



PROMOTING SCHOLARSHIP THROUGH OPEN DATA

2017 Organizational and Membership Report

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Summary

In 2017, Dryad hit a major milestone by publishing our 20,000th data package, and surpassed 600 different journals represented in the repository. For this growing corpus of data shared with the research community, we took several steps to make research data more FAIR: Findable, Accessible, Interoperable, and Reusable.

Data in Dryad is becoming increasingly useful to both machines and to researchers. In addition to making continued improvements to our APIs, we are now a major contributor to Scholix (Scholarly Link Exchange) through our metadata deposits with DataCite. An initiative of the Research Data Alliance (RDA) and the World Data System (WDS), Scholix is a high-level interoperability framework for exchanging information about the links between scholarly literature and data. We have also added support for schema.org, a metadata standard used to describe types of content on the Internet, allowing software (such as search engines) to recognize and act on pieces of content and the relationships between them.

We are thrilled to have joined forces with Data Curation Network project, led by the University of Minnesota Libraries and backed by the Alfred P. Sloan Foundation. The intent of the DCN is to serve as a cross-institutional model that connects a network of expert data curators to local datasets and to supplement local curation expertise. The quality of data published in Dryad will improve even further as our curators join a collegial network of professionals, develop shared procedures and understandings, as well as contribute to and learn from the partners' expertise. As an independent non-profit, we are especially pleased to work more closely with academic libraries.

We have completed the transition of our servers from North Carolina State University onto Amazon Web Services, allowing users to benefit from faster, more reliable, more modern and stable service. The transition also improves our ability to expand — an important consideration, as our average data package size continued to climb to 687 GB, 20% over last year's average.

In support of our operations, we were grateful to continue our [three-year Sustaining award](#) from the U.S. National Science Foundation (NSF), and to receive a sub-award from the Robert Wood Johnson Foundation for a collaborative project with the Odum Institute entitled "Increasing the Value of Open Access through Open Data Publication Policies."

At the time of this writing, we are conducting a search for Dryad's next Executive Director. We are excited for the future as we approach our 10-year anniversary and consider the promise that new leadership, new collaborations, and new growth prospects have to offer. We are hugely grateful for the support of our members, publisher partners, and data submitters as we step into Dryad's next chapter. Stay tuned!

— *Elizabeth Hull, Operations Manager*

Partner journals

Dryad prides itself on strong collaboration with journals, including submission integration. Submission integration is a free service that allows journal publishers to coordinate the submission of manuscripts with submission of data to Dryad, used by over 130 partner journals. Dryad supports submission integration for any organization that publishes a scientific journal irrespective of whether the organization sponsors submissions through a payment plan or is a member of Dryad. The submission integration process works with many different online manuscript processing systems. It is lightweight, customizable to each journal's needs, and brings a number of benefits:

- Simplifies the process of data submission for authors.
- Allows authors to deposit gigabytes of data files in their original formats to a single repository.
- Reduces the rate of noncompliance with journal data policy.
- Gives the option of making data available for editorial or peer review, via secure access for editors and reviewers.
- Ensures bidirectional links between the article and the data, and increase visibility for both.
- Ensures that the data is accessible once the article becomes available online.
- Gives authors the option to embargo public access to data for a limited time after publication, if permitted by the journal's data policy.

New partner journals in 2017

Title	Workflow	Sponsorship
<i>African Invertebrates</i>	basic	no
<i>BioDiscovery</i>	basic	no
<i>One Ecosystem</i>	basic	no
<i>Research Ideas and Outcomes</i>	basic	no
<i>Zoologia</i>	basic	no
<i>Journal of the American Medical Informatics Association</i>	review	yes
<i>Insect Systematics and Diversity</i>	review	no
<i>Evolution Letters</i>	basic	yes

Title	Workflow	Sponsorship
<i>Agricultural & Environmental Letters</i>	basic	yes
<i>Agronomy Journal</i>	basic	yes
<i>Crop, Forage, & Turfgrass Management</i>	basic	yes
<i>Crop Science</i>	basic	yes
<i>Journal of Environmental Quality</i>	basic	yes
<i>Journal of Plant Registrations</i>	basic	yes
<i>Natural Sciences Education</i>	basic	yes
<i>The Plant Genome</i>	basic	yes
<i>The Plant Phenome Journal</i>	basic	yes
<i>Soil Science Society of America Journal</i>	basic	yes
<i>Urban Agriculture & Regional Food Systems</i>	basic	yes
<i>Vadose Zone Journal</i>	basic	yes
<i>GMS Health Technology Assessment</i>	review	yes
<i>Limnology and Oceanography Letters</i>	review	no
<i>Neurology</i>	review	no
<i>Neurology: Clinical Practice</i>	review	no
<i>Neurology: Neuroimmunology & Neuroinflammation</i>	review	no
<i>Neurology: Genetics</i>	review	no

Data packages published in 2017

Dryad published 4,628 data packages in 2017, a 7.5% increase from 2016. They were associated with articles from almost 350 different journals. Dryad also continued to receive a small number of data packages associated with books and theses.

There were an average of 3.2 files per data package, about the same as the prior year, while the average size per data package was 687 MB, an increase of 20%. Only 4% of data packages contained files embargoed for one year or longer.

The ten journals with the most data packages published in 2017

Journal	Data packages
<i>PLOS ONE</i>	381
<i>Proceedings of the Royal Society B</i>	294
<i>Royal Society Open Science</i>	291
<i>Molecular Ecology</i>	255
<i>Ecology and Evolution</i>	195
<i>Evolution</i>	174
<i>Behavioral Ecology</i>	158
<i>Functional Ecology</i>	154
<i>Journal of Applied Ecology</i>	133
<i>Oikos</i>	117

Membership

Membership is open to any stakeholder organization, including but not limited to journals, scientific societies, publishers, research institutions, libraries, and funding organizations. Members help advance Dryad’s mission and have a say in the governance of the organization through nomination and election of its Board of Directors, and voting on amendments to its Bylaws at the Annual Meeting. Members benefit from discounts on submission fees and participation in an active knowledge sharing network. Memberships run from January through December. Annual dues are \$1,000 for organizations with gross income below 10 million USD, and \$5,000 if above. Members can also join for \$500, irrespective of budget size, but will not benefit from savings on submission fees. Current Dryad members:

- [American Association for the Advancement of Science](#)
- [American Society of Naturalists](#)
- [The American Genetic Association](#)
- [Association for Tropical Biology and Conservation](#)

- [Botanical Society of America](#)
- [British Ecological Society](#)
- [BMJ Publishing Group, Ltd.](#)
- [Cambridge University Press](#)
- [European Society for Evolutionary Biology](#)
- [German National Library of Medicine](#)
- [Oikos](#)
- [Oxford University Press](#)
- [The Royal Society](#)
- [Society for the Study of Evolution](#)
- [Society of Systematic Biologists](#)
- [United States Fish and Wildlife Service](#)
- [University Library, University of Illinois at Urbana-Champaign](#)
- [Wiley](#)

Data Publishing Charges

Payment plans

Independent of membership, organizations may contract with Dryad to provide a valuable service to researchers: allowing them to deposit data without paying a deposit fee at the time of submission. To do this, Dryad offers flexible payment plans, all of which provide a volume discount. If no payment plan is in place, authors pay a \$120USD fee at the time of archiving, with the exception of researchers from developing countries, for whom the fee is waived. Payment plan options are the following:

1. Subscription Plan. A journal (or journals) with an active Subscription Plan may make an unlimited number of submissions for a fixed cost. This cost is calculated based on the total number of research articles published by the journal(s) in the prior year, or a reasonable estimate of anticipated volume for new titles.

2. Usage Plan. Payment is based on the actual number of data submissions Dryad receives, with prepaid or deferred options:

- **Prepaid option:** Organizations can purchase a block of vouchers for future submissions at an additional discount. The minimum purchase to receive a volume discount is 25 vouchers. Vouchers can be used on any submission for any publication.
- **Deferred payment option:** Organizations will be invoiced quarterly for the number of packages submitted by their authors in the previous quarter. Participants must enter into a contract of at least one year in duration and may cap the number of submissions for which they are charged.

While base DPCs cover the entire cost of most submissions, additional charges apply when data packages are in excess of the 20GB size limit. Submitters will be charged \$50 for each additional 10GB, or part thereof. (Packages between 20 and 30GB = \$50, between 30 and 40GB = \$100, and so on).

Summary of payment plan options

Payment plan	For Sustainer/ Supporter members	For all others
Subscription	annual fee based on \$40 per published research article	annual fee based on \$50 per published research article
Usage: Prepaid	\$95 per data package	\$105 per data package
Usage: Deferred	\$105 per data package	\$115 per data package

Sponsoring organizations

As of 2017, more than 30 organizations sponsor DPCs on behalf of researchers and authors. The publishing organizations in this list collectively sponsor DPCs for 79 titles, while the research organizations sponsor DPCs on behalf of their affiliated researchers wherever they choose to publish. An up-to-date list of journals with sponsored DPCs is available at <http://datadryad.org/pages/journalLookup>. Sponsoring organizations:

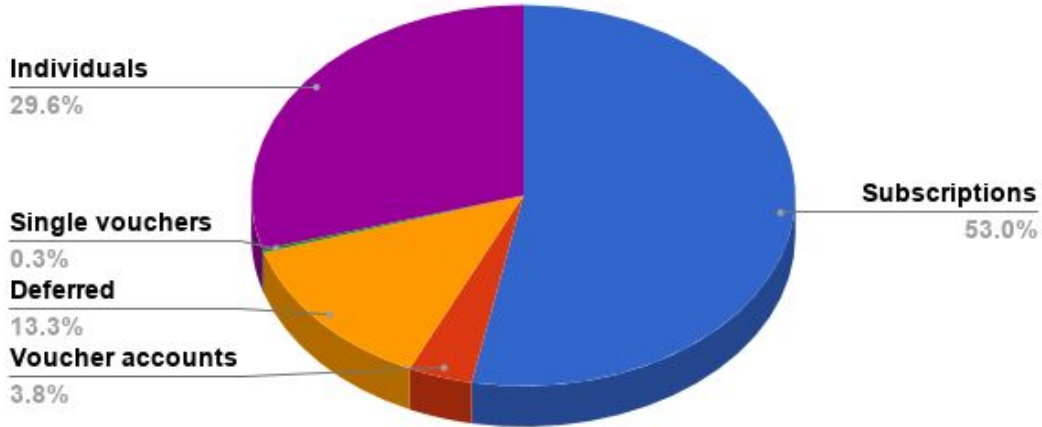
- ACSESS (Alliance of Crop, Soil, and Environmental Science Societies)
- American Genetic Association
- American Medical Informatics Association
- American Society of Naturalists
- American Society of Plant Biologists
- American Society of Plant Taxonomists
- Association for Tropical Biology and Conservation
- Behavioral Ecology
- British Ecological Society
- British Editorial Society of Bone and Joint Surgery
- Canadian Healthy Oceans Network CHONE
- Ecological Society of America
- Ecology and Evolution
- eLife
- European Respiratory Society
- European Society for Evolutionary Biology
- Evidence-Based Preclinical Medicine
- Evolutionary Applications
- German National Library of Medicine

- Journal of Consumer Research
- Journal of Experimental Botany
- Journal of Systematics and Evolution
- Kellogg Biological Station
- Molecular Ecology
- Molecular Ecology Resources
- NIOO-KNAW
- Nordic Society Oikos
- Oxford University Press
- Society for the Study of Evolution
- Society of Systematic Biologists
- The Genetics Society
- The Palaeontological Association
- The Paleontological Society
- The Royal Society
- Toxicological Sciences
- University of Chicago Press
- University of Rochester
- US Fish and Wildlife Service

Revenue, by payment plan, 2017 (in USD)

	Q1	Q2	Q3	Q4	Total
Subscription Plan	\$6,640	-	-	\$39,013	\$45,653
Prepaid Plan	5,250	2,625	10,960	-	18,835
Deferred Plan	-	10,710	16,515	13,755	40,980
Single vouchers	120	-	-	-	120
Individuals	35,340	43,340	40,810	41,690	161,180
Total	\$40,170	\$56,675	\$68,285	\$55,445	\$221,115

2017 data packages by payment type



Fee Waivers

Fee waivers are granted upon request for submissions originating from researchers based in countries classified by the World Bank as low-income or lower-middle-income economies. Waivers were granted for 98 data packages in 2017, compared with 82 in 2016.

Grants

In addition to the budget for the nonprofit, a three-year \$762K sustaining award from the US National Science Foundation started in September 2016. An additional \$140K award from the US NSF started in May of 2016 and ran for 10 months. This last award was a pilot project to test the feasibility of funders paying directly for submission fees. The University of North Carolina at Chapel Hill partnered with Dryad on these awards.

Dryad was also the subrecipient of approximately \$20K from the Robert Wood Johnson Foundation for a collaborative project with the Odum Institute entitled “Increasing the Value of Open Access through Open Data Publication Policies.”

Downloads and web traffic

There were approximately 709,000 data file downloads in 2017. Although most activity from automated “bots” has been filtered out of these statistics, they may still include counts from programmatic access and individual users downloading files multiple times.

The five most frequently downloaded data packages published in 2017

Publication	Data package	Downloads
Lüsebrink F, et al (2017) T1-weighted in vivo human whole brain MRI dataset with an ultrahigh isotropic resolution of 250 µm. <i>Scientific Data</i> 4: 170032. https://doi.org/10.1038/sdata.2017.32	Lüsebrink F, et al (2017) Data from: T1-weighted in vivo human whole brain MRI dataset with an ultrahigh isotropic resolution of 250 µm. https://doi.org/10.5061/dryad.38s74	33,219
Bohannon J, Doran K (2017) Introducing ORCID. <i>Science</i> 356(6339) 691-692. https://doi.org/10.1126/science.356.6339.691	Bohannon J, Doran K (2017) Data from: Introducing ORCID. https://doi.org/10.5061/dryad.48s16	18,438
Sun J, et al (2017) Adaptation to deep-sea chemosynthetic environments as revealed by mussel genomes. <i>Nature Ecology & Evolution</i> 1: 0121. https://doi.org/10.1038/s41559-017-0121	Sun J, et al (2017) Data from: Adaptation to deep-sea chemosynthetic environments as revealed by mussel genomes. https://doi.org/10.5061/dryad.h9942	1,028
Santoro R, et al (2017) Reconstructing the spectrotemporal modulations of real-life sounds from fMRI response patterns. <i>Proceedings of the National Academy of Sciences of the United States of America</i> 114(18): 4799–4804. https://doi.org/10.1073/pnas.1617622114	Santoro R, et al (2017) Data from: Reconstructing the spectrotemporal modulations of real-life sounds from fMRI response patterns. https://doi.org/10.5061/dryad.np4hs	697
Fukushima K, et al (2017) Genome of the pitcher plant <i>Cephalotus</i> reveals genetic changes associated with carnivory. <i>Nature Ecology & Evolution</i> 1: 0059. https://doi.org/10.1038/s41559-016-0059	Fukushima K, et al (2017) Data from: Genome of the pitcher plant <i>Cephalotus</i> reveals genetic changes associated with carnivory. https://doi.org/10.5061/dryad.50tq3	603

Web traffic

Dryad collects a variety of web analytics for <https://datadryad.org>, but pays particular attention to the number of “sessions,” or visits from the same user with gaps of no more than 30 minutes between subsequent hits. The number of sessions increased 15%, from 304,225 in 2016 to 348,875 in 2017, with growing usage worldwide.

Sessions by language (top 5)

Language	Percentage
English	64%
Chinese	7%
Spanish	3%
French	3%
Portuguese (Brazil)	2.5%

Sessions by country (top 10)

Country	Percentage
United States	30%
United Kingdom	8%
China	6%
Germany	4.6%
Canada	4%
France	4%
Brazil	3.2%
India	3%
Japan	3%
Australia	3%

Outreach

“News & Views” blog

There were 7 posts to <http://blog.datadryad.org> in 2017, and the blog received about 8,000 views from about 5,000 visitors.

Blog posts from 2017, in reverse chronological order

- Improvements in article-data linking
- Dryad welcomes new BOD members
- Some dos and don'ts for CC0
- Exciting new partnership for long-term preservation of Dryad data
- Sharing the wealth: Data reuse with ultra-high resolution MRI data
- How do researchers pay for data publishing? Results of a recent submitter survey
- And now, the numbers... (round-up of 2016 stats)

Blog readership, by country (top 5)

Country	Number of visits
USA	3,392
UK	734
Canada	557
China	414
Germany	377

Twitter

The @datadryad Twitter account had roughly 12,200 followers by the end of 2017 (up approximately 11% from the year before). We also continue to post all new data packages, and Featured Data, to @datadryadnew.

Conferences and events

Dryad had a presence at the following events in 2017:

- NSF CMMI Infrastructure Workshop, 6-7 January, Arlington, VA
- International Digital Curation Conference, 20-23 February, Edinburgh, Scotland
- Research Data Alliance (RDA), 9th Plenary, 5-7 April, Barcelona, Spain
- Research Data Access & Preservation Summit, 19-21 April, Seattle, WA
- Open Source Alliance for Open Science Forum, 1 May, Portland, OR
- csv.conf, 2-3 May, Portland, OR
- Society for Scholarly Publishing Annual Meeting, 31 May-2 June, Boston, MA
- Dataverse Community Meeting, 14-16 June, Cambridge, MA
- National Data Integrity Conference, 4-6 October, Fort Collins, CO
- THOR Final Conference, 15 November, Rome, Italy
- AGU FAIR Data Stakeholder Meeting, 15-17 November, Alexandria, VA
- Association for Computing Machinery, 6-8 December, New York, NY

- IASSIST & Data Curation Network (DCN) Data Curation Workshop, 11-12 December, St. Louis, MO