



Tweaking the system:
using e-Journal technology
and existing citation tools to increase
the visibility and measurable impact of
museums, curation and specimen-
based data.

Christopher J. Marshall — Oregon State University, Department of Integrative Biology

Michael Boock — Oregon State University, Valley Library



Before I commence:

If you find any of the ideas or information in this talk relevant to your own scholarly work, please cite this presentation as:

Marshall, C. J., M. Boock, 2019. Tweaking the system: using e-Journal technology and existing citation tools to increase the visibility and measurable impact of museums, curation and specimen-based data. In symposium: *Collecting Measures Of Success*, Paul, D., S. James, D.P. Shorthouse. Annual meeting of the Society for the Preservation of Natural History Collections. May 28, 2019. Field Museum of Natural History, Chicago IL.

- Brief Introduction
- Conceptual benefits to this approach
- Logistical details
- Challenges / Discussions



METRICS can be in many forms

- #specimens or types
- #taxa
- #loans
- #visitors
- Etc.

- Metrics may fail to capture the actual activities taking place (e.g., specimen identifications, specimen preservation) OR be misaligned with the target (e.g., an 'outcome' vs 'output').

Key Performance Indicators (KPI) are the more general topic, and are used to evaluate a wide range of endeavors, professional activities and industries.

Oregon State Arthropod Collection is located at Oregon State University
Corvallis Oregon



Photo: Darryl Lai (using a drone)



Oregon State Arthropod Collection

College of Science

Department of Integrative Biology


Director:

Dr. D.R. Maddison

Curator/Manager

Dr. C.J. Marshall

- ~3 million specimens
- Global scope with Pacific Northwest emphasis
- 3 regular volunteers
- 2 active federal grants
- 5-10 student workers



For research units, two
common evaluation
metrics are funding (\$) and
impact factor/publications

IMPACT FACTOR

Photo credit: NASA/JPL-Caltech

The Visible Impact of Natural History Collections

Death by a Million Acknowledgments

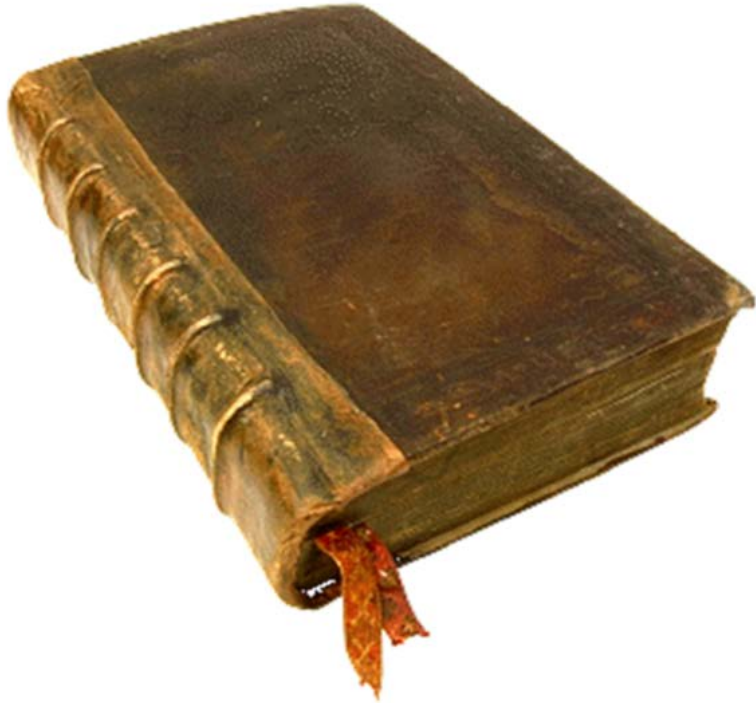
Christopher J. Marshall
Oregon State Arthropod Collection
OSU Department of Integrative Biology
Corvallis, Oregon



Entomological Collection Network.

Failure of museums and taxonomy to be formally cited in scholarly work means they are underrepresented by citation-based metrics.

Catalogs have historically been a publication of museums



Catalogs are a common form of publication for museums. In many cases they are a SINGLE book/ledger/database that records new additions

Oregon State Arthropod Collection Catalog was lost in 1980's

Databases/specimen records provide some (but not all) of the benefits to a true catalog



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Creation: Oregon State University, Extension Service
Subject: Extension service (Oregon State University, Extension Service), Nutrition

Fashion trends and styles for women's garments
Creation: Oregon State University, Extension Service, Koster, Arla W., Bryant, Nancy D.
Subject: Fashion - Textiles, Clothing and dress - Terminology, Extension service (Oregon State University, Extension Service)

Studies on balancing income and...
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Open data

We believe that data should be open, accessible and reusable. Open access to knowledge (both datasets and research papers) inherently facilitates interdisciplinary research and pushes the boundaries of discovery.

Many researchers are motivated to share their data but are often faced with challenges in doing so. As a publisher we want to advance discovery and drive the development of open research by supporting data sharing and accessibility.

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Specimens records, observations, and other resources related to the collection, its specimens and operational activities conducted in it

VOL 3, NO 2 (2019)

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OUR OWN e-JOURNAL

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https://www.gbif.org/species/1893282

Get data Share Tools Inside GBIF

Classification

Select a species

Kingdom: Animalia

Phylum: Arthropoda

Class: Insecta

Order: Lepidoptera

Family: Nymphalidae

Genus: *Anartia* Hübner, 1819

Immediate children


Species: *Anartia amathea* Linnaeus, 1758
4

Species: *Anartia fatima* Fabricius, 1793
3


Species: *Anartia jatrophae* Linnaeus, 1763
9

Species: *Anartia lytraea* Godart, 1819

4,825 OCCURRENCES WITH IMAGES



19,477 GEOREFERENCED RECORDS



Generated an hour ago © OpenStreetMap contributors, © OpenMapTiles, GBIF.

A key motivator of this approach was OSAC's digitization effort. We needed a more formal means to cite our individual specimen-based observational records and the datasets they are published in

Specimen records for North American Lepidoptera (Insecta) in the Oregon State Arthropod Collection. Hepialidae Stephens, 1829

Jon H. Shepard
Paul C. Hammond
Christopher J. Marshall

Oregon State Arthropod Collection, Department of Integrative Biology, Oregon State University,
Corvallis OR 97331

Cite this work, including the attached dataset, as:

Shepard, J. H., P. C. Hammond, C. J. Marshall. 2019. Specimen records for North American Lepidoptera (Insecta) in the Oregon State Arthropod Collection. Hepialidae Stephens, 1829. Catalog: Oregon State Arthropod Collection 3(2) (beta version). http://dx.doi.org/10.5399/osu/cat_osac.3.2.4590

Introduction

These records were generated using funds from the LepNet project (Seltmann et. al., 2017) - a national collaborative effort to create digital records for North American Lepidoptera. The dataset published herein contains the label data for all North American specimens of Hepialidae residing at the Oregon State Arthropod Collection as of March 2019. A beta version of these data records will be made available on the OSAC server (<http://osac.oregonstate.edu/IPT>) at the time of this publication. The beta version, entitled, *OSAC_Hepialidae_2019_ver_beta* will be replaced in the near future with an official release (*OSAC_Hepialidae_2019_ver_1.0*), which will then also be archived as a supplemental file to this publication.

Methods

We include a text copy (csv) of the specimen records as a supplemental file to our articles

Articles allow a fixed record of the dataset, provides additional context, bibliographic references and provides a place where we can highlight, summarize and discuss the data in the dataset, provide images or related information, etc.

CATALOG: OREGON STATE

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HISTORICAL RECORDS OF THE DIGGER WASPS, ASTATA L. CRABRONIDAE: ASTATINAE, FROM THE UNITED STATES ARTHROPOD COLLECTION

David M. Lowenstein, Heather Andrews, Erica Rudolph, Nik G. Wiman, Christopher J. Marshall

ABSTRACT

A dataset of 345 observational records is presented for the genus *Astata* (Hymenoptera: Crabronidae: Astatinae) based on 329 museum specimens and 16 photo vouchers. Summary information for the Pacific Northwest records is provided, including the species present, seasonality and county records for Oregon.

KEYWORDS

BMSB, Insect Conservation, Natural History Museum

OPEN ACCESS

Specimen record metadata

Data standards: All label data is consistent with DarwinCore standards for occurrence data (<http://dx.doi.org/10.3202/occurrence>). Taxonomic treatment: Names used in this dataset correspond to those proposed in the revision by Parker (1962). Locality and geographic data: Locality data was transcribed into the DublinCore location fields (<http://dublincore.org/terms/location>). Name: country, state/province, county and locality. Missing information (e.g., no county printed on actual specimen label) was added to a record if it could be determined without ambiguity based on gazetteers, maps or in reference to other label data. Elevational data on labels were converted to minimumDistanceAboveSurfaceInMeters. Elevational ranges (e.g., 500-1200m) were recorded as the lower of the two. When available, decimalLatitude and decimalLongitude were included, but not all records were georeferenced at this time.

Catalog: Oregon State Arthropod Collection

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Historical records of the digger wasps, *Astata* Latreille 1796 (Hymenoptera: Crabronidae: Astatinae), from the United States and Canada in the Oregon State Arthropod Collection.

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Nik G. Wiman¹
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²Department of Integrative Biology, Oregon State University, Corvallis, OR

Abstract:

A dataset of 345 observational records is presented for the genus *Astata* (Hymenoptera: Crabronidae: Astatinae) based on 329 museum specimens and 16 photo vouchers. Summary information for the Pacific Northwest records is provided, including the species present, seasonality and county records for Oregon.

Keywords: BMSB, conservation, natural history museum

Cite this work, including the attached dataset, as:
Lowenstein, D. M., H. Andrews, E. Rudolph, N.G. Wiman & C. J. Marshall. 2018. Historical records of the digger wasps, *Astata* Latreille 1796 (Hymenoptera: Crabronidae: Astatinae), from the United States and Canada in the Oregon State Arthropod Collection, OSU, Corvallis, OR. Catalog: Oregon State Arthropod Collection 2(1) p.1-9. DOI: http://dx.doi.org/10.5399/osuocat_ossac.2.1.4321

Introduction:

Astata are small to moderate sized, solitary digger wasps that are reported to prey on hemipterans, especially members of the family Pentatomidae. Members of the genus are found throughout the world with the exception of Australia (Bohart and Menke 1976; Evans 1962). The last revisionary world species was by Parker (1962; 1964), however literature on the new world fauna included as part of Pulawski's extensive online checklist (2017).

Historical records of *Astata* spp. in Oregon and Washington by researchers studying *Omophra halys* Stål 1855, the brown marmorated stink bug (Lowenstein et al. 2018), were authoritatively identified and vouchered specimen records were readily available to the time of this paper, only 61 records for 7 species were available through Global Biodiversity Information Facility (Cess and Ranwashe 2017; Gross and Oboyski 2017; Needham 2017). A single species, *Astata rubicula* Krombein 1952, is reported from Oregon and Washington (4 from Oregon and 1 from Washington). The majority of the records are of specimens taken in Canada's British Columbia, mostly from the southern border with Washington, which likely represent recent surveys by Ratzlaff (1991). Additional observations of *Astata* spp. in the Pacific Northwest can also be found in the literature, but are not vouchered (e.g., photo vouchers below).

Published specimen records are an incentive for voucher deposition and researchers using historical data as foundational info for other work...

...and create an archived record of our role in their project

Table 3. Capture dates for PNW records of *Astata* wasps the OSAC

	Earliest/Latest record	Mean (SD; #PNW records)
<i>bakeri</i>	June 5th – Sept 13th	July 13th (29 days) n=43
<i>bechteli</i>	June 10th – July 8th	June 25nd (8 days) n=12
<i>leuthstromi</i>	June 29th – Sept 9th	Jul 21 (19 days; n=21)
<i>neodica</i>	Aug 8th – Aug 14th	Aug 10th (3 days) n=3
<i>nubecula</i>	June 18th – Sept 27th	July 31st (21 days) n=59
<i>occidentalis</i>	June 12th – Aug 17th	Aug 8th (11 days) n=16
<i>unicolor</i>	June 3rd – Aug 30th	July 20th (16 days) n=25
<i>williamsi</i>	July 27th	N/A (n=1)

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Catalog: Oregon State Arthropod Collection

Plant associations: Numerous specimen labels indicate that *Astata* on flowers, particularly Queen Anne's Lace (*Daucus carota*), wh' association across species and in terms of specimen records.

The plant–wasp associations of US and Canadian *Astata* sp:

- Urtica dioica holoserica* (Hoary Nettle): *A. bakeri*
- Daucus carota* (Wild carrot/Queen Anne's Lace):
A. bakeri, *A. leuthstromi*, *A. occidentalis* & *A. Cicuta douglasii* (Water hemlock): *A. leuthstromi*
- Chrysothamnus nauseosus* (Rabbit brush): *A. occid*
- Chrysothamnus* sp.: *A. bakeri*
- Asclepias* sp. (milkweed): *A. nubecula*, *A. occid*
- Cleome serrulata* (bee spider-flower): *A. occid*
- yellow composite: *A. bakeri*



Figure 1. *Astata* sp. male. USA. Idaho. Latah Co. Moscow. 12.VIII.2016 © 2016 Steve Wells. (Wells, 2016). Used with permission.

Excerpt from *Astata* paper

As with digitized projects, the OSAC Catalog provides a convenient vehicle to refer to additional specimen-related data and context that is not directly relevant to the primary paper, such as phenology and host record information.



Specimen Catalog &
Curatorial Projects

The Harold E. and Leona M. Rice Professorship in Systematic Entomology

Enthusiasm for insects is not limited to professional entomologists. Harold Rice, a Springfield filbert grower, was an amateur entomologist for more than 50 years. He found species of butterflies never seen before in Oregon and rediscovered others thought extinct; some subspecies were even named after him.



But the main work for Harold and his wife Leona was their filbert orchards, for which Oregon State University provided ongoing consultation through its Extension services. In 1995, the couple expressed appreciation by donating 16 acres of their land to the OSU Foundation, the sale of which established the Harold E. and Leona M. Rice Professorship in Systematic Entomology. (The Department of Entomology is a joint department of the College of Agricultural Sciences and the College of Science.)

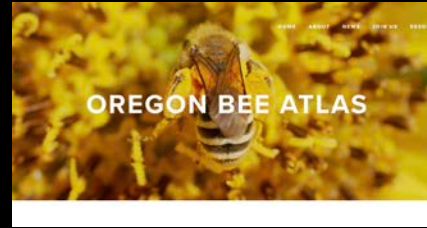
The Rice gift is intended to promote science through research and teaching activities by an entomologist educated in Systematic Entomology (systematics is the study of the evolution and classification of animals and plants). Funds from the gift endow a professorship which enhances the curation of the OSU entomology collection; with more than 2.5 million insects, it is the largest insect collection in the Northwest.

Accessions/Donors/People



Photo credit: G A. DAHLEM;N. Kentucky University

Loans/Usage



Grants/Collaborations

Ability to formally publish content related to the collection, lets us decide what is 'worthy' of publishing.

Publishing as a journal means these publications are archived and citable

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CITATION is not about metrics

It is a cornerstone of academic scholarly work, including science.

It connects intellectual and academic knowledge, allowing readers to FIND, VERIFY and ASSESS the basis of new works

Providing a means to record, elaborate on and reference museum specimens, museum activities/services, and contextual information about specimens/museums lets them be 'picked' up into this world

- Brief Introduction
- Conceptual benefits to this approach
- **Logistical details**
- Challenges / Discussions

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Public Knowledge Project > Open Journal Systems

Open Journal Systems

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Budapest Open Access Initiative, 2002



Locke Studies

Locke Studies (formerly The Locke Newsletter, 1970-2000) is an open-access, peer-reviewed annual journal devoted to contemporary research on any aspect of the life and work of the great English philosopher John Locke (1632-1704). The journal is unique in being the only one in the world devoted entirely to Locke scholarship. It provides a scholarly forum for the free exchange of knowledge and ideas about Locke, his thought, and his contributions. While much of the content are publications on original research and specialist knowledge of Locke's life, work, and significance, we also welcome contributions on his contemporaries and related thinkers (e.g. John Norris, Catherine Trotter Cockburn, or Edward Stillingfleet) and the



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*requires additional resources

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Must be installed/managed on a server (IT support), some useful features are not free – but ARE affordable, steep learning curve, time

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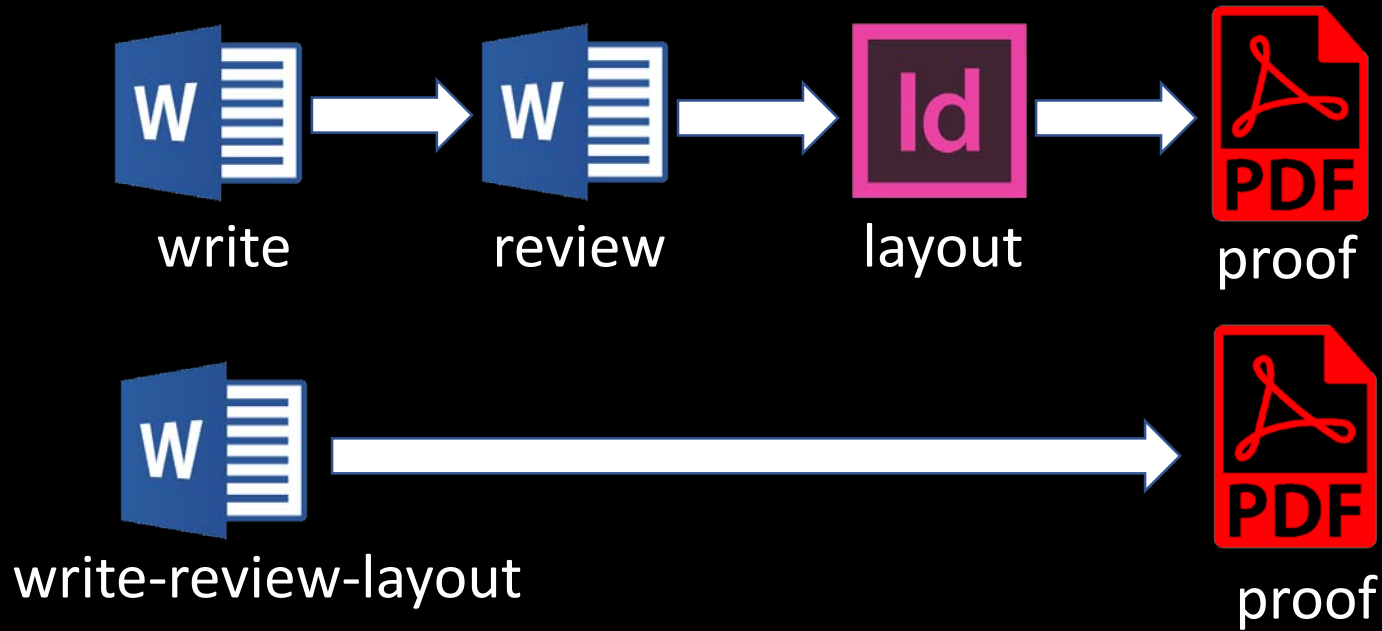
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To folks savvy with Content Management Systems (e.g, drupal), OJS will seem like a complex CMS – replete with a head-bangingly frustrating interface.



Editorial process can be complex/long (peer reviewed)
Layout can be formal (inDesign) or Word generated pdf

In other words, the journal can be very professional or very streamlined



Doi's are optional

They can be generated by Open Journal System based on a 'formula' set in the settings and built off a doi base assigned to the publishing institution

For example, my DOI's are based on the OSU Valley library's doi root

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http://dx.doi.org/10.5399/osu/cat_osac.3.2.4590

the doi registers basic metadata about the paper, increasing its findability but it connotes 'authenticity' too

↑↑
vol
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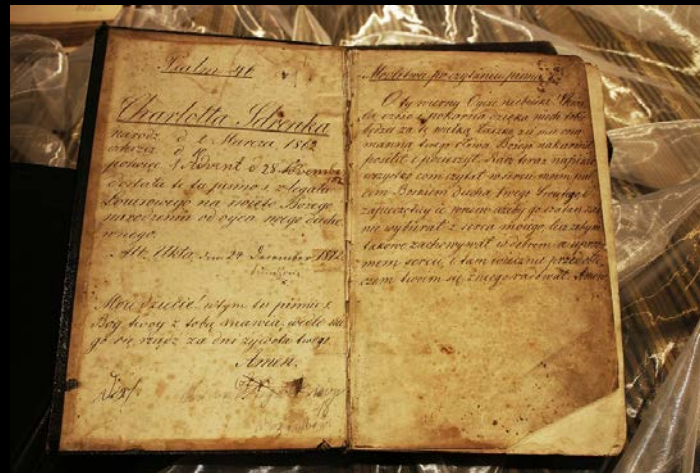
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Consortium backup-network

As wonderful as LOCKSS sounds, we plan to print, on paper, several copies and put them in libraries.... Just in case



- Brief Introduction
- Conceptual benefits to this approach
- Logistical details
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A curator's most-limited resource is:

TIME

Is the added work of publishing museum related activities worthwhile?



Many volumes and issues
Many low-citation papers

VS



monograph/annual report
one citation for year with
index (pooled citation)

Maybe a single
annual volume
(published annual
report) would be
easier. Fewer,
highly cited,
publications
might also better
reflect 'impact'?

Privacy Concerns

Would publishing loan records when made raise privacy concerns?





Will people actually
cite these publications
in their derivative
work?

We are not alone – Software, Lab Protocols and Digital Photographs – also struggle to be formally recognized in published work that relies/uses them



We owe it to ourselves to document our role in science (and society).

https://twitter.com/David_Hillis/status/746140595853266944

