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.

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Oregon State University

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:

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- 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

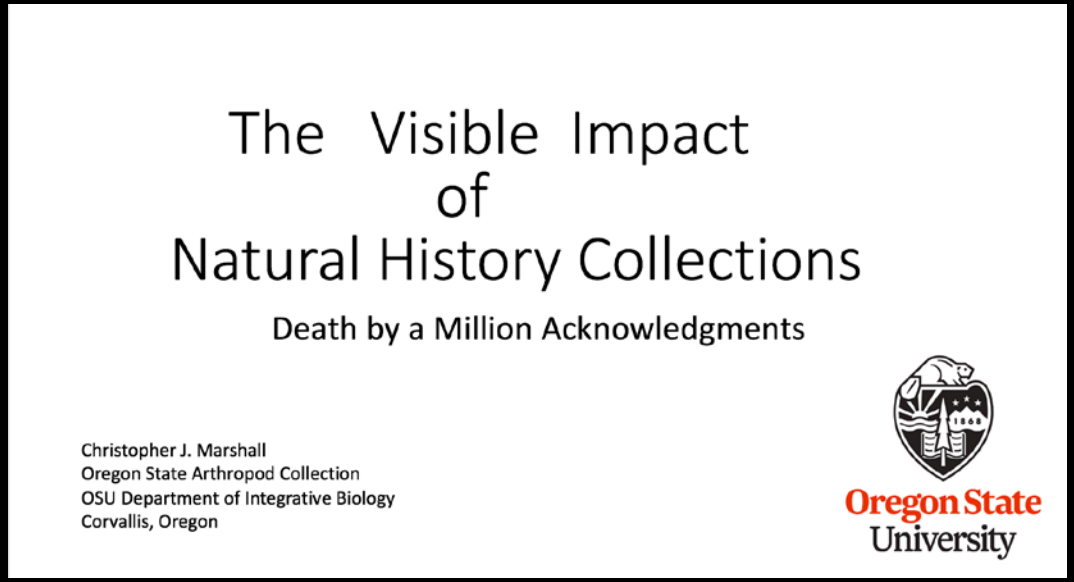
Curator/Manager
Dr. C.J. Marshall

- ~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

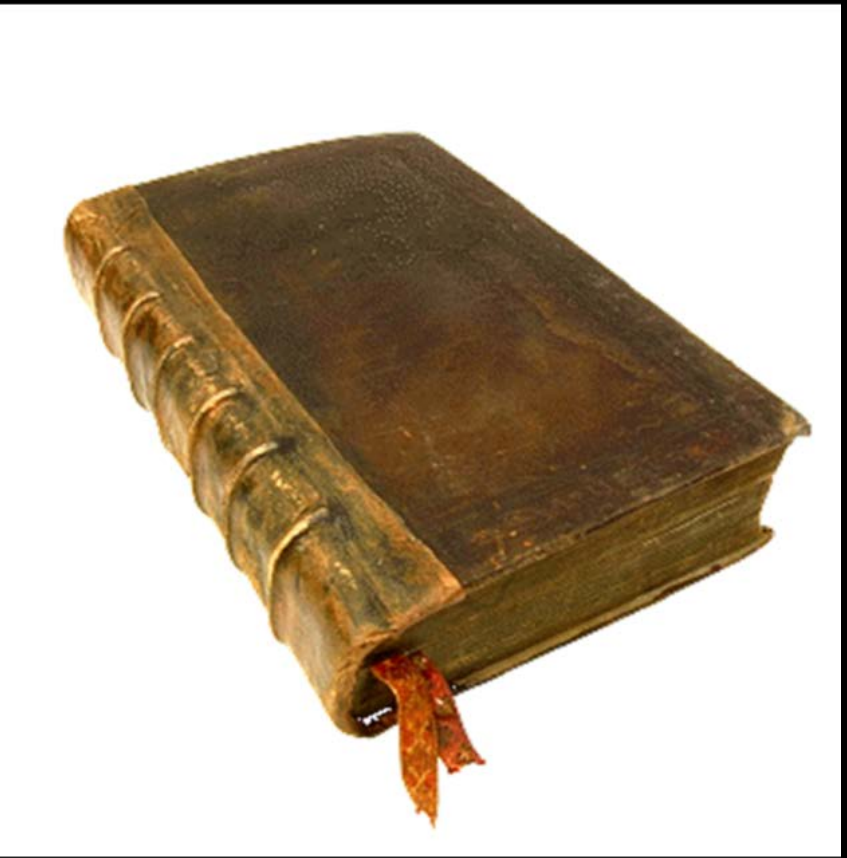
Photo credit: NASA/JPL-Caltech



Entomological Collection Network.

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

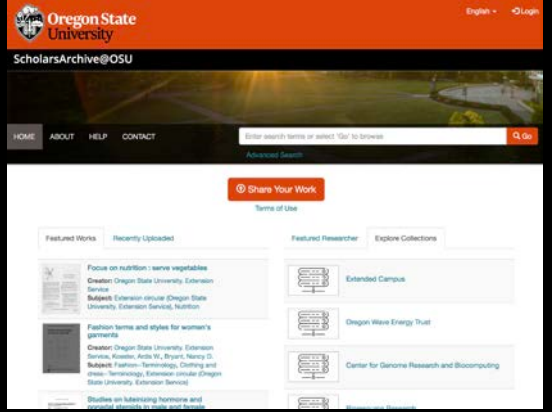
Catalogs have historically been a publication of museums



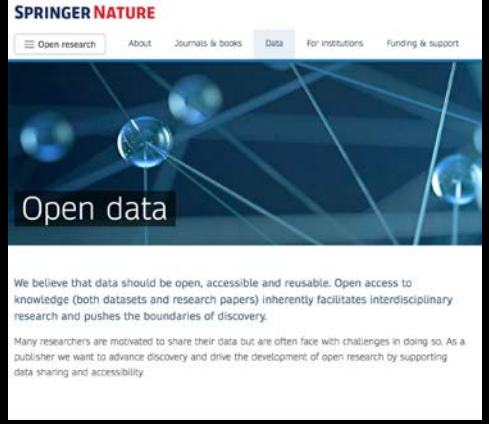
Catalogs are a common form of publication for museums. In many cases they are a SINGLE book/ledger/database that records new additions

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



OSU SCHOLARS ARCHIVES



THIRD PARTY DATA-JOURNALS

OUR OWN e-JOURNAL

- Brief Introduction
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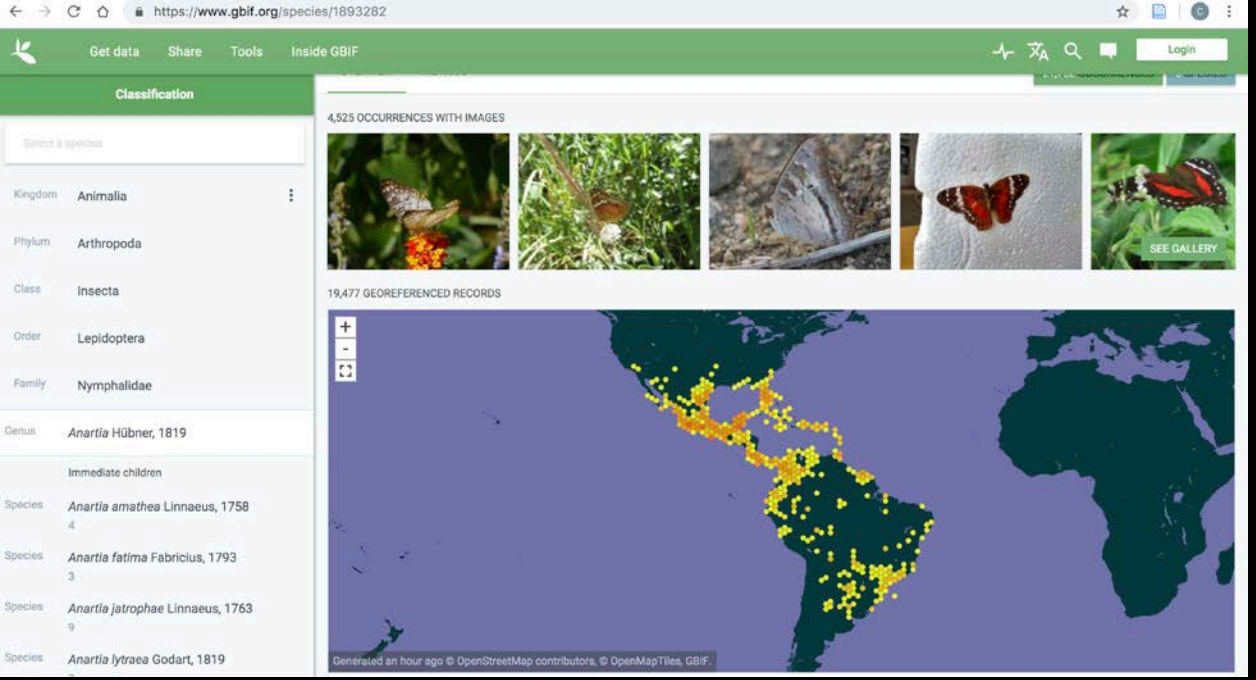


A key motivator of this approach was OSAC's digitization effort.
We needed a more formal means to cite our individual specimen-based observational records and the datasets they are published in

Catalog: Oregon State Arthropod Collection 2019 Vol 3(2)

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 were we can highlight, summarize and discuss the data in the dataset, provide images or related information, etc.

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)
bakeri	June 5th – Sept 13th	July 13th (29 days) n=43
bechteli	June 10th – July 8th	June 25nd (8 days) n=12
leuthstromi	June 29th – Sept 9th	Jul 21 (19 days; n=21)
nevadica	Aug 8th – Aug 14th	Aug 10th (3 days) n=3
nubecula	June 18th – Sept 27th	July 31st (21 days) n=59
occidentalis	June 12th – Aug 17th	Aug 8th (11 days) n=16
unicolor	June 3rd – Aug 30th	July 20th (16 days) n=25
williamsi	July 27th	N/A (n=1)

3

Vol 2(1): 1–9 Catalog: Oregon State Arthropod Collection

Plant associations: Numerous specimen labels indicate that *Asta*
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* spe
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. occi*
Chrysothamnus sp.: *A. bakeri*
Asclepias sp. (milkweed): *A. nubecula*, *A. occid*
Cleome serrulata (bee spider-flower): *A. occid*
yellow composite: *A. bakeri*

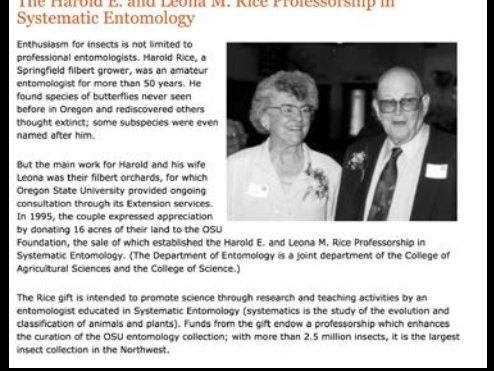
Catalog: Oregon State Arthropod Collection Vol 2(1) 1–9

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



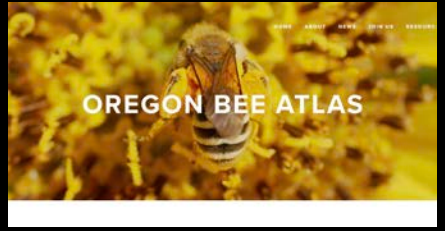
The Harold E. and Leona M. Rice Professorship in Systematic Entomology

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



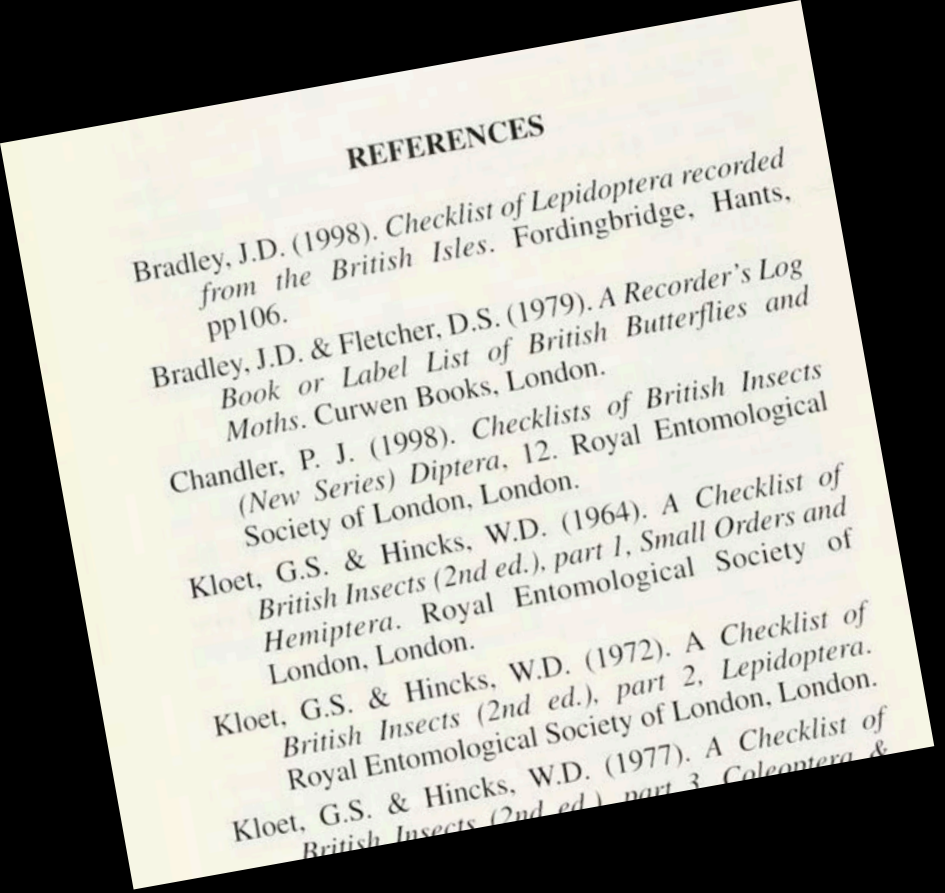
Grants/Collaborations

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

Loans/Usage

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



REFERENCES

Bradley, J.D. (1998). *Checklist of Lepidoptera recorded from the British Isles*. Fordingbridge, Hants, pp106.

Bradley, J.D. & Fletcher, D.S. (1979). *A Recorder's Log Book or Label List of British Butterflies and Moths*. Curwen Books, London.

Chandler, P. J. (1998). *Checklists of British Insects (New Series) Diptera*, 12. Royal Entomological Society of London, London.

Kloet, G.S. & Hincks, W.D. (1964). *A Checklist of British Insects (2nd ed.), part 1, Small Orders and Hemiptera*. Royal Entomological Society of London, London.

Kloet, G.S. & Hincks, W.D. (1972). *A Checklist of British Insects (2nd ed.), part 2, Lepidoptera*. Royal Entomological Society of London, London.

Kloet, G.S. & Hincks, W.D. (1977). *A Checklist of British Insects (2nd ed.), part 3, Coleoptera &*

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

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- Logistical details
- Challenges / Discussions

https://pkp.sfu.ca/ojs/

PKP
PUBLIC KNOWLEDGE PROJECT

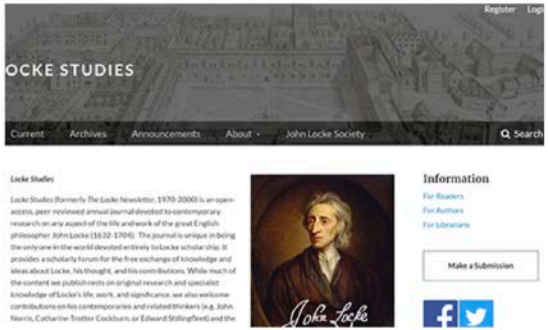
Software Research Community Services Support

PKP is a multi-university initiative developing (free) open source software and conducting research to improve the quality and reach of scholarly publishing

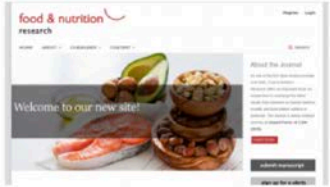
Public Knowledge Project > *Open Journal Systems*

Open Journal Systems

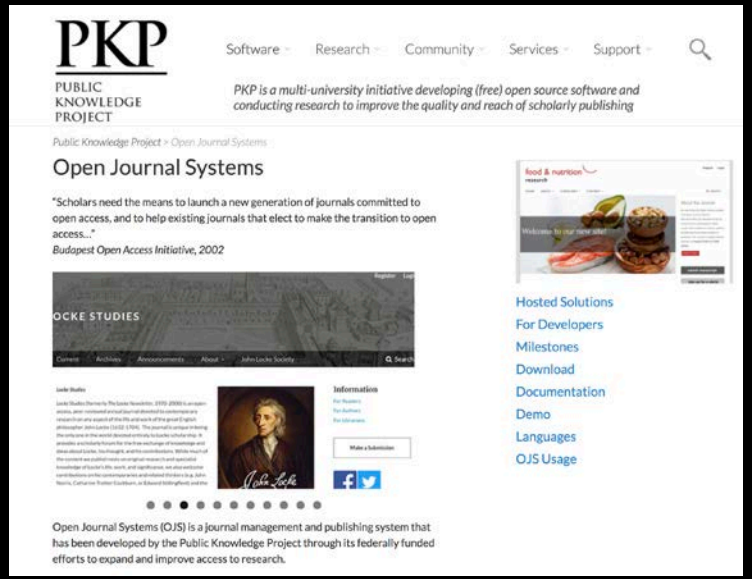
"Scholars need the means to launch a new generation of journals committed to open access, and to help existing journals that elect to make the transition to open access..."
Budapest Open Access Initiative, 2002



Open Journal Systems (OJS) is a journal management and publishing system that has been developed by the Public Knowledge Project through its federally funded efforts to expand and improve access to research.



Hosted Solutions
For Developers
Milestones
Download
Documentation
Demo
Languages
OJS Usage



https://pkp.sfu.ca/ojs/

OPEN JOURNAL SYSTEMS

FREE OPEN SOURCE JOURNAL MANAGEMENT SYSTEM

Used by commercial and non-commercial journals: over 8000 journals

Supported by grant dollars and institutional contributors

Manages most aspects (other than page layout) of e-Journal production

- peer and non-peer reviewed articles
- manuscript submission, review, publication
- creation of DOI's*
- journal available online, indexed (ISSN)*
- archived electronically

Developing an integrated article-level metric system

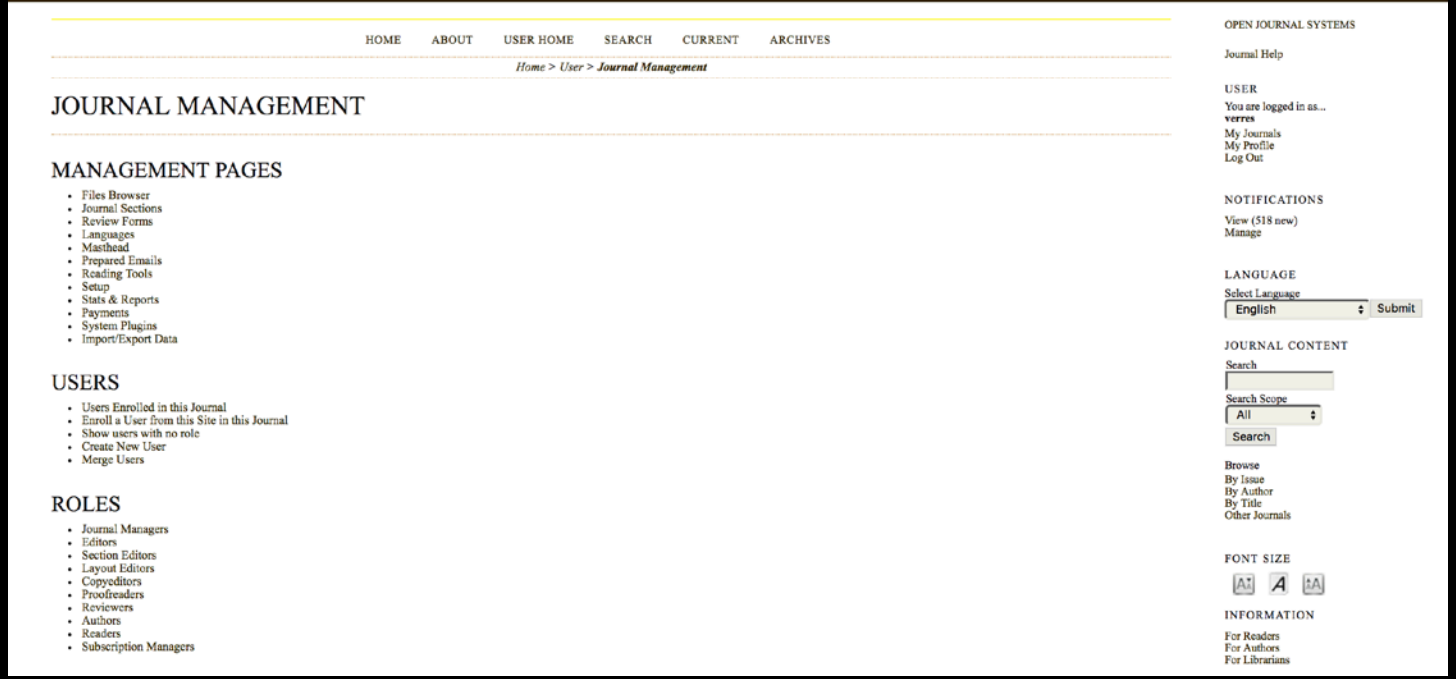
*requires additional resources

Free ≠ without cost

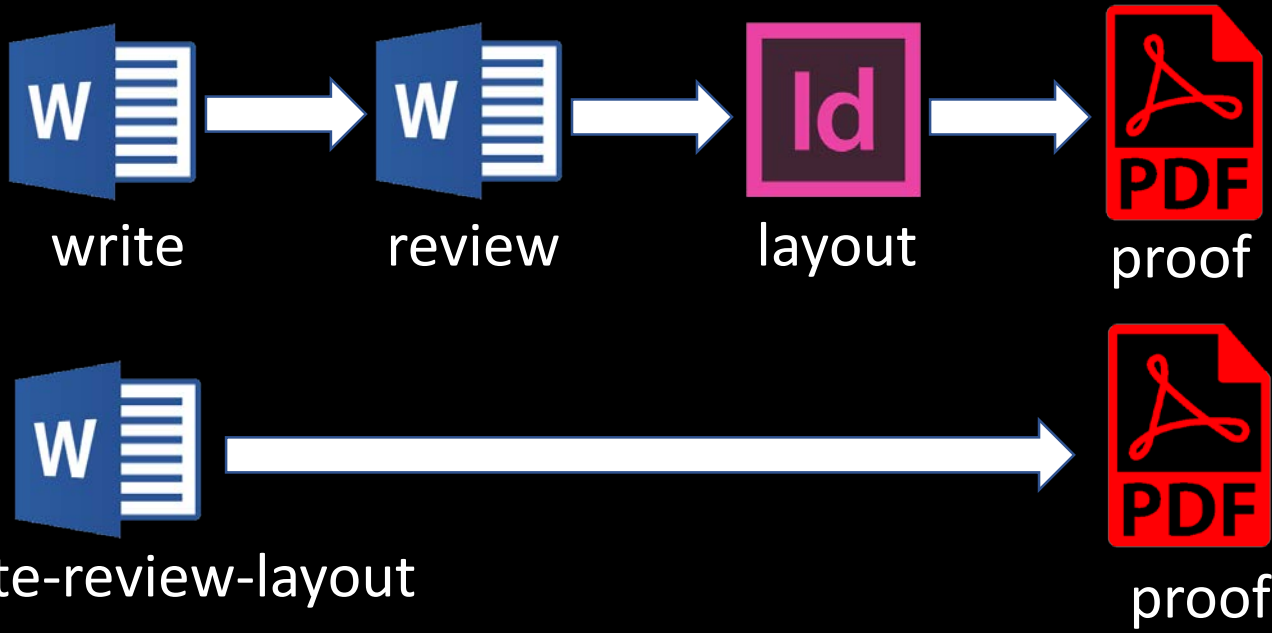
Photo credit: Getty Images

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

CATALOG: OREGON STATE ARTHROPOD COLLECTION



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

To mint DOI's requires obtaining one from a subscribing institution ($250/yr)

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

vol

Iss

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

Archiving is important for our use

OJS – plugin uses LOCKSS

“Lots of Copies Keeps Stuff Safe”

Consortium backup-network

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

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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

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

protocols.io

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