CSV](#)
[Get this Statistics for MS Excel](#)
[Get this Statistics in JSON](#)
[Get this Statistics in XML](#)

Number of Treatments	Taxonomic Family	Taxon Genus	Taxon Species	Number of Materials Citations	Total Specimen Count (overall)
21	Lestidae	6		0	0
2	Lestidae	1	alacer	3	5
1	Lestidae	1	albofasciata	1	1
1	Lestidae	1	aleison	19	41
2	Lestidae	1	alfonsoi	8	79
1	Lestidae	1	alleni	10	22
1	Lestidae	1	americana	0	0
1	Lestidae	1	amicus	0	0
1	Lestidae	1	analis	0	0
1	Lestidae	1	annulosus	0	0

output

Access to data in taxonomic publications



What do we know about the holotypes?

Fields to Use in Statistics					
Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Genus	<input type="text"/>	Count Distinct Values	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Species	<input type="text"/>	Show Individual Value	<input type="text"/>
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	Number of Materials Citations	<input type="text"/>	Sum of Values	<input type="text"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Type Status	holotype	Show Individual Value	<input type="text"/>

Maximum Rows:

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[Get this Statistics in CSV](#)
[Get this Statistics for MS Excel](#)
[Get this Statistics in JSON](#)
[Get this Statistics in XML](#)

Number of Treatments	Taxonomic Family	Taxon Genus	Taxon Species	Number of Materials Citations	Type Status
1	Lestidae	1	albofasciata	1	holotype
1	Lestidae	1	aleison	19	holotype
1	Lestidae	1	alfonsoi	5	holotype
1	Lestidae	1	attenuatus	4	holotype
1	Lestidae	1	basidens	2	holotype
1	Lestidae	1	birmana	1	holotype
1	Lestidae	1	chocoanus	3	holotype
1	Lestidae	1	curvatus	10	holotype
1	Lestidae	1	debellardi	3	holotype
1	Lestidae	1	demarcoi	3	holotype
1	Lestidae	1	edentatus	4	holotype
1	Lestidae	1	falcifer	2	holotype
2	Lestidae	1	fernandoi	4	holotype
1	Lestidae	1	gracilis	1	holotype

output

Access to data in taxonomic publications



What do we know about the holotypes?

Materials Citation UUID GBIF Occurrence ID Verbatim Materials Citation Collecting Country Collecting Region Collecting Municipality

Collecting Location Decimal Longitude Decimal Latitude Coordinate Precision Coordinates Present? Elevation above Sea Level

Collecting Date Collecting Decade Collecting Year Collecting Month Collector Name Collection Code Specimen Code

Specimen HTTP URI Accession Number Type Status Specimen Count (overall) Specimen Count (males) Specimen Count (females)

Specimen Count (workers) Specimen Count (soldiers) Specimen Count (queens)

Fields to Use in Statistics					
Output?	Order? (Desc?)	Field Name	Filter on Values	Operation	Filter on Operation Result
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Genus		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxon Species		Show Individual Value	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Taxonomic Family	Lestidae	Show Individual Value	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Type Status	holotype	Show Individual Value	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Materials Citation UUID		Count Distinct Values	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Verbatim Materials Citation		Show Individual Value	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Year of Publication		Show Individual Value	

Get Statistics Maximum Rows: Add Custom Filter

Get this Statistics in HTML Get this Statistics in CSV Get this Statistics for MS Excel Get this Statistics in JSON Get this Statistics in XML

Number of Treatments	Year of Publication	Taxonomic Family	Taxon Genus	Taxon Species	Materials Citation UUID	Verbatim Materials Citation	Type Status
1	2021	Lestidae	1	fernandoi	1	Holotype &	holotype
1	2021	Lestidae	1	jurzitai	1	Holotype in MNRJ (not examined, destroyed by fire in 2.ix.2018)	holotype
1	2021	Lestidae	1	falcifer	1	Holotype in NRM (not examined), female still undescribed.	holotype
1	2021	Lestidae	1	demarcoi	1	Holotype, ♂ (UFPA, NC 4725), Brazil: Amazonas State: Manaus; Reserva Adolpho Ducke, puddle with leaves, Acará trail, collected in tandem with the allotype, 02°55'46"S & 59°58'22"W, 62 m. a.s.l., 13-IV-2009, U.G. Neiss leg.	holotype
1	2017	Lestidae	1	lafaeci	1	Holotype — ♂: Soe, South Central Timor Regency, West Timor, Indonesia [9.86° S, 124.28° E], vi.1929, ex.- Coll. Le Mout; deposited at the Royal Belgian Institute of Natural Sciences (RBINS).	holotype
1	2015	Lestidae	1	gracilis	1	Holotype ♂, Cambodia, Mondulkiri Province, the river upstream Buu Sraa Waterfall, the left bank at the bridge, 12°33'55" N 107°25'09" E, 502 m a.s.l., 9 VI 2014; deposited in Naturalis Biodiversity Centre, Leiden, the Netherlands (RMNH)	holotype
1	2015	Lestidae	1	birmana	1	The holotype of <i>Lestes birmana</i> (Figure 2) is present in good condition in Museo Civico di Storia Naturale 'Giacomo Doria' (Figure 4a). It has a small handwritten yellow label "Puepoli / 18. VI. 88 ", a yellow label " <i>Lestes / birmana</i> Selys / (divisa? Hagen	holotype

output



What do we know about the holotypes?

More details allows further analyses

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Year of Publication	<input type="text"/>	Show Individual Value ▾	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Collection Code	<input type="text"/>	Show Individual Value ▾	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Specimen Code	<input type="text"/>	Show Individual Value ▾	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Collector Name	<input type="text"/>	Show Individual Value ▾	<input type="text"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Collecting Year	<input type="text"/>	Show Individual Value ▾	<input type="text"/>
<input type="button" value="Get Statistics"/> Maximum Rows: <input type="text"/> <input type="button" value="Add Custom Filter"/>					
Get this Statistics in HTML Get this Statistics in CSV Get this Statistics for MS Excel Get this Statistics in JSON Get this Statistics in XML					

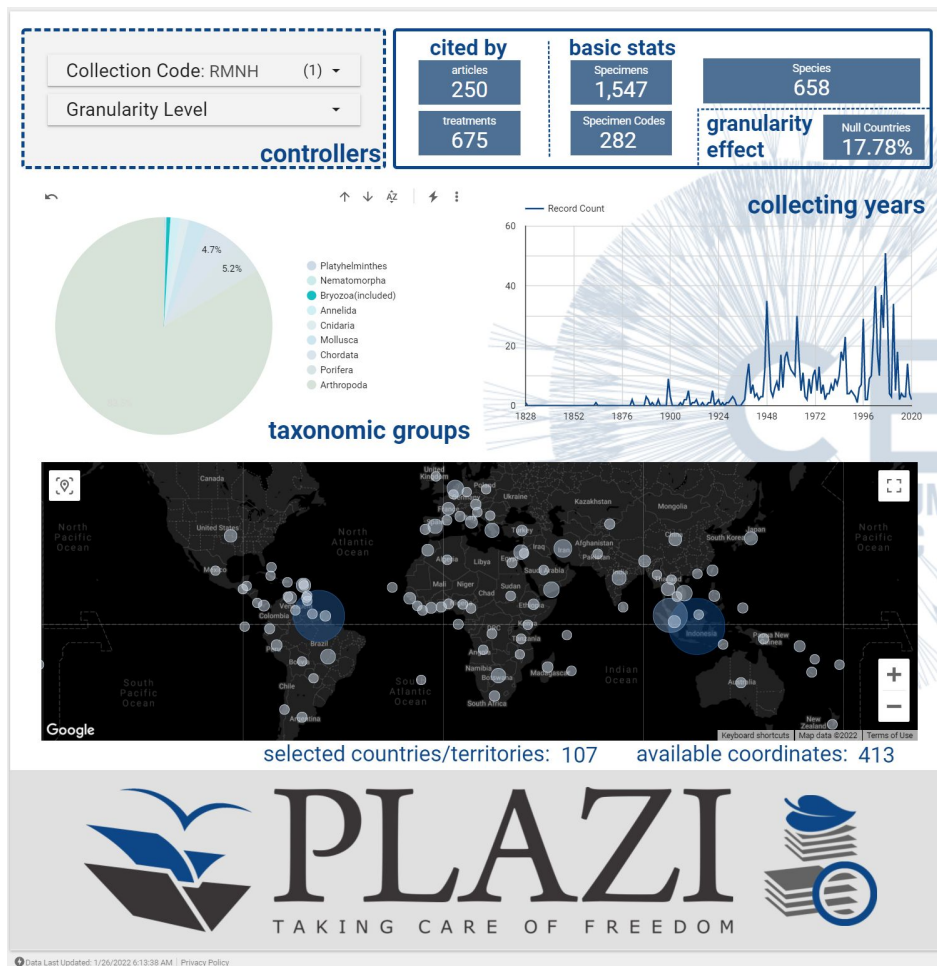
Number of Treatments	Year of Publication	Taxonomic Family	Taxon Genus	Taxon Species	Materials Citation UUID	Verbatim Materials Citation	Collecting Year	Collector Name	Collection Code	Specimen Code	Type Status
1	2021	Lestidae	1	fernandoi	1	Holotype &	0		MNRJ		holotype
1	2021	Lestidae	1	jurzitzi	1	Holotype in MNRJ (not examined, destroyed by fire in 2.ix.2018)	2018		MNRJ		holotype
1	2021	Lestidae	1	falcifer	1	Holotype in NRM (not examined), female still undescribed.	0		NRM		holotype
1	2021	Lestidae	1	demarcoi	1	Holotype, ♂ (UFPA, NC 4725), Brazil: Amazonas State: Manaus; Reserva Adolpho Ducke, puddle with leaves, Acará trail, collected in tandem with the allotype, 02°55'46"S & 59°58'22"W, 62 m. a.s.l., 13–IV–2009, U.G. Neiss leg.	2009	U. G. Neiss	UFPA	NC 4725	holotype
1	2017	Lestidae	1	lafaeci	1	Holotype — ♂; Soe, South Central Timor Regency, West Timor, Indonesia [9.86° S, 124.28° E], vi.1929, ex - Coll. Le Moulit; deposited at the Royal Belgian Institute of Natural Sciences (RBINS).	1929	Le Moulit	RBINS		holotype
1	2015	Lestidae	1	birmana	1	The holotype of <i>Lestes birmana</i> (Figure 2) is present in good condition in Museo Civico di Storia Naturale 'Giacomo Doria' (Figure 4a). It has a small handwritten yellow label "Puepoli / 18. VI. 88 ", a yellow label " <i>Lestes</i> / <i>birmana</i> Selys / (divisa? Hagen	1988	Leonardo Fea	Museo Civico de		holotype

output



What do we know about the holotypes?

More details allows further analyses



output

Access to data in taxonomic publications



Who is using the data?

Bidirectional link

Document & User Data

Document Type
Document UUID
Document LSID
Document DOI
Document Zenodo Deposition ID
Document GBIF Taxon ID

Document Name
Article UUID
Article DOI
Article Handle
Article HNS ID
Article ZooBank ID
Article GBIF Dataset ID

Article Zenodo Deposition ID
Book ISBN
Journal ISSN
Document Language
User to first Upload Document

Timestamp of first Upload
Year of first Upload
Month of first Upload
User to last Update Document
Timestamp of last Update

Year of last Update
Month of last Update

		Number of Treatments	Document Zenodo Deposition ID	Document GBIF Taxon ID	Taxonomic Family	Taxon Genus	Taxon Species	Materials Citation UUID	↔	GBIF Occurrence ID	Type Status
Document Author	Document Title	1	5522426	119349317	Lestidae	Lestes	fernandoi	3B673CA52A40FFB7FF4DFB49BDD360A9		2251610871	holotype
Journal / Publisher	Volume	1	5522229	127847889	Lestidae	Indolestes	lafaei	6FE13CB0FFB6C35FFFF119B9C57083C23		1440674423	holotype
Number of Pages	Number of Species	1	5522217	157330235	Lestidae	Archilestes	guayaraca	49A45640753F6D1BFFFF0FA4385BFBC3		2247698107	holotype
		1	4421488	157336242	Lestidae	Lestes	spatula	3B343CFFFFA63D2EFEDDD6FCFBE9FDFA		2247699467	holotype
		1	5522233	157389638	Lestidae	Lestes	secula	71D2FF73FFC12768FDFDF9BF8E770ED1		2248039807	holotype
		1	5522233	157389638	Lestidae	Lestes	secula	71D2FF73FFC12768FCD3F8C58C950FB4		2907084301	holotype
		1	5522233	157389638	Lestidae	Lestes	secula	71D2FF73FFC12768FE27F8F18C0B0F49		2907084302	holotype
Verbatim Taxon Name	Rank of Taxon	1	5522471	157389651	Lestidae	Lestes	tikalus	3B3CCE7EFFF3EF3AE92BEFE2FE3EF82B		2248043288	holotype
Taxonomic Order	Taxonomic	1	5522471	157389651	Lestidae	Lestes	tikalus	3B3CCE7EFFF2EF3BEFFAE6FFBA2F984		2248043298	holotype
Taxon Autor		1	5522418	157513656	Lestidae	Archilestes	regalis	3B65625E4121FFA1FEE00B32FD2CFE78		2252419581	holotype
		1	5522783	157519778	Lestidae	Archilestes	latialatus	3B073C910457DE13FCD2F778FA28F6EB		2252464975	holotype
		1	4421486	157533260	Lestidae	Lestes	albofasciata	8BB33C94BE71144C8847E21BBC78FDA4		2259014666	holotype
		1	5186416	158710603	Lestidae	Lestes	humphriesi	96BA3CA3627E617EB3DBFBCBE8259FA3		2284138381	holotype
		1	5522461	158950212	Lestidae	Indolestes	gracilis	3B473C9DFFE7336D8FB9062BB9E7AFE3		2302281265	holotype
		1	5522231	159236935	Lestidae	Lestes	alfonsoi	77A13C8CAC24FFE4FE29F7DBB3E2F73F		2350531556	holotype
		1	5205791	159862524	Lestidae	Lestes	sublatus	3B4F3C8B05276218FCA637EAF618C7C		2907101302	holotype
		1	5205787	159862525	Lestidae	Lestes	edentatus	3B4F3C8B05266219FBDA302BFAD08A7A		3396368309	holotype
		1	5205789	159862526	Lestidae	Lestes	mediorufus	3B4F3C8B05276218FC9132C2FDC8BB1B		2907101301	holotype
		1	5205795	159862527	Lestidae	Lestes	trichonus	3B4F3C8B0525621AFEF031F5F8A78A24		3396368301	holotype
		1	5205783	159862529	Lestidae	Lestes	curvatus	3B4F3C8B0521621EF959367CFB868C81		3396368306	holotype

Number of Materials Citations
Number of materials Citations with Full Text
Total Specimen Count (overall)
Total Specimen Count (males)

Total Specimen Count (females)
Total Specimen Count (workers)
Total Specimen Count (soldiers)
Total Specimen Count (queens)

Collecting Countries

Materials Citation Data

Materials Citation UUID
GBIF Occurrence ID
Verbatim Materials Citation
Collecting Country
Collecting Region
Collecting Municipality

Collecting Location
Decimal Longitude
Decimal Latitude
Coordinate Precision
Coordinates Present?
Elevation above Sea Level

output

Access to data in taxonomic publications



Who is using the data?

	Number of Treatments	Document UUID	Document Zenodo Deposition ID	Document GBIF Taxon ID	Taxonomic Family	Taxon Genus	Taxon Species	GBIF Occurrence ID	Type Status
Lestes fernandoi, Costa, Janira M., De Souza, Luiz Onofre I. & Muzón, Javier, 2006 Costa, Janira M., De Souza, Luiz Onofre I. & Muzón, Javier, 2006, Descriptions of three new species of Odonata from Brazil, Zootaxa 1314, pp. 53-68: 58-61	1	03A687EE2A40FFBAFF4DFB03B8B062DD	5522426	119349317	Lestidae	1	fernandoi	2251610871	holotype
	1	572087FBFFB6C35AFF119B6351BD3D34	5522229	127847889	Lestidae	1	lafaeci	144067423	holotype
	1	7165ED0B753F6D1AFE200FE73E08FC26	5522217	157330235	Lestidae	1	quavaraca	224760807	holotype
	1	03F587B4FFA43D2EFD04D31EFD84BFC0	4421488	157330235	Lestidae	1	quavaraca	224760807	holotype
	1	49134438FFC1276DFD68FA2389250BDB	5522233	157330235	Lestidae	1	quavaraca	224760807	holotype

publication ID <http://doi.org/10.5281/zenodo.173923>

DOI <http://doi.org/10.5281/zenodo.5522426>

persistent identifier <http://treatment.plazi.org/id/03A687EE-2A40-FFBA-FF4D-FB03B8B062DD>

treatment provided by Plazi (2016-04-04 18:22:06, last updated 2021-09-22 18:25:17)

scientific name Lestes fernandoi

status sp.nov.

Show all

Treatment

Lestes fernandoi sp.nov. (Figures 13 –20 [View FIGURES 13 – 19](#) [View FIGURES 28 – 36](#))

Holotype and [GoogleMaps](#) allotype: BRASIL, MARANHÃO, Imperatriz (5° 31' 60" S / 47° 28' 60" W), 05-06VII 2005, L.F.Reys Netto leg. [GoogleMaps](#)

Etymology. The species epithet, "*fernandoi*", refers to the collector's name.

Male (holotype). Head. Dorsal surface of head white brown; labrum greenish; labium pale; palpal tooth black; lateral surface of mandibles and genae light green. Anteclypeus brown; postclypeus brown, posterior angles greenish; epicanium brown, with two black spots lateroposteriorly to posterior ocellus. Rear of head brown overlain with white pruinosity.

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September 14, 2006 Taxonomic treatment Open Access

Lestes fernandoi Costa, Souza & Muzón, 2006, sp.nov.

Costa, Janira M.; De Souza, Luiz Onofre I.; Muzón, Javier

Lestes fernandoi sp.nov. (Figures 13–20, 36)
Holotype and allotype: BRASIL, MARANHÃO, Imperatriz (5° 31' 60" S / 47° 28' 60" W), 05-06-VII 2005, L.F.Reys Netto leg.

Etymology. The species epithet, "*fernandoi*", refers to the collector's name.

Male (holotype). Head. Dorsal surface of head white brown; labrum greenish; labium pale; palpal tooth black; lateral surface of mandibles and genae light green. Anteclypeus brown; postclypeus brown, posterior angles greenish; epicanium brown, with two black spots lateroposteriorly to posterior ocellus. Rear of head brown overlain with white pruinosity.

Thorax (Fig. 13–14). Prothorax light brown. Pterothorax light green. Mesepisternum stripe iridescent black. Anterior suture dark brown. Dorsal carina light brown. Mesepisternum stripe iridescent dark brown becoming black directionally, its upper end straight. Anterior crest brown. Mesofraepisternum with a light brown spot. Mesepimeron with a light brown stripe. Interpleural suture black. Venter of thorax pale; mesepimeron with anterior subtriangular black spot. Legs light brown; coxae and trochanters pale.

Femora pale with a broad black stripe and a narrower black ventral stripe. Tarsi and claws black.

Wings. Hyaline, pterostigma brown, venation black. RP 2 arising from RP 1 at fifth p.m. crossvein in right FW and at fourth in left FW. IRP 2 arising at seventh p.m. crossvein, between sixth and seventh in left FW. Pterostigma surmounting two or three cells on both wings.

Abdomen. Tergite 1 light brown, tergite 2 light blue, bearing two black wide stripe; tergites 3 to 7 iridescent black, anterior margin light blue; tergites 8–10 black, anterior margin light blue. Sternites 1–3 pale, carina black. Genital and postgenital plates dark brown. Sternite 10 light brown. Genital ligula as in Figures 15 and 16. Anal appendages: cerci (Figs. 17–19), dark brown, slightly planar in lateral view, in dorsal view curved medially, in their apical halves, internal margin slightly concave, tip blunt. Paraproct (Fig. 1819), dark brown with top black, larger than 10 th segment, globose basally, dorsally with a medial basal carina bordering an internal concavity; apex rounded, slightly divergent, bearing a tuft of setae.

Measurements. Total length (including anal appendages) 47, length of FW and HW 25, length of FW female 1.9, total length of abdomen 39, length of cerci 1.4.

Female (Allotype). Color pattern similar to male, but differs as follows: labrum dark brown; anteclypeus and postclypeus light brown.

Thorax. Prothorax light dorsally and greenish laterally, brown pattern as in male. Pterothorax similar to male. Legs yellowish in all extensive.

Wings. Hyaline, pterostigma dark brown, venation black; RP 2 arising from RP 1 at fourth in HW. Pterostigma surmounting two cells.

Abdomen. Tergite 1 light brown, laterally greenish; tergites 2–10 dorsally iridescent black, except anterior margin light greenish; segment ten entirely black. Sternite light with ventral carina black. Cerci and paraprocts dark brown. Genitalia (Fig. 20). Ovipositor: anterior and posterior gonopophyses light brown, ovipositor valves dark brown, stylus of ovipositor light brown and curving ventrally in lateral view.

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Publication date: September 14, 2006

DOI: [10.5281/zenodo.5522426](https://doi.org/10.5281/zenodo.5522426)

Keywords: [Biodiversity](#) [Taxonomy](#) [Animals](#) [Insects](#) [Lestes fernandoi](#) [Lestidae](#)

Published in: Descriptions of three new species of Odonata from Brazil, pp. 53-68 in Zootaxa, 1314 pp. 58-61.

Cited identifiers:
 10.5281/zenodo.173926 (Figure)
 10.5281/zenodo.173927 (Figure)

Lestes fernandoi Costa, Souza & Muzon, 2006

Animalia : Arthropoda : Insecta : Odonata : Lestidae : Lestes

Species: Lestes fernandoi Costa, Souza & Muzon, 2006

Location: Brazil

Basis of record: Preserved specimen

Specimen type: Holotype

Dataset: Descriptions of three new species of Odonata from Brazil

Publisher: Plazi.org taxonomic treatments database

Reference: <http://treatment.plazi.org/id/03A687EE2A40FFBAFF4D...>

Issues: [Occurrence status inferred from individual count](#)

OCURRENCE | 5 JULY 2005

Collected in Brazil

Record

Term	Interpreted	Original	Remarks
Basis of record	Preserved specimen	PreservedSpecimen	

Occurrence

Term	Interpreted	Original	Remarks
Individual count	1	1	
Occurrence ID	03A687EE2A40FFBAFF4DFB03B8B06	03A687EE2A40FFBAFF4DFB03B8B06	
	2DD.mcc.3B673CA52A40FFB7F4DFB	2DD.mcc.3B673CA52A40FFB7F4DFB	
	49BDD360A9	49BDD360A9	
Occurrence status	PRESENT		Occurrence status inferred from individual count
Recorded by	L. F. Reys Netto	L. F. Reys Netto	

Access to data in taxonomic publications



Who is using the data?

Document & User Data				Number of Treatments	Document Zenodo Deposition ID	Document GBIF Taxon ID	Taxonomic Family	Taxon Genus	Taxon Species	GBIF Occurrence ID	Type Status
Document Type	Document UUID	Document LSID	Document DOI	1	5522426	119349317	Lestidae	1	fernandoi	2251610871	holotype
Document Name	Article UUID	Article DOI	Article Handle	1	5522229	127847889	Lestidae	1	lafaeci	1440674423	holotype
Article Zenodo Deposition ID	Book ISBN	Journal ISSN	Document Language	1	5522217	157330235	Lestidae	1	guayaraca	2247698107	holotype
Timestamp of first Upload	Year of first Upload	Month of first Upload	User to first Upload Document	1	4421488	157336242	Lestidae	1	spatula	2247699467	holotype
Year of last Update	Month of last Update										
Bibliography				1	5522233	157389638	Lestidae	1	secula	2248039807	holotype
Document Author	Document Title	Date of Publication		1	5522233	157389638	Lestidae	1	secula	2907084301	holotype
Journal / Publisher	Volume	Verbatim Volume	Issue	1	5522233	157389638	Lestidae	1	secula	2907084302	holotype
Number of Pages	Number of Sections	Number of Texts	HNS Document	1	5522471	157389651	Lestidae	1	tikalus	2248043288	holotype
Bibliography				1	5522471	157389651	Lestidae	1	tikalus	2248043298	holotype
Verbatim Taxon Name	Rank of Taxon	Qualification		1	5522418	157513656	Lestidae	1	regalis	2252419581	holotype
Taxonomic Order	Taxonomic Family	Taxonomic Genus		1	5522783	157519778	Lestidae	1	latalatus	2252464975	holotype
Taxonomic Authority Year	Taxonomic Authority	Taxonomic Authority Year		1	4421486	157533260	Lestidae	1	albofasciata	2259014666	holotype
Treatments				1	5186416	158710603	Lestidae	1	humphriesi	2284138381	holotype
Treatments				1	5522461	158950212	Lestidae	1	gracilis	2302281265	holotype
Treatments				1	5522231	159236935	Lestidae	1	alfonsoi	2350531556	holotype
Treatments				1	5205791	159862524	Lestidae	1	sublatus	2907101302	holotype
Treatments				1	5205787	159862525	Lestidae	1	edentatus	3396368309	holotype
Treatments				1	5205789	159862526	Lestidae	1	mediorufus	2907101301	holotype
Treatments				1	5205795	159862527	Lestidae	1	trichonus	3396368301	holotype
Number of Materials Citations	Number of Materials Citations with Images										
Total Specimen Count (females)	Total Specimen Count (workers)	Total Specimen Count (soldiers)	Total Specimen Count (queens)								
Collecting Countries											
Materials Citation Data											
Materials Citation UUID	GBIF Occurrence ID	Verbatim Materials Citation	Collecting Country	Collecting Region	Collecting Municipality						
Collecting Location	Decimal Longitude	Decimal Latitude	Coordinate Precision	Coordinates Present?	Elevation above Sea Level						

output

Bidirectional Linking of Treatment Bank and Biospecimens

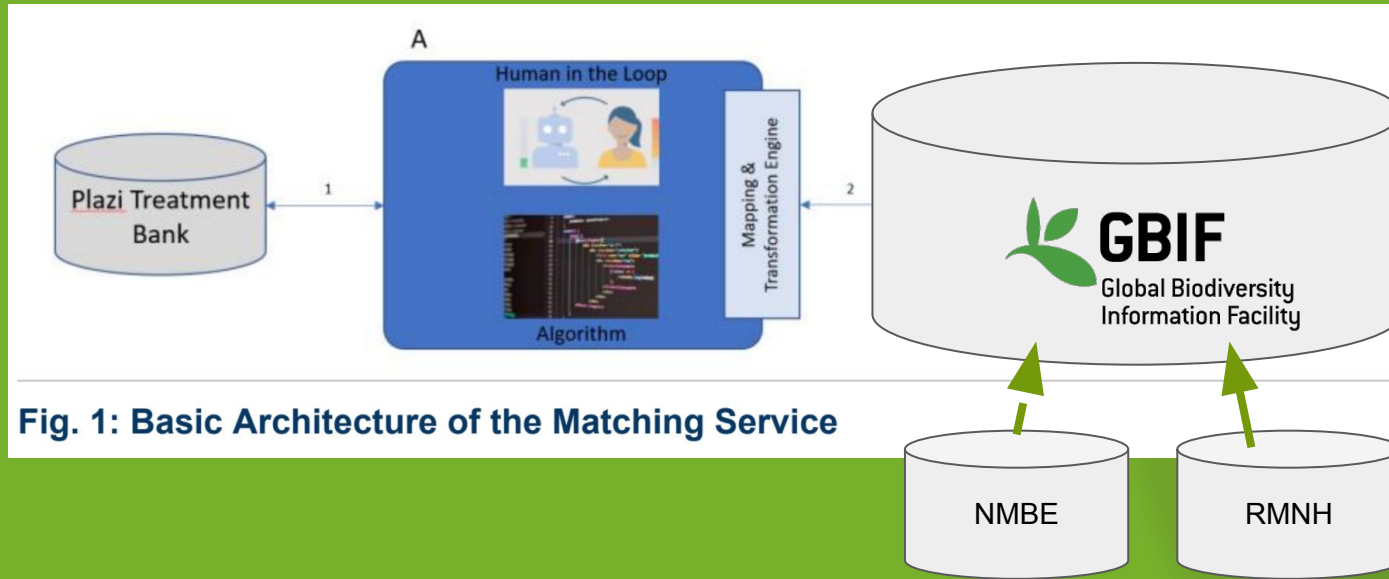


Fig. 1: Basic Architecture of the Matching Service



The use of treatment citation

LESTES (LESTES) BARBARUS (Fabricius) Text fig. 11, 21, 22, pp. 347, 366

Agriion barbara Fabricius, 1798: 286; van der Linden, 1825: 36

Lestes barbara Hagen, 1849: 147 (type species); Hagen & Selys, 1850: 161; Selys, 1862: 318 (34 sep.); Hagen, 1863: 194; McLachlan, 1889: 348; Martin, 1910: 82; Fraser, 1933: 49 fig. 20

Lestes barbarus Selys, 1887: 67 (Egypt); Roster, 1888: 164 pl. 3 (early stages); Kirby, 1890: 162; Martin, 1910: 84, 87; Morton, 1924: 30; May, 1933: 31, 89 (adult and larva); Cowley, 1940: 174; Schmidt, 1951: 122 (quoting Hagen, 1849, *Lestes barbarus* as type species of *Lestes*); Conci & Nielsen, 1956: 65, 66 figs.; Aguesse & Pruja, 1958: 103 (Morocco); Robert, 1958: 82; Loibl, 1958: 55-80; Corbet, 1962: 178; Lieftinck, 1966: 10 (Morocco)

Agriion nympha Hanseemann, 1823: 161 (syn. Kirby, 1890)

Lestes barbata Belyshev, 1973: 509 fig. 213 (? laps. cal.)

Type from Barbary in North Africa.

Martin (1910) says (p. 82) “Enfin, à juger d’après un exemplaire rapporté de l’Afrique tropicale par M. Ch. Alluaud, *Lestes barbara*, l’espèce européenne, habite également l’Afrique chaude”. On p. 87, in placing *Lestes barbarus* near *obscurus* and *niger* he gave the specific distribution as central and southern Europe, Asia Minor and from there to India; throughout Mediterranean Africa; and states that Alluaud collected the only known record for tropical Africa. He said it was identical to the European form. It would seem probable that Alluaud’s *barbara* was either a misidentification, or the locality was incorrect.

Characters. Non pruinose. Pterostigma bicolorous. Wing apices broadly rounded, as in *dryas* and *ictericus*. Sectors of arcus well forward as in *sponsa*, *viridis*, and all Ethiopian species. Orbits below and sternites unmarked with black. Anal appendages yellow with black apex; inferior appendage over half as long as superior, with flat extension ending in an out-turned point. Vulvar scale simple.

General description. Non-pruinose.

Almost mature male (Morocco). Labrum greenish yellow. Postclypeus bronze-black, yellow at lateral margins. Head above bronze or metallic green, but antennal bases yellow. Orbits below yellow.

Treatment Citation Data -

Treatment Citation ID
Verbatim Treatment Citation
Verbatim Cited Taxon Name
Rank of Cited Taxon
Taxonomic Kingdom

Taxonomic Phylum
Taxonomic Class
Taxonomic Order
Taxonomic Family
Cited Taxon Genus
Cited Taxon Species

Verbatim Cited Taxon Authority
Cited Taxon Authority Name
Cited Taxon Authority Year
Cited Authors
Cited Year of Publication

Cited Journal / Publisher
Cited Volume Number
Verbatim Cited Volume Number
Cited Page
Verbatim Cited Reference

Cited Treatment HTTP URI

Countries +

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Materials Data +

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Fields to Use in Statistics

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What do I know about one treatment?





The use of treatment citation

Number of Treatments	Document UUID	Article UUID	Year of Publication	Taxon Genus	Taxon Species	Verbatim Treatment Citation	Verbatim Cited Taxon Name	Cited Year of Publication	Cited Treatment HTTP URI
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Fabricius, 1798: 286	Agrion barbara Fabricius, 1798: 286	1798	http://treatment.plazi.org/id/03FF87A2422BC67B170C8E5479947C5E
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Hansemann, 1823: 161	Agrion nympha Hansemann, 1823: 161	1823	http://treatment.plazi.org/id/03FE87A3FFD9091CFF6FFF04E0AFBFO
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	van der Linden, 1825: 36	Agrion barbara Fabricius, 1798: 286	1825	http://treatment.plazi.org/id/03A5CD42067AFF8CF3FE468EFBCA4222
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Hagen, 1849: 147	Lestes barbara	1849	
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Hagen & Selys, 1850: 161	Lestes barbara	1850	http://treatment.plazi.org/id/03CA934FAA5DFFC414B4FAB8FCC99D0C
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Selys, 1862: 318	Lestes barbara	1862	
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1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Roster, 1888: 164	Lestes barbarus	1888	
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1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Kirby, 1890	Agrion nympha Hansemann, 1823: 161	1890	http://treatment.plazi.org/id/3B0E87C9-FFB3-5108-FF7A-FACF5F99FA61
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1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Martin, 1910: 82	Lestes barbara	1910	http://treatment.plazi.org/id/038887E6-FFA7-FFEA-802B-FAADC4711E72
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1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Fraser, 1933: 49	Lestes barbara	1933	
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	May, 1933: 31	Lestes barbarus	1933	
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Cowley, 1940: 174	Lestes barbarus	1940	http://treatment.plazi.org/id/98348795FF940D66FD88535EFA56FC3F
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Schmidt, 1951: 122	Lestes barbarus	1951	
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Conci & Nielsen, 1956: 65	Lestes barbarus	1956	
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Aguesse & Pruja, 1958: 103	Lestes barbarus	1958	
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Robert, 1958: 82	Lestes barbarus	1958	
1	B82187B6FFA4FFF50F2AFCCA8FBFF6E2	4418FFCEFFA2FFF20E06FFC58C1DFF88	1980	Lestes	barbarus	Corbet, 1962: 178	Lestes barbarus	1962	



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Lestes barbarus Fabricius, 1798					●				
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Lestes barbara Bentivoglio, 1929									
Anapetes barbara Pongracz, 1911							●		
Agrion barbarus Fabricius, 1798		●							●

Animalia Agrion barbara

Agrion barbara Fabricius 1798

► Justification

► Treatments (● ● ●)

Phylum
Class
Order
Family

Arthropoda
Insecta
Odonata
Calopterygidae

Animalia Lestes barbarus

GBIF ID: 1424076

Phylum
Class
Order
Family

Arthropoda
Insecta
Odonata
Lestidae

Lestes barbarus Fabricius 1798


► Justification

► Treatments (● ● ● ● ● ● ● ●)

Augmenting Treatments:

- Defining treatment not yet on Plazi
- Cowley, J. (1940) 98348795FF940D66FD88535EFA56FC3F
- Martin, R. (1910) 038887E66FB6FFB81FDF74AC3821156
- Liefstinck, M. A. (1966) 72188781BD1CFDFFDC9FA7F466FF954
- Pinhey, E. (1980) 882187B6FA4FFF50F2AFCC8BFF662
- Martin, R. (1910) 038887E66FA7FFEAB02BFAADC471E72


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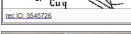
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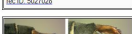
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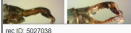
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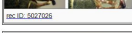
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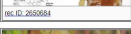
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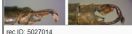
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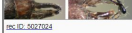
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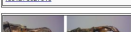
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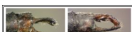
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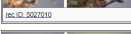
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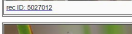
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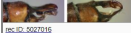
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Further reading:

- Plazi: [further reading](#)
- Pensoft: doi: [10.3897/zookeys.50.543](https://doi.org/10.3897/zookeys.50.543) (e.g. Zookeys, BDJ)
- CETAF: doi: [10.5252/adansoniana2018v40a1](https://doi.org/10.5252/adansoniana2018v40a1) (e.g. European Journal of Taxonomy)

Data usage:

- Rivera-Quiroz et al. 2020, doi: [10.1038/s41598-020-72549-8](https://doi.org/10.1038/s41598-020-72549-8)
- Dikow & Agosti, 2015, doi: [10.3897/BDJ.3.e5707](https://doi.org/10.3897/BDJ.3.e5707)

Digital accessible knowledge at Plazi/TreatmentBank:

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- Ocellus (Bilder in BLR):
<https://ocellus.info/images.html?q=%2210.11646/zootaxa.5032.4.6%22&size=30&page=1&communities=biosyslit>
- Synospecies (Synonym triple store): <https://synospecies.plazi.org/#Kiotina+spatulata>

Acknowledgement



All the advances are only possible in team work, and thus I am today only the presenter. The thanks have to go to all that are involved in Plazi, our partners and far beyond.

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