

Data citation for humans and machines: the perspective from Dryad and DataCite



Todd Vision

Dept. of Biology and School of Information and Library Sciences, University of North Carolina at Chapel Hill, <http://orcid.org/0000-0002-6133-2581>, @tjvision



Patricia Cruse

Executive Director, DataCite,
<http://orcid.org/0000-0002-9300-5278>



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Aydin Z, Marcussen T, Ertekin AS, Oxelman B (2014) Data from: Marginal likelihood estimate comparisons to obtain optimal species delimitations in *Silene* sect. *Cryptoneuræ* (Caryophyllaceae). *PLoS ONE* <http://dx.doi.org/10.5061/dryad.nj984>

Quintela M, Skaug HJ, Øien N, Haug T, Seliussen BB, Solvang HK, Pampoulie C, Kanda N, Pastene LA, Glover KA (2014) Data from: Investigating population genetic structure in a highly mobile marine organism: the minke whale *Balaenoptera acutorostrata acutorostrata* in the North East Atlantic. *PLoS ONE* <http://dx.doi.org/10.5061/dryad.6r4gg>

Hanwella R, Jayasekera NELW, de Silva VA (2014) Data from: Mental health status of Sri Lanka Navy personnel three years after end of combat operations: a follow up study. *PLoS ONE* <http://dx.doi.org/10.5061/dryad.j1r30>

Johnson MG, Granath G, Tahvanainen T, Pouliot R, Stenøien HK, Rochefort L, Rydin H, Shaw AJ (2014) Data from: Evolution of niche preference in *Sphagnum* peat mosses

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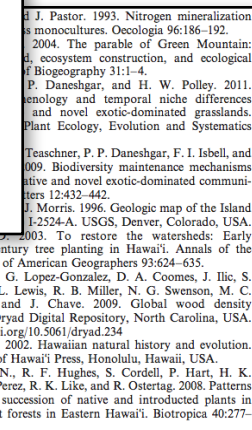
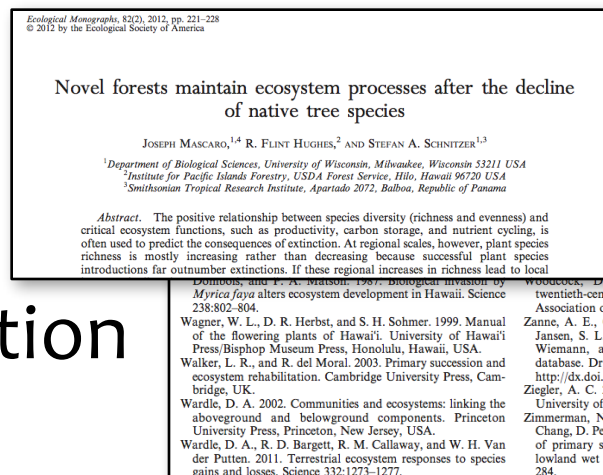
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Data from: Towards a worldwide wood economics spectrum



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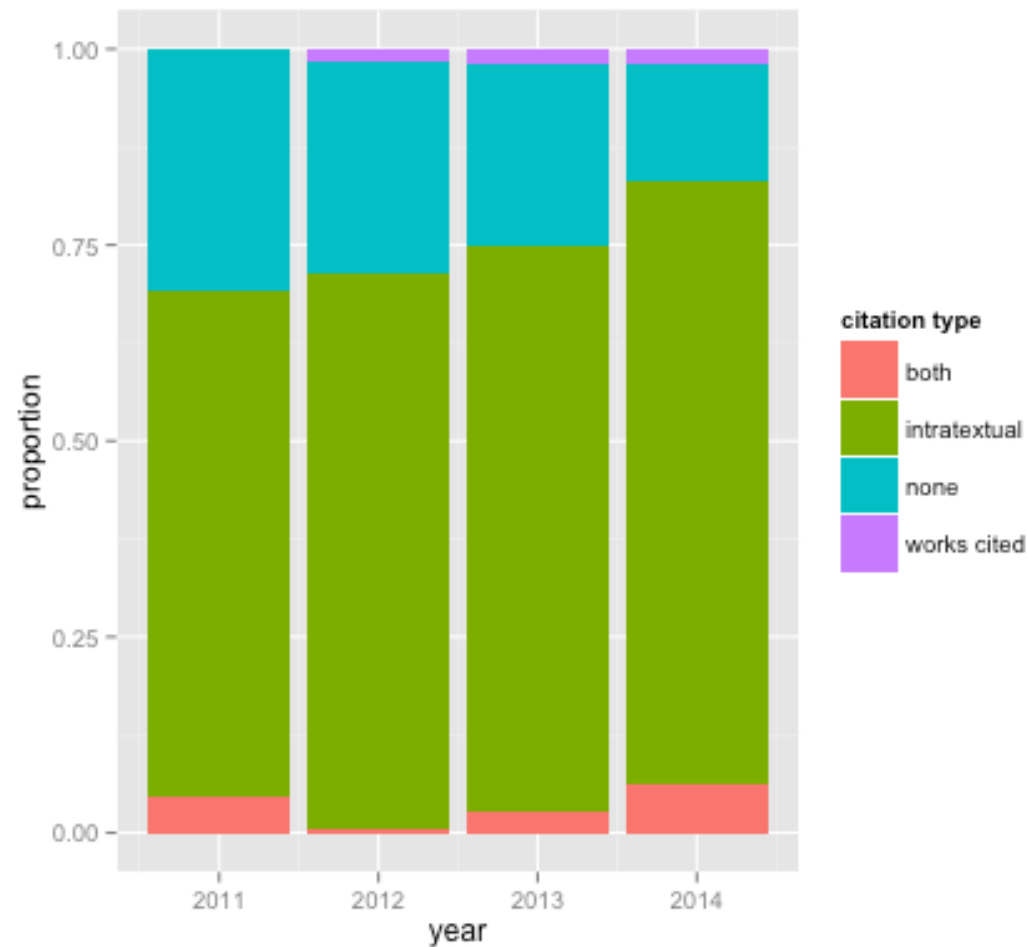
Chave J, Coomes DA, Jansen S, Lewis SL, Swenson NG, Zanne AE (2009) Towards a worldwide wood economics spectrum. Ecology Letters 12(4): 351-366. [doi:10.1111/j.1461-0248.2009.01285.x](https://doi.org/10.1111/j.1461-0248.2009.01285.x)

Additionally, please cite the Dryad data package:

Zanne AE, Lopez-Gonzalez G, Coomes DA, Ilic J, Jansen S, Lewis SL, Miller RB, Swenson NG, Wiemann MC, Chave J (2009) Data from: Towards a worldwide wood economics spectrum. Dryad Digital Repository. [doi:10.5061/dryad.234](https://doi.org/10.5061/dryad.234)

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Cites and references from *original* articles to data: highly variable (for both humans and machines)



Mayo, Hull and Vision (2016) Proc. of the 11th International Digital Curation Conference

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Data referenced in *reuse* articles: human readable when present, but even more rare

Ecological Monographs, 82(2), 2012, pp. 221–228
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Novel forests maintain ecosystem processes after the decline of native tree species

JOSEPH MASCARO,^{1,4} R. FLINT HUGHES,² AND STEFAN A. SCHNITZER^{1,3}

¹*Department of Biological Sciences, University of Wisconsin, Milwaukee, Wisconsin 53211 USA*

²*Institute for Pacific Islands Forestry, USDA Forest Service, Hilo, Hawaii 96720 USA*

³*Smithsonian Tropical Research Institute, Apartado 2072, Balboa, Republic of Panama*

Abstract. The positive relationship between species diversity (richness and evenness) and critical ecosystem functions, such as productivity, carbon storage, and nutrient cycling, is often used to predict the consequences of extinction. At regional scales, however, plant species richness is mostly increasing rather than decreasing because successful plant species introductions far outnumber extinctions. If these regional increases in richness lead to local

Dombois, and P. A. Matson. 1987. Biological invasion by *Myrica faya* alters ecosystem development in Hawaii. *Science* 238:802–804.

Wagner, W. L., D. R. Herbst, and S. H. Sohmer. 1999. *Manual of the flowering plants of Hawai'i*. University of Hawai'i Press/Bishop Museum Press, Honolulu, Hawaii, USA.

Walker, L. R., and R. del Moral. 2003. *Primary succession and ecosystem rehabilitation*. Cambridge University Press, Cambridge, UK.

Wardle, D. A. 2002. *Communities and ecosystems: linking the aboveground and belowground components*. Princeton University Press, Princeton, New Jersey, USA.

Wardle, D. A., R. D. Bargett, R. M. Callaway, and W. H. Van der Putten. 2011. Terrestrial ecosystem responses to species gains and losses. *Science* 332:1273–1277.

and J. Pastor. 1993. Nitrogen mineralization in grass monocultures. *Oecologia* 96:186–192.

Wardle, D. A. 2004. The parable of Green Mountain: land, ecosystem construction, and ecological biogeography. *Biogeography* 31:1–4.

Wardle, D. A., P. Daneshgar, and H. W. Polley. 2011. Phenology and temporal niche differences in native and novel exotic-dominated grasslands. *Plant Ecology, Evolution and Systematics* 122:1–12.

Wardle, D. A., P. P. Daneshgar, F. I. Isbell, and J. Morris. 2009. Biodiversity maintenance mechanisms in native and novel exotic-dominated communities. *Ecological Letters* 12:432–442.

Wardle, D. A., and J. Morris. 1996. Geologic map of the Island of Hawaii. USGS, Denver, Colorado, USA.

Woodcock, D. 2003. To restore the watersheds: Early twentieth-century tree planting in Hawai'i. *Annals of the Association of American Geographers* 93:624–635.

Zanne, A. E., G. Lopez-Gonzalez, D. A. Coomes, J. Ilic, S. Jansen, S. L. Lewis, R. B. Miller, N. G. Swenson, M. C. Wiemann, and J. Chave. 2009. Global wood density database. Dryad Digital Repository, North Carolina, USA. <http://dx.doi.org/10.5061/dryad.234>

Ziegler, A. C. 2002. *Hawaiian natural history and evolution*. University of Hawai'i Press, Honolulu, Hawaii, USA.

Zimmerman, N., R. F. Hughes, S. Cordell, P. Hart, H. K. Chang, D. Perez, R. K. Like, and R. Ostertag. 2008. Patterns of primary succession of native and introduced plants in lowland wet forests in Eastern Hawai'i. *Biotropica* 40:277–284.

Linking from data to *original* publication:

Machine readable via DataCite DOI

doi:10.5061/DRYAD.2B65B

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Citation da Silva, Luis; Pereira Coutinho, António Xavier; Heleno, Ruben; Tenreiro, Paulo; Ramos, Jaime; (2015): Data from: Dispersal of fungi spores by non-specialized flower-visiting birds; Dryad Digital Repository.

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Dataset DataPackage

Subjects Fungi dispersal
Directed dispersal
Flower visitation

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Linking from *original* publication to data:

Can be achieved by machines even with only the DataCite DOI

The screenshot shows the ScienceDirect website interface. The top navigation bar includes 'SciVerse', 'ScienceDirect', 'Hub', 'ScienceDirect', 'Scopus', and 'Applications'. A user notification box states: 'You have **Guest** access to ScienceDirect. [Find out more...](#)'. The main navigation bar contains 'Home', 'Publications', 'Search', 'My settings', 'My alerts', and 'Shopping cart'. Below this, there are links for 'Export citation', 'Purchase', and 'More options...'. The article title is 'Molecular Phylogenetics and Evolution', Volume 28, Issue 2, August 2003, Pages 261–275. The article title is 'Molecular systematics of armadillos (Xenarthra, Dasypodidae): contribution of maximum likelihood and Bayesian analyses of mitochondrial and nuclear genes'. The authors are Frédéric Delsuc^a, Michael J Stanhope^b, and Emmanuel J.P Douzery^a. The article is available in PDF format for purchase at \$39.95. A sidebar on the right, titled 'Data for this Article', is highlighted with a yellow box. It contains the text: 'More information on this application', 'Data for this article is available at the following data repositories:', and a button labeled 'Data in DRYAD'. Below this, there are social media sharing options for 'citeulike', 'Like', and 'Tweet'. The bottom of the sidebar has a link to 'Add apps | Help'.

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Abstract

Keywords

1. Introduction

2. Materials and methods

2.1. Taxon sampling and data acquisition

Table 1

2.2. Sequence alignment

2.3. Phylogenetic analyses

2.3.1. Maximum likelihood

2.3.2. Bayesian approach

2.4. Statistical tests of alternative hypotheses

3. Results and discussion

3.1. Evolutionary properties of the five genes

3.2. Phylogenetic results

3.2.1. Results from

Molecular Phylogenetics and Evolution

Volume 28, Issue 2, August 2003, Pages 261–275

Molecular systematics of armadillos (Xenarthra, Dasypodidae): contribution of maximum likelihood and Bayesian analyses of mitochondrial and nuclear genes

Frédéric Delsuc^a, Michael J Stanhope^b, Emmanuel J.P Douzery^a

^a Laboratoire de Paléontologie, Paléobiologie et Phylogénie, Institut des Sciences de l'Evolution, Université Montpellier II, Montpellier, France

^b Queen's University of Belfast, Biology and Biochemistry, 97 Lisburn Road, Belfast BT9 7BL, UK

[http://dx.doi.org/10.1016/S1055-7903\(03\)00111-8](http://dx.doi.org/10.1016/S1055-7903(03)00111-8), How to Cite or Link Using DOI

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Links from data to data: nice, but spotty and laborious

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Mol. Ecol. 2011 Feb;20(3):584-600. doi: 10.1111/j.1365-294X.2010.04953.x. Epub 2010 Dec 16.

Comparative phylogeography, genetic differentiation and contrasting reproductive modes in three fungal symbionts of a multipartite bark beetle symbiosis.

Roe AD, Rice AV, Colman DW, Cooke JE, Sperling FA.

Department of Biological Sciences, University of Alberta, Edmonton, AB, Canada. amandaroo@gmail.com

Abstract

Multipartite symbioses are complex symbiotic relationships involving multiple interacting partners. These types of partnerships provide excellent opportunities in which to apply a comparative approach to identify common historical patterns of population differentiation and species-specific life history traits. Using three symbiotic blue-stain fungal species (Ophiostomataceae) associated with outbreaking populations of the mountain pine beetle (*Dendroctonus ponderosae* Hopkins) in western Canada, we applied phylogenetic, population genetic and demographic approaches to clarify phylogeographic patterns among the three fungal species and southern populations, despite dramatic differences in life history traits. The results are consistent, showing some interspecific incongruence in recombination rate and ecological traits that could be an approach to partners of a multipartite symbiosis. These results help us to understand the complexity and evolution of multipartite symbioses.

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PMID: 21166729 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms

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Taxonomy

Ophiostoma montium isolate ss547 5.8S ribosomal RNA gene, partial sequence; internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence

GenBank: HQ413650.1

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LOCUS HQ413650 918 bp DNA linear PLN 20-JAN-2011

DEFINITION Ophiostoma montium isolate ss547 5.8S ribosomal RNA gene, partial sequence; internal transcribed spacer 2, complete sequence; and 28S ribosomal RNA gene, partial sequence.

ACCESSION HQ413650

VERSION HQ413650.1 GI:316925971

KEYWORDS .

SOURCE Ophiostoma montium

ORGANISM Ophiostoma montium

Eukaryota; Fungi; Dikarya; Ascomycota; Pezizomycotina; Sordariomycetes; Sordariomycetidae; Ophiostomatales; Ophiostomataceae; Ophiostoma.

REFERENCE 1 (bases 1 to 918)

AUTHORS Roe,A.D., Rice,A.V., Colman,D.W., Cooke,J.E. and Sperling,F.A.

TITLE Comparative phylogeography, genetic differentiation and contrasting reproductive modes in three fungal symbionts of a multipartite bark beetle symbiosis

JOURNAL Mol. Ecol. 20 (3), 584-600 (2011)

PUBMED 21166729


REFERENCE 2 (bases 1 to 918)

AUTHORS Roe,A.D., Rice,A.V., Colman,D.W., Cooke,J.E.K. and Sperling,F.A.H.

TITLE Direct Submission

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 Dancing together and separate again: gymnosperms exhibit frequent changes of fundamental 5S and 35S rRNA gene (rDNA) organisation. (PMID:23512008)


Abstract Citations BioEntities Related Articles **External Links**

Garcia S, Kovařík A
Laboratori de Botànica, Facultat de Farmàcia, Universitat de Barcelona, Barcelona, Catalonia, Spain.
Heredity [2013, 111(1):23-33]

Type: Journal Article, Research Support, Non-U.S. Gov't
DOI: 10.1038/hdy.2013.11

Abstract

In higher eukaryotes, the (S-type arrangement) or 18S-5.8S-26S genes (L-type sequencing approaches groups, including Conifer species (21 genera). The Coniferales and in Ginkgo organisation. The linked & embedded in the 26S-18S same (Ginkgo, Ephedra) addition, pseudogenised have been largely homologous. Comparison of 5S coding three times in the course basic units indicate relative genes in plants.

 Dancing together and separate again: gymnosperms exhibit frequent changes of fundamental 5S and 35S rRNA gene (rDNA) organisation. (PMID:23512008)

Abstract Citations BioEntities Related Articles **External Links**

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<http://dx.doi.org/doi:10.5061/dryad.fq228>

Cites from *any* publication to **data:** can be achieved via text mining

Combining links through DataCite



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Data from: Social networks predict gut microbiome composition in wild baboons

Jenny Tung, Luis B. Barriero, Michael B. Burns, J. C. Grenier, Josh Lynch, L. E. Grieneisen ... & E. A. Archie

Dataset published 2016 via Dryad Digital Repository

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Social networks predict gut microbiome composition in wild baboons

Work published March 16, 2015

References <http://doi.org/10.5061/DRYAD.8GP03>

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<http://doi.org/10.7554/ELIFE.05224> Cite

Mica_1yrproximity

Work published 2016

Is part of <http://doi.org/10.5061/DRYAD.8GP03>

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<http://doi.org/10.5061/DRYAD.8GP03.2/10.2> Cite Add to ORCID record

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Research group website
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Scopus Author ID: 6603368605

Genome-scale phylogenetics: Inferring the plant tree of life from 18,896 gene trees: Systematic Biology 2011
DOI: 10.1093/sysbio/syq072
<http://www.scopus.com/inward/record.url?eid=2-s2.0-79951569533&partnerID=MN8TOARS>
Burleigh, J.G. and Bansal, M.S. and Eulenstein, O. and Hartmann, S. and Wehe, A. and Vision, T.J., (2011). "Genome-scale phylogenetics: Inferring the plant tree of life from 18,896 gene trees", Systematic Biology, vol. 60, no. 2, pp. 117-125

Data from: Genome-scale phylogenetics: inferring the plant tree of life from 18,896 gene trees 2010
DOI: 10.5061/DRYAD.7881
Burleigh, J. Gordon; Bansal, Mukul S.; Eulenstein, Oliver; Hartmann, Stefanie; Wehe, André; Vision, Todd J.; , (2010). "Data from: Genome-scale phylogenetics: inferring the plant tree of life from 18,896 gene trees"



A structured citation from a *reuse* article to data: are we meeting the needs of both humans and machines?

Methods

Analysis of patterns of sex chromosome-autosome fusions in vertebrates

We compiled lists of species with multiple sex chromosome systems (X_1X_2Y , XY_1Y_2 , ZW_1W_2 , and Z_1Z_2W systems) from the Tree of Sex database [17]. Although X_1X_2Y systems (or ZW_1W_2 systems) can also arise from species with XO (or ZO) systems through a reciprocal translocation between an X (or a Z) and an autosome [2,20], XO or ZO systems are rare in vertebrates [17] (Table 1). In addition, although fission of sex chromosomes can also create multiple sex chromosome systems [2,20], such fissions are also rare in vertebrates [18,20,21]. We therefore focus this discussion on fusions, although the data analysis allowed fissions as well as fusions (S1 Text).

16. Devlin RH, Nagahama Y (2002) Sex determination and sex differentiation in fish: an overview of genetic, physiological, and environmental influences. *Aquaculture* 208: 191–364.
17. The Tree of Sex Consortium (2014) Tree of Sex: a database of sexual systems. *Sci Data* 1: 140015.
18. Ohno S (1967) Sex chromosomes and sex-linked genes. New York: Springer.

Data Availability Statement: Sex chromosome data are available from the Dryad (<http://dx.doi.org/10.5061/dryad.v1908>). Analytical tools and code are available in the Supporting Information file (S2 Text) or at <https://github.com/mwpennell/fuse>.

Pennell MW et al. (2015) Y Fuse? Sex Chromosome Fusions in Fishes and Reptiles. *PLoS Genet* doi:10.1371/journal.pgen.1005237



- Sustainable services
 - Building upon trusted identifier services
 - ORCID-DataCite claiming service
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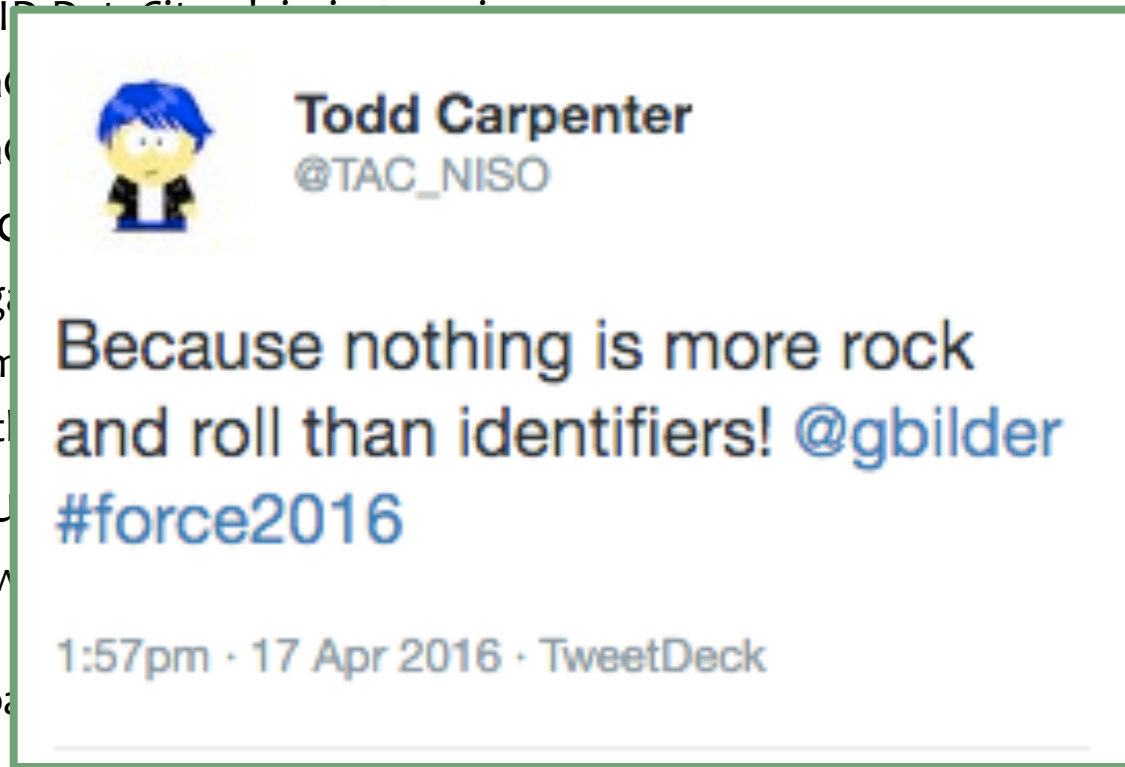
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Other DataCite services: repository registry



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The screenshot shows the re3data.org website interface. At the top is a navigation bar with links: Home, Search, Browse, Suggest, FAQ, About, Schema, API, Contact, and Legal notice / Impressum. Below the navigation bar is a search bar with the text 'Search...' and a 'Search' button. To the right of the search bar is a 'Toogle short help' link. Below the search bar is a pagination bar with links: < Previous, 1, 2, 3, 4, 5, 6, Next >. To the right of the pagination bar is a 'Sort by -' dropdown menu. The main content area displays search results for 'National Pollutant Release Inventory'. The results are organized into sections: Subject(s), Content type(s), and Country. The Subject(s) section lists various scientific fields such as Atmospheric Science, Analytical Chemistry, Method Development (Chemistry), Technical Chemistry, Geochemistry, Mineralogy and Crystallography, Atmospheric Science and Oceanography, Geosciences (including Geography), Natural Sciences, Chemistry, Process Engineering, Technical Chemistry, Thermal Engineering/Process Engineering, and Engineering Sciences. The Content type(s) section lists Standard office documents, Scientific and statistical data formats, Databases, Software applications, and other. The Country section lists Canada. Below the Country section is a detailed description of the National Pollutant Release Inventory (NPRI) and its purpose.