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1. Introduction to the Dryad Application Profile

The Dryad application profile has been developed in compliance with the Dublin Core Metadata Initiative's guidelines, including the Singapore Framework. Dryad < <http://datadryad.org/>> stores data underlying scientific publications, with an initial focus on evolution, ecology, and related fields. The application profile consists of modules describing the:

1. publication – article associated with content in Dryad
2. data package – group of data files associated with a given publication
3. data file – deposited bitstream.

All properties are drawn from metadata schemes that are registered and/or made available online in RDF.

Abbreviation	Full title and Web access address
bibo	The Bibliographic Ontology: http://bibliontology.com/
dcterms	Dublin Core Metadata Initiative: http://dublincore.org/documents/dcmi-terms/
dryad	Dryad Repository: http://datadryad.org/metadata/
dwc	Darwin Core: http://rs.tdwg.org/dwc/index.htm

2. Dryad Publication Module, Version 3.0

Namespace:Name/Label	Obligation R=Required O=Optional	Metadata generation method	Cardinality R=Repeatable NR=Non-rep.	Notes
1. dcterms:type/Type	R	Automatic	NR	
2. dryad:status/Status	R	Semi-Automatic	NR	
3. bibo:status/Article Publication Status	R	Semi-Automatic	NR	
4. dcterms:creator/Author	R	Automatic	R	
5. dcterms:issued/Date of Issuance (Article Publication Date)	R	Semi-automatic	NR	
6. dcterms:title/Article Title	R	Automatic	NR	
7. bibo:Journal/Journal Title	R	Automatic	NR	
8. bibo:issn/ISSN	O	Automatic	NR	
9. bibo:eissn/Electronic ISSN	O	Automatic	NR	
10. bibo:volume/Journal Volume Number	R	Automatic	NR	
11. bibo:issue/Journal Issue	O	Automatic	NR	
12. bibo:pageStart/Article Start Page	O	Automatic	NR	
13. bibo:pageEnd/Article End Page	O	Automatic	NR	
14. bibo:pages/Article Pages	O	Automatic	NR	Use only when page spans are noncontiguous. Pages or ranges separated by commas.
15. dcterms:identifier/Article Identifier	R	Automatic	R	Usually a DOI, stored as "doi:####". Non-DOI values have other prefixes, e.g., "PMC" for PubMed Central identifiers.
16. dcterms:abstract/Article Abstract	O	Automatic	NR	
17. dcterms:isReferencedBy/Associated Dryad Data Package Identifier	R	Automatic	NR	DOI, stored as "doi:####"

3. Dryad Data Package Module, Version 3.0

Namespace: Name/label	Obligation R=Required O=Optional	Metadata generation method	Cardinality R=Repeatable NR=Non-rep.	Notes
1. dcterms:type/Type	R	Automatic	NR	
2. dryad:status/Status	R	Manual	NR	
3. dcterms:creator/Author	R	Automatic	R	
4. dcterms:dateSubmitted/Deposit Date	R	Automatic	NR	
5. dcterms:available/Date Available (Date when Dryad record becomes public)	R	Automatic	NR	
6. dcterms:title/Data Package Title	R	Automatic	NR	
7. dcterms:identifier/Data Package Identifier	R	Automatic	R	DOI, stored as "doi:####". Repeats of this field may store other unique identifiers, such as handles.
8. dcterms:description/Description	O	Manual	NR	
9. dcterms:subject/Keyword	R	Semi-automatic	R	
10. dwc:scientificName/Scientific Name	O	Semi-automatic	R	
11. dcterms:spatial/Spatial Coverage	O	Semi-automatic	R	
12. dcterms:temporal/Temporal Coverage	O	Semi-automatic	R	
13. dryad:external/Identifier for Related Data in Dryad Partner Repository	O	Semi-automatic	R	Unique identifiers for records in collaborating repositories, stored with prefixes, e.g., "TB:####" for TreeBASE and "GB:####" for GenBank.
14. dcterms:relation/Location of Related Content Outside of Dryad	O	Manual	R	URL for related content outside of Dryad that is not in a collaborating repository.
15. dcterms:references/Associated Dryad Publication Record Identifier	R	Automatic	NR	DOI, stored as "doi:####"
16. dcterms:hasPart/Associated Dryad Data File Record Identifier	R	Automatic	R	DOI, stored as "doi:####"

4. Dryad Data File Module, Version 3.0

Namespace: Name/label	Obligation R=Required O=Optional	Metadata generation method	Cardinality R=Repeatable NR=Non-rep.	Notes
1. dcterms:type/Type	R	Automatic	NR	
2. dryad:status/Status	R	Manual	NR	
3. dcterms:creator/Author	R	Semi-automatic	R	
4. dcterms:title/Data File Title	R	Semi-automatic	NR	
5. dcterms:identifier/Data File Identifier	R	Automatic	R	DOI, stored as "doi:####". Repeats of this field may store other unique identifiers, such as handles. Links to the metadata record.
6. dryad:bitstreamId	R	Automatic	R	DOI, stored as "doi:####". Links to the bitstream content uploaded by the depositor.
7. dcterms:rights/Rights Statement	R	Automatic	NR	
8. dcterms:description/Description	O	Manual	NR	
9. dcterms:subject/Keywords	R	Semi-automatic	R	
10. dwc:scientificName/Scientific Name	O	Semi-automatic	R	
11. dcterms:spatial/Spatial Coverage	O	Semi-automatic	R	
12. dcterms:temporal/Temporal Coverage	O	Semi-automatic	R	
13. dcterms:dateSubmitted/Deposit Date	R	Automatic	NR	
14. dcterms:available/Date Available (Date when Dryad record becomes public)	R	Automatic	NR	
15. dryad:embargoedUntil/Embargo Date	O	Semi-automatic	NR	
16. dcterms:format/File Format	R	Automatic	NR	
17. dcterms:extent/File Size	R	Automatic	NR	
18. dcterms:provenance	R	Automatic	R	Among other information, this field will contain an MD5 checksum.
19. dcterms:isPartOf/Associated Dryad Data Package Identifier	R	Automatic	NR	DOI, stored as "doi:####"

5. Dryad Application Profile, Version 3.0: Property Names and Definitions

Property Name	Definition	Potential Vocabularies [* = vocabulary key]
1. Type	The nature or genre of the resource.	DSpace controlled vocabulary.
2. Status	Status of the metadata record.	A code list is being developed.
3. Article Publication Status	Publication status of the associated article.	A code list is being developed.
4. Author	The entity or entities who created the resource being described.	LCNAF* if name is established.
5. Title	Descriptive title of the article, data package, or data file.	
6. Rights Statement	Statement regarding rights held over the resource.	
7. Description	Human-readable description of the resource; an abstract or summary.	
8. Keywords	Subject keywords describing the data.	NBII*, MeSH*, LCSH*, and other HIVE* and related vocabularies.
9. Scientific Name	The full name of the lowest level taxon to which the organism has been identified in the most recent accepted determination, specified as precisely as possible.	ITIS*, uBio*, etc.
10. Spatial Coverage	The spatial description of the data specified by a geographic description and/or geographic coordinates.	TGN*, etc.
11. Temporal Coverage	The temporal description of the data, as geologic timespan.	
12. Date of Issuance	Date of formal issuance (e.g., publication) of the resource.	
13. Deposit Date	An automatic timestamped date when a depositor finalizes their submission.	
14. Date Available	Date when the Dryad metadata record becomes public.	
15. Embargo Date	A date after which the data itself will be made public and available for download.	
16. File Format	The format in which the data file is stored. Can also represent software format.	Handled by DSpace.
17. File Size	The size of the file storage.	
18. Provenance	Information related to the origin and integrity of the file.	

6. Dryad Application Profile, Version 3.0: Standard Vocabularies and Authority Files

Note: this table includes a few potential vocabularies. Dryad anticipates using multiple vocabularies and ontologies.

Abbreviation	Full title and Web access address
ITIS	Integrated Taxonomic Information System: http://www.itis.gov/ .
HIVE	Helping Integrated Vocabulary Engineering is an IMLS supported project that is developing a SKOS (Simple Knowledge Organization System) vocabulary server supporting Dryad metadata generation and user searching. (The HIVE project model is applicable beyond Dryad.) The HIVE development wiki is: https://www.nescent.org/sites/hive/Main_Page ; information on SKOS can be found: http://www.w3.org/2004/02/skos/ .
LCNAF	LC Name Authorities File, accessible as part of LC Authorities: http://authorities.loc.gov/ .
LCSH	Library of Congress Subject headings, accessible as part LC Authorities: http://authorities.loc.gov/ .
MeSH	Medical Subject Headings: http://www.nlm.nih.gov/mesh/MBrowser.html .
NBII	National Biological Information Infrastructure Biocomplexity Thesaurus: http://thesaurus.nbii.gov/portal/server.pt .
TGN	Getty Thesaurus of Geographic Names: http://www.getty.edu/research/conducting_research/vocabularies/tgn/ .
UBio	Universal Biological Indexer and Organizer: http://www.ubio.org/ .