# NZOR Mapping to the Darwin Core Standard

There are several sections of Darwin Core (DwC), some are relevant and some are irrelevant to NZOR.

The sections that are considered relevant include:

* Record Level (metadata)
* Taxon
* Literature References
* Vernacular Names
* Species Distribution

## Record Level

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| **DwC Field** | **Description** | **NZOR Field** |
| modified | Date when the record was last updated  See also <http://rs.tdwg.org/dwc/terms/index.htm#dcterms:modified>  *Examples*: 2009-08-21 | ModifiedDate |
| language | See also <http://rs.tdwg.org/dwc/terms/index.htm#dcterms:language> | “English” |
| rights | See also <http://rs.tdwg.org/dwc/terms/index.htm#dcterms:rights> | NZOR Rights statement |
| rightsHolder | See also <http://rs.tdwg.org/dwc/terms/index.htm#dcterms:rightsHolder> | NZOR? |
| accessRights | See also <http://rs.tdwg.org/dwc/terms/index.htm#dcterms:accessRights> | NZOR Access Rights statement |
| bibliographicCitation | Citation information specified by the data publisher. Citation information is inherited downward by all child taxa if no other citation is included. Citation information is NOT accumulated upward. For example, one citation may be linked to a Mammalia entry and generally applies to all mammal species but a different citation for a child taxon, Primates, applies to all child primate taxa.  See also <http://rs.tdwg.org/dwc/terms/index.htm#dcterms:bibliographicCitation>  *Examples*: van Soest, R. (2009). Leucandra fistulosa (Johnston, 1842). In: Van Soest, R.W.M, Boury-Esnault, N., Hooper, J.N.A., Rützler, K, de Voogd, N.J., Alvarez, B., Hajdu, E., Pisera, A.B., Vacelet, J. Manconi, R., Schoenberg, C., Janussen, D., Tabachnick, K.R., Klautau, M. (Eds) (2009). World Porifera database | NONE?? |
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## Taxon

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| **DwC Field** | **Description** | **NZOR Field** |
| taxonID | A unique identifier for the set of nomenclatural and taxonomic information (data associated with the Taxon class). A taxonID refers to a name being used somewhere, therefore not precluding whether it is a taxon (concept) or name alone that is being described. This also includes both accepted taxon references and references to synonyms. If possible a globally unique ID is preferred, but local IDs are valid as long as they are unique within the dataset. It is possible for two different taxonID rows to refer to the same scientificName if they refer to different taxon concept circumscriptions referenced in nameAccordingTo.  See also <http://rs.tdwg.org/dwc/terms/index.htm#taxonID>  For line numbers you can specify an optional non-numerical suffix to be appended to the id. This is useful to generate unique identifiers when mapping the same source multiple times.  *Examples*: 8fa58e08-08de-4ac1-b69c-1235340b7001; 32567; http://species.gbif.org/abies\_alba\_1753; urn:lsid:gbif.org:usages:32567 | NameID |
| scientificNameID | Exclusively used to reference an external and resolvable identifier that returns nomenclatural (not taxonomic) details of a name. Use taxonID to refer to taxa.  See also <http://rs.tdwg.org/dwc/terms/index.htm#scientificNameID>  *Examples*: urn:lsid:ipni.org:names:37829-1:1.3 | NONE??  We don’t have an ID specifically for NZOR nomenclatural data – they are concepts?? |
| acceptedNameUsageID | The taxonID of the taxon considered to be the valid (zoological) or accepted (botanical) name for this nameUsage. If acceptedNameUsage is given, the scientificName of the nameUsage with taxonID=acceptedNameUsageID needs to be the same as acceptedNameUsage.  See also <http://rs.tdwg.org/dwc/terms/index.htm#acceptedNameUsageID>  *Examples*: 8fa58e08-08de-4ac1-b69c-1235340b7001 | NameID of Concept-ConceptRelationship-Concept where the relationship is “is synonym of” |
| parentNameUsageID | The taxonID of the direct, most proximate higher-rank parent taxon (in a classification). If parentNameUsage is given, the scientificName of the nameUsage with taxonID=parentNameUsageID needs to be the same as higherNameUsage.  See also <http://rs.tdwg.org/dwc/terms/index.htm#parentNameUsageID>  *Examples*: 8fa58e08-08de-4ac1-b69c-1235340b7001 | NameID of Concept-ConceptRelationship-Concept where the relationship is “is child of” |
| originalNameUsageID | A unique identifier for the nameUsage instance in which the name was originally established, under the rules of the associated nomenclaturalCode (i.e., within the namePublishedIn reference). The basionym (botany) or basonym (bacteriology) of the scientificName or the senior/earlier homonym for replaced names. If provided the nameAccordingTo value returned should match the namePublishedIn value for this record.  See also <http://rs.tdwg.org/dwc/terms/index.htm#originalNameUsageID>  *Examples*: http://species.gbif.org/abies\_alba\_1753 | BasionymID |
| nameAccordingToID | A unique identifier that returns the details of a nameAccordingTo reference.  See also <http://rs.tdwg.org/dwc/terms/index.htm#nameAccordingToID>  *Examples*: doi:10.1016/S0269-915X(97)80026-2 | NamePublishedInID??  according to Reference for one of the concepts for this Name?? |
| namePublishedInID | A preferably resolvable, globally unique identifier that refers to namePublishedIn.  See also <http://rs.tdwg.org/dwc/terms/index.htm#namePublishedInID>  *Examples*: http://hdl.handle.net/10199/7 | PublishedInID |
| taxonConceptID | See also <http://rs.tdwg.org/dwc/terms/index.htm#taxonConceptID> | NameID as it is a concept?? Or one of the Concept IDs for this Name?? |
| scientificName | The taxon name (with date and authorship information if applicable). When forming part of an Identification, this should be the name in lowest level taxonomic rank that can be determined. This term should not contain identification qualifications, which should instead be supplied in the IdentificationQualifier term.  See also <http://rs.tdwg.org/dwc/terms/index.htm#scientificName>  *Examples*: "Coleoptera" (order), "Vespertilionidae" (family), "Manis" (genus), "Ctenomys sociabilis" (genus + specificEpithet), "Ambystoma tigrinum diaboli" (genus + specificEpithet + infraspecificEpithet), "Quercus agrifolia var. oxyadenia (Torr.)" | FullName |
| acceptedNameUsage | The scientificName of the taxon considered to be the valid (zoological) or accepted (botanical) name for this nameUsage.  See also <http://rs.tdwg.org/dwc/terms/index.htm#acceptedNameUsage>  *Examples*: "Tamias minimus" valid name for "Eutamias minimus" | Accepted Name (via concepts) |
| parentNameUsage | The scientificName representing the direct, most proximate higher-rank parent taxon (in a taxonomic classification) of this taxons scientificName.  See also <http://rs.tdwg.org/dwc/terms/index.htm#parentNameUsage>  *Examples*: "Rubiaceae", "Gruiformes", "Testudinae" | Parent Name (via concepts) |
| originalNameUsage | The equivalent of the scientificName as it originally appeared when the name was first established under the rules of the associated nomenclaturalCode (i.e., within the namePublishedIn reference). The basionym (botany) or basonym (bacteriology) of the scientificName or the senior/earlier homonym for replaced names.   See also <http://rs.tdwg.org/dwc/terms/index.htm#originalNameUsage>  *Examples*: "Pinus abies", "Gasterosteus saltatrix Linnaeus 1768" | Basionym |
| nameAccordingTo | To use a name precisely an indication of which concept of that name one refers to is needed. Traditionally the Latin sensu or sec. (for secundum – according to) have been used. For taxa that result from identifications a reference to the keys used, monographs, online source or experts should be given. If no accordingTo is explicitly given the "nominal concept" as defined by TCS is assumed. Could be a publication (identification key), institution or team of individuals.  See also <http://rs.tdwg.org/dwc/terms/index.htm#nameAccordingTo>  *Examples*: "Werner Greuter 2008; Lilljeborg 1861, Upsala Univ. Arsskrift, Math. Naturvet., pp. 4, 5", "McCranie, J. R., D. B. Wake, and L. D. Wilson. 1996. The taxonomic status of Bolitoglossa schmidti, with comments on the biology of the Mesoamerican salamander Bolitoglossa dofleini (Caudata: Plethodontidae). Carib. J. Sci. 32:395-398." | NONE?? |
| namePublishedIn | Reference to a publication representing the original publication of the name.  See also <http://rs.tdwg.org/dwc/terms/index.htm#namePublishedIn>  *Examples*: Forel, Auguste, Diagnosies provisoires de quelques espèces nouvelles de fourmis de Madagascar, récoltées par M. Grandidier., Annales de la Societe Entomologique de de Belgique, Comptes-rendus des Seances 30, 1886 | PublishedIn |
| higherClassification | A list (concatenated and separated) of taxa names terminating at the rank immediately superior to the taxon referenced in the taxon record. Recommended best practice is to order the list starting with the highest rank and separating the names for each rank with a semi-colon (";").  See also <http://rs.tdwg.org/dwc/terms/index.htm#higherClassification>  *Examples*: Animalia;Chordata;Vertebrata;Mammalia;Theria;Eutheria;Rodentia;Hystricognatha;Hystricognathi;Ctenomyidae;Ctenomyini;Ctenomys | Stacked Name list |
| kingdom | The full scientific name of the kingdom in which the taxon is classified.  See also <http://rs.tdwg.org/dwc/terms/index.htm#kingdom>  *Examples*: "Animalia", "Plantae" | Stacked Name with rank = kingdom |
| phylum | The full scientific name of the phylum in which the taxon is classified.  See also <http://rs.tdwg.org/dwc/terms/index.htm#phylum>  *Examples*: "Chordata" (phylum), "Bryophyta" (division) | Stacked Name with rank = phylum |
| class | The full scientific name of the class in which the taxon is classified.  See also <http://rs.tdwg.org/dwc/terms/index.htm#class>  *Examples*: "Mammalia", "Hepaticopsida" | Stacked Name with rank = class |
| order | The full scientific name of the order in which the taxon is classified.  See also <http://rs.tdwg.org/dwc/terms/index.htm#order>  *Examples*: "Carnivora", "Monocleales" | Stacked Name with rank = order |
| family | The full scientific name of the family in which the taxon is classified.  See also <http://rs.tdwg.org/dwc/terms/index.htm#family>  *Examples*: "Felidae", "Monocleaceae" | Stacked Name with rank = family |
| genus | The full scientific name of the genus in which the taxon is classified.  See also <http://rs.tdwg.org/dwc/terms/index.htm#genus>  *Examples*: "Puma", "Monoclea" | Stacked Name with rank = genus |
| subgenus | The full scientific name of the subgenus in which the taxon is classified. Values should include the genus to avoid homonym confusion.  See also <http://rs.tdwg.org/dwc/terms/index.htm#subgenus>  *Examples*: Puma (Puma); Loligo (Amerigo); Hieracium subgen. Pilosella | Stacked Name with rank = subgenus |
| specificEpithet | The name of the species epithet of the scientificName.  See also <http://rs.tdwg.org/dwc/terms/index.htm#specificEpithet>  *Examples*: "concolor", "gottschei" | Canonical if the name is a species, otherwise the Stacked name at rank = species (for names below species) |
| infraspecificEpithet | The name of the lowest or terminal infraspecific epithet of the scientificName, excluding any rank marker.  See also <http://rs.tdwg.org/dwc/terms/index.htm#infraspecificEpithet>  *Examples*: "concolor", "oxyadenia", "sayi" | Canonical if the name is infra-specific |
| taxonRank | The taxonomic rank of the most specific name in the scientificName. Recommended vocabulary: http://rs.gbif.org/vocabulary/gbif/rank.xml  See also <http://rs.tdwg.org/dwc/terms/index.htm#taxonRank>  *Examples*: "subspecies", "varietas", "forma", "species", "genus" | Rank (may need to normalise to DwC standard) |
| verbatimTaxonRank | The taxonomic rank of the most specific name in the scientificName as it appears in the original record or the rank designator within the verbatim original name itself.  See also <http://rs.tdwg.org/dwc/terms/index.htm#verbatimTaxonRank>  *Examples*: "Agamospecies", "sub-lesus", "prole", "apomict", "nothogrex", "sp.", "subsp.", "var." | NONE?? |
| scientificNameAuthorship | The authorship information for the scientificName formatted according to the conventions of the applicable nomenclaturalCode.  See also <http://rs.tdwg.org/dwc/terms/index.htm#scientificNameAuthorship>  *Examples*: "(Torr.) J.T. Howell", "(Martinovský) Tzvelev", "(Linnaeus 1768)" | Authors |
| vernacularName | A common or vernacular name.  See also <http://rs.tdwg.org/dwc/terms/index.htm#vernacularName>  *Examples*: "Andean Condor", "Condor Andino", "American Eagle", "Gänsegeier" | ConceptApplications that are vernacular names for this Name |
| nomenclaturalCode | The nomenclatural code under which the scientificName is constructed.  See also <http://rs.tdwg.org/dwc/terms/index.htm#nomenclaturalCode>  *Examples*: ICBN; ICZN | GoverningCode |
| taxonomicStatus | The status of the use of the scientificName as a label for a taxon. Requires taxonomic opinion to define the scope of a taxon. Rules of priority then are used to define the taxonomic status of the nomenclature contained in that scope, combined with the experts opinion. It must be linked to a specific taxonomic reference that defines the concept. Recommended vocabulary: http://rs.gbif.org/vocabulary/gbif/taxonomic\_status.xml  See also <http://rs.tdwg.org/dwc/terms/index.htm#taxonomicStatus>  *Examples*: "invalid", "misapplied", "homotypic synonym", "accepted" | Determine from Concept Relationships?? |
| nomenclaturalStatus | The status related to the original publication of the name and its conformance to the relevant rules of nomenclature. It is based essentially on an algorithm according to the business rules of the code. It requires no taxonomic opinion. Recommended vocabulary: http://rs.gbif.org/vocabulary/gbif/nomenclatural\_status.xml  See also <http://rs.tdwg.org/dwc/terms/index.htm#nomenclaturalStatus>  *Examples*: "nom. ambig.", "nom. illeg.", "nom. subnud." | NomenclaturalStatus |
| taxonRemarks | Comments or notes about the taxon or name.  See also <http://rs.tdwg.org/dwc/terms/index.htm#taxonRemarks>  *Examples*: Type consists of a skull and skeletal fragments. | NONE?? |
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## Literature References

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| **DwC Field** | **Description** | **NZOR Field** |
| taxonID | NameID of the Name that has this associated Reference | NameID |
| identifier | DOI, ISBN, URI, etc referring to the reference. This can be repeated in multiple rows to include multiple identifiers, e.g. a DOI and a URL pointing to a pdf of the article.  *Examples*: doi:10.1038/ng0609-637; <http://www.nature.com/ng/journal/v41/n6/pdf/ng0609-637.pdf> | ReferenceID? |
| bibliographicCitation | A text string referring to an un-parsed bibliographic citation.  *Examples*: Hartge, P., Genetics of reproductive lifespan. Nature Genetics 41, 637 - 638 (2009) | ReferenceProperty of type Citation |
| title | Title of book or article  *Examples*: "Genetics of reproductive lifespan", "Field Guide to Moths of Eastern North America" | ReferenceProperty of type Title |
| creator | The author or authors of the referenced work  *Examples*: "Patricia Hartge" | Concatenated ReferenceProperties of type Author |
| date | Date of publication, recommended ISO format YYYY or YYYY-MM-DD  *Examples*: "6/1/2009"; "2009" | ReferenceProperty of type Date |
| source | If the reference is part of a larger work, this can be cited here. In case of articles this is the journal, for parts of books the book itself  *Examples*: Nature Genetics 41, 635 (2009) | Citation ReferenceProperty of the Parent Reference |
| description | Abstracts, remarks, notes  *Examples*: "Five genome-wide association studies of the timing of menarche and menopause have now taken us beyond the range of candidate gene and linkage studies. The list of new genetic associations identified for these two traits should shed light on the mechanisms of ovarian aging, as well as breast cancer and other diseases associated with reproductive lifespan." | NONE |
| subject | Semicolon separated list of keywords. Can include a resource qualifier that specifies the relation of this reference to the taxon, e.g namePublishedIn  *Examples*: genomics; epidemiology | Concatenated list of ReferenceProperties of type Keyword? |
| language | ISO 639-1 language code indicating the source language of the referent publication  *Examples*: en | Always en? |
| rights | copyright information relating to the referenced publication  *Examples*: Copyright © 2009 Wiley-Liss, Inc., A Wiley Company | NONE? |
| taxonRemarks | Annotation of taxon-specific information related to the referenced publication.  *Examples*: "transferred H. nigritarsus to Acanolonia"; "Type specimen is a skeleton" | NONE? |
| type | Used to assign a bibliographic reference to list of taxonomic or nomenclatural categories. Best practice is to use a controlled vocabulary.  *Examples*: Original publication of new combination (comb nov.) | ??  Obtain a list of nomenclatural and taxonomic statuses from the associated Names? |

## Vernacular Names

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| **DwC Field** | **Description** | **NZOR Field** |
| taxonID | NameID of the scientific name that has this vernacular name | NameID |
| vernacularName | A common or vernacular name.  *Examples*: Andean Condor", "Condor Andino", "American Eagle", "Gänsegeier" | FullName of a Name of type Vernacular |
| source | Bibliographic citation referencing a source where the vernacular name refers to the cited species.  *Examples*: "Peterson Field Guide to the Eastern Seashore, Houghton Mifflin Co, 1961, p131" | Reference Citation of the Concept that links this vernacular name and scientific name |
| language | SO 639-1 language code used for the vernacular name value.  *Examples*: ES | NameProperty for this vernacular name of type Language |
| temporal | temporal context when name is/was used  *Examples*: 19th Century; 1950 | NONE? |
| locationID | An identifier for the set of location information (data associated with dcterms:Location). May be a global unique identifier or an identifier specific to the data set. | NONE |
| locality | The specific description of the area from which the vernacular name usage originates. Vernacular names may have very specific regional contexts. A name used for a species in one area may refer to a different species in another.  *Examples*: "Southeastern coastal New England from Buzzards Bay through Rhode Island" | GeoRegion of the ConceptApplication for this vernacular name concept |
| countryCode | The standard code for the country in which the vernacular name is used. Recommended best practice is to use the ISO 3166-1-alpha-2 country codes available as a vocabulary at http://rs.gbif.org/vocabulary/iso/3166-1\_alpha2.xml. For multiple countries separate values with a comma ","  *Examples*: "AR" for Argentina, "SV" for El Salvador. "AR,CR,SV" for Argentina, Costa Rica, and El Salvador combined. | ??  NameProperty of type Country for this vernacular name (BUT may not be the code – do we need another NamePropertyType for this or maybe another column to enter standardised values?) |
| sex | The sex (gender) of the taxon for which the vernacular name applies when the vernacular name is limited to a specific gender of a species. If not limited sex should be empty. For example the vernacular name "Buck" applies to the "Male" gender of the species, Odocoileus virginianus.  *Examples*: male | ConceptApplication .Gender |
| lifeStage | The age class or life stage of the species for which the vernacular name applies. Best practice is to utilise a controlled list of terms for this value.  *Examples*: juvenile" is the life stage of the fish Pomatomus saltatrix for which the name "snapper blue" refers. | ConceptApplication .LifeStage |
| isPlural | This value is true if the vernacular name it qualifies refers to a plural form of the name.  *Examples*: The term "Schoolies" is the plural form of a name used along the coastal Northeastern U.S. for groups of juvenile fish of the species, Morone saxatilis. | NONE? |
| isPreferredName | This term is true if the source citing the use of this vernacular name indicates the usage has some preference or specific standing over other possible vernacular names used for the species.  *Examples*: Some organisations have attempted to assign specific and unique vernacular names for particular taxon groups in a systematic attempt to bring order and consistency to the use of these names. For example, the American Ornithological Union assigns the name "Pearl Kite" for the taxon, Gampsonyx swainsonii. The value of isPreferredName for this record would be true. | NONE? Always TRUE? |
| organismPart | The part of the organism to which the vernacular name refers. Best practice is to utilise a controlled vocabulary for this term although it is likely that multiple controlled lists for different organism groups may be the best implementation for this term.  *Examples*: The spice "Mace", is derived from the "aril" of the plant Myristica fragrans while the spice "nutmeg" is derived from the "seed." "Seed" and "Aril" represent two different values for organismPart. | ConceptApplication .PartOfTaxon |
| taxonRemarks | A description of any context that qualify the specific usage of the vernacular name.  *Examples*: This name applies only when the fruit has been blessed by the tribal shaman | NONE? |

## Species Distribution

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| **DwC Field** | **Description** | **NZOR Field** |
| taxonID | NameID this distribution is for | NameID |
| locationID | A code for the named area this distribution record is about. See http://en.wikipedia.org/wiki/ISO\_3166-2 for state codes within a country, otherwise use a prefix for each code to indicate the source of the code  *Examples*: TDWG:AGS-TF; ISO3166:AR; WOEID:564721 | NONE? |
| locality | The verbatim name of the area this distribution record is about.  *Examples*: Patagonia | GeoRegion of the TaxonProperty |
| countryCode | ISO3166 alpha 2 (3 is permissible) country codes the area belongs to or as an alternative for a locationID if the area is a country. For multiple countries separate values with a comma ","  *Examples*: "AR" "US;CA;MX" | ?? same as for vernaculars  NameProperty of type Country for this vernacular name (BUT may not be the code – do we need another NamePropertyType for this or maybe another column to enter standardised values?) |
| lifeStage | The distribution information pertains solely to a specific life stage of the taxon.   *Examples*: adult | NONE |
| occurrenceStatus | Term describing the status of the organism in the given area based on how frequent the species occurs.  *Examples*: absent | TaxonProperty of type Occurrence |
| threatStatus | Threat status of a species as defined by IUCN: http://www.iucnredlist.org/static/categories\_criteria\_3\_1#categories  *Examples*: "EX" "EW" "CR" | NONE? |
| establishmentMeans | Term describing whether the organism occurs natively, is introduced or cultivated.  *Examples*: introduced | TaxonProperty of type Origin |
| appendixCITES | The CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) Appendix number the taxa is listed. It is possible to have different appendix numbers for different areas, but "global" as an area is also valid if its the same worldwide  See also <http://www.cites.org/eng/app/index.shtml>  Examples: II | NONE |
| eventDate | Relevant temporal context for this entire distribution record including all properties preferrably given as a year range or single year on which the distribution record is valid. For the same area and taxon there could therefore be several records with different temporal context, e.g. in 5 year intervalls for invasive species.  *Examples*: "1930"; "1939-1945" | NONE? |
| startDayOfYear | Seasonal temporal subcontext within the eventDate context. Useful for migratory species. The earliest ordinal day of the year on which the distribution record is valid. Numbering starts with 1 for January 1 and ends with 365 for December 31.  *Examples*: "90" | NONE |
| endDayOfYear | Seasonal temporal subcontext within the eventDate context. The latest ordinal day of the year on which the distribution record is valid  *Examples*: "120" | NONE |
| source | Source reference for this distribution record. Can be proper publication citation, a webpage URL, etc.  *Examples*: "Euro+Med Plantbase - the information resource for Euro-Mediterranean plant diversity (2006-). Published on the Internet http://ww2.bgbm.org/EuroPlusMed/ July, 2009" | Citation of Reference for this TaxonProperty |
| occurrenceRemarks | Comments or notes about the distribution  *Examples*: "Excluded because of misidentification" | NONE?  EnvironmentalContext Property? |