NSW GOVERNMENT

Department of Planning and Environment

BioNet Species Names Web Service data standard

BioNet Web Services Version 1.2

Cover photo: Swift parrot (*Lathamus discolor*). Mick Roderick courtesy of Mindaribba LALC/DPE.

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1. Introduction

The <u>BioNet Species Names Web Service</u> provides an open application programming interface (API) to enable IT developers to integrate the BioNet species taxonomy within software applications. The scope of its application as an open data initiative spans the full breadth of potential uses, from mobile apps to organisational decision-management business systems.

This document provides detailed information on the data available via the BioNet Species Names Web Service. It will enable potential users of the web service to evaluate whether the web service will meet their data needs.

To ensure that this version of the data standard applies to the web service, please check the <u>online data</u> and confirm that the version of this document (1.2) aligns with the value in 'bioNet:dataStandardVersion' for 'EntitySet Name=SpeciesNames' (see Figure 1).

```
<EntitySet Name="SpeciesNames"
EntityType="BioSvcApp.Models.vwCUBE_SpeciesTaxonomy"
bioNet:bioNetOpenAPIVersion="3.1.0.0" bioNet:dataStandardVersion="1.1"
bioNet:dateLastBulkUpdate="03/12/2017"/>
```

Figure 1   Example of metadata output

2. Overview of the web service and standard

The web service is an OASIS Open Data (OData) v4.0-based web service. OData provides a standardised RESTful protocol for querying and retrieving data and is already in use for the existing BioNet Web Services. The following links provide more background information about the protocol:

- Unlock your data with OData – a short high-level explanatory video
- What is the OData Protocol? – a short, more technical explanation of the protocol
- OASIS Open Data Protocol (OData) TC – the OASIS standard specification details
- OData – the OData community website.

OData makes data available via 'entity sets'. These can be thought of as tables of data, like a sheet within a spreadsheet. For the Species Names Web Service, one entity set (Figure 2) is available.

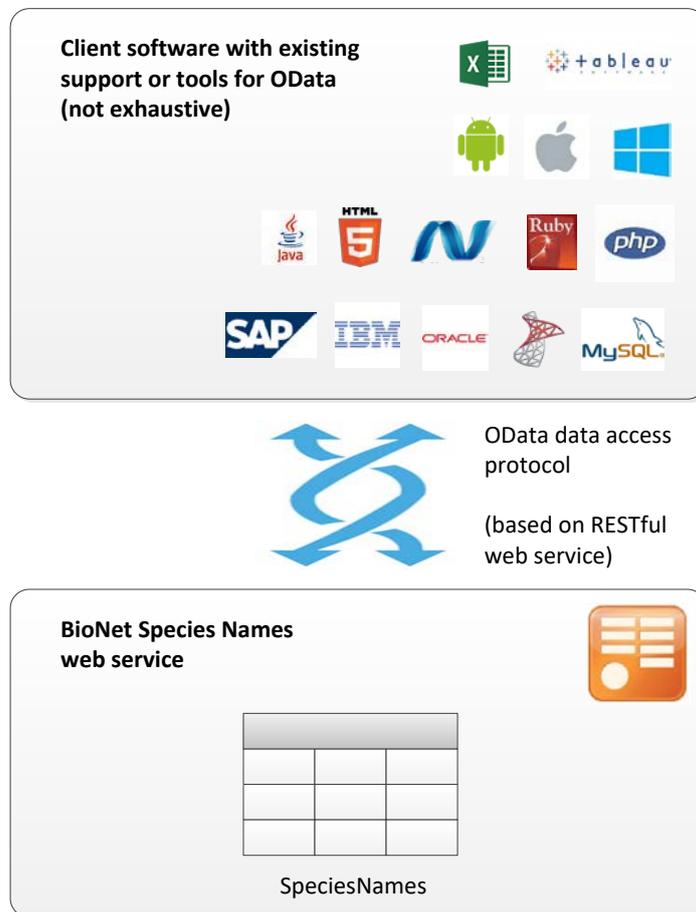**Figure 2   Conceptual overview of data exposure via the OData-based BioNet Species Names Web Service. RESTful, Representational State Transfer**

Figure 3 gives a high-level overview of the categories of data communicated in the entity set, with detailed descriptions of the data fields available within each category given in Section 3.
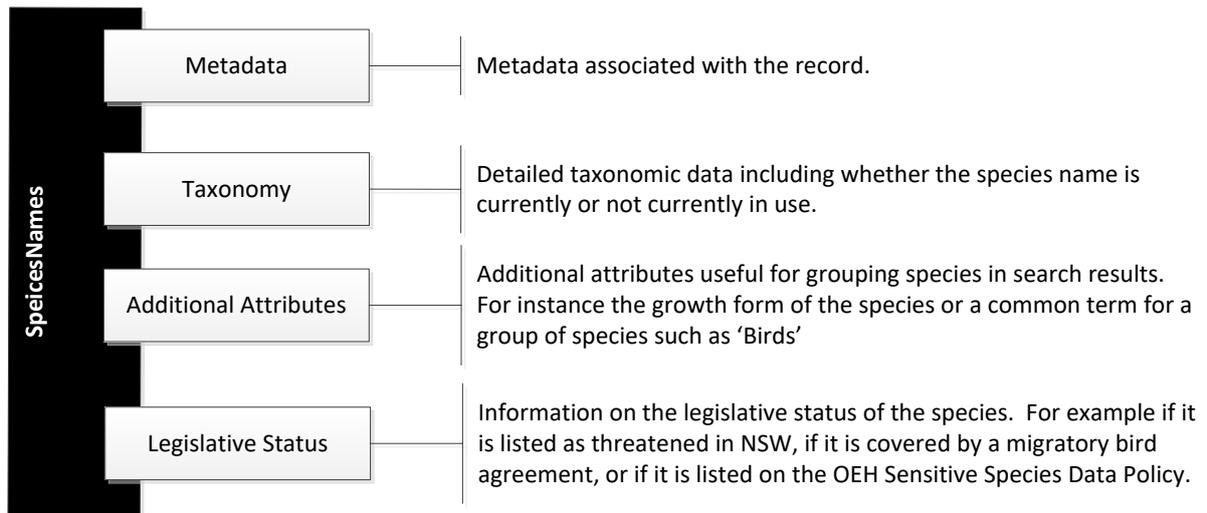
Figure 3   Overview of the categories of data shared via the SpeciesNames entity set

3. Specifications for the SpeciesNames entity set

Tables 1–4 provide the exact specifications of the data fields available in each category of SpeciesNames entity set available via the BioNet Species Names Web Service.

Table 1   Metadata data fields

Property name	Occurrence	Definition	Format	Example	Data type
dcterms_language	1	The language of the resource based on RFC 4646 [RFC4646].	Always: en	'en'	VARCHAR (50)
dcterms_modified	1	The most recent datetime on which the resource was changed based on ISO 8601:2004(E).	DD/MM/YYYY HH:MM AM/PM +HH:MM offset from UTC	'15/03/2011 4:42 PM +11:00'	DATETIME
dcterms_available	1	Date that the resource became or will become available.	DD/MM/YYYY HH:MM:SS AM/PM +HH:MM offset from UTC	'16/04/2010 4:02:29 PM +11:00'	DATETIME
dcterms_rights	1	Information about rights held in and over the resource. Typically, rights information includes a statement about various property rights associated with the resource, including intellectual property rights.	Always: CC-BY 4.0	'CC-BY 4.0'	VARCHAR (50)
dcterms_rightsHolder	1	A person or organisation owning or managing rights over the resource.	Always: NSW Department of Planning, Industry and Environment	'NSW Department of Planning, Industry and Environment'	VARCHAR (50)
dcterms_type	1	The nature or genre of the resource based on the Dublin Core recommended best practice controlled vocabulary (DCMI Type Vocabulary).	Always: service	'service'	VARCHAR (50)

Table 2   Taxonomy data fields

Property name	Occurrence	Definition	Format	Example	Data type
speciesID	1	The unique identifier within BioNet.	Integer	'32'	INT NOT NULL
taxonRank	1	The taxonomic rank of the most specific name in the scientific name.	Text	'Species'	VARCHAR (150) NOT NULL
kingdomID	1	The unique identifier within BioNet associated with the kingdom.	Integer	'138'	INT NOT NULL

Property name	Occurrence	Definition	Format	Example	Data type
kingdom	1	The full scientific name of the kingdom in which the taxon is classified.	1 item from the following controlled vocabulary: • Animalia • Plantae • Fungi	'Animalia'	VARCHAR (150) NOT NULL
classID	1	The unique identifier within BioNet associated with the class.	Integer	'35'	INT NOT NULL
class	1	The full scientific name of the class in which the taxon is classified.	Text	'Reptilia'	VARCHAR (150) NOT NULL
orderID	1	The unique identifier within BioNet associated with the order.	Integer	'129'	INT NOT NULL
order	1	The full scientific name of the order in which the taxon is classified.	Text	'Squamata'	VARCHAR (150) NOT NULL
familyID	1	The unique identifier within BioNet associated with the family.	Integer	'16'	INT NOT NULL
family	1	The full scientific name of the family in which the taxon is classified.	Text	'Elapidae'	VARCHAR (30) NOT NULL
sortOrder	1	An integer used to sort species in a sensible taxonomic order.	Integer	'1371'	INT NOT NULL
genusID	1	The unique identifier within BioNet associated with the genus.	Integer	'356'	INT
Genus	1	The full scientific name of the genus in which the taxon is classified.	Text	'Demansia'	VARCHAR (40)
parentSpeciesID	1	The identifier that links varieties and subspecies with their parent species.	Integer. **Note: Where the parentSpeciesID does not match the scientificNameID for a given record then:** • **to retrieve details of the parent species, create a new query filtering by scientificNameID where the value for scientificNameID equals the value found in**	'19519'	INT

Property name	Occurrence	Definition	Format	Example	Data type
			parentSpeciesID of the original record • **to see all related species, create a new query filtering by parentSpeciesID using the code found in parentSpeciesID of the original record.**		
specificEpithet	1	The name of the first or species epithet of the scientificName.	Text	'rimicola'	VARCHAR (100)
infraspecificEpithet	0-1	The name of the lowest or terminal infraspecific epithet of the scientificName, excluding any rank designation.	Text	'null'	VARCHAR (100)
scientificNameAuthorship	1	The authorship information for the scientificName formatted according to the conventions of the applicable nomenclaturalCode.	Text	'Scanlon, 2007'	VARCHAR (100)
scientificNameID	1	The unique identifier within BioNet associated with the scientificName.	Integer	'32'	INT NOT NULL
speciesCode_Synonym	1	Unique alphanumeric code within a kingdom for the scientific name.	Alphanumeric code as follows: • for flora and fungi, the unique code managed by DPIE • for fauna the Census of Australian Vertebrate Species (CAVS) codes.	'2658'	VARCHAR (10) NOT NULL
scientificName	1	The full scientific name. When forming part of an identification, this should be the name in the lowest level taxonomic rank that can be determined.	Text	'Demansia torquata'	VARCHAR (500) NOT NULL
scientificNameHTML	1	The full scientific name including html tags for use by html applications to correctly format the scientific name.	Text	' Demansia torquata'	VARCHAR (500) NOT NULL
vernacularName	1	The recognised common or vernacular name.	Text	'Collared Whip Snake'	VARCHAR (100)
otherVernacularNames	0-n	This gives a list of other common names in addition to the recognised common or vernacular name	List of common names separated by commas	'Collared Whipsnake, Collared Whip Snake'	VARCHAR (500)
taxonID	1	The unique identifier within BioNet associated with the currentScientificName.	Integer	'19519'	INT NOT NULL

Property name	Occurrence	Definition	Format	Example	Data type
currentScientificNameCode	1	The current scientific name code is a unique code within BioNet associated with the currentScientificName.	Alphanumeric. **Notes: When current the value in this field is equal to the value given in the speciesCode field. This field will not be unique across rows. By filtering on this code, you can generate a list of species names previously applied to this.**	'5139'	VARCHAR (10) NOT NULL
currentScientificName	1	The current scientific name.	Text	'Demansia rimicola'	VARCHAR (500) NOT NULL
currentVernacularName	1	The current vernacular name.	Text	'a whip snake'	VARCHAR (80)
isCurrent	1	Indicates if the name is the current name for the taxon.	True/false	'false'	VARCHAR (10)

Table 3   Additional Attributes data fields

Property name	Occurrence	Definition	Format	Example	Data type
generalTypeID	1	The unique identifier within BioNet associated with the generalType.	Integer	'182'	INT
generalType	1	Grouping of species using vernacular terms to enable software developers to filter records based on communities of interest.	Controlled vocabulary – see Appendix 1.3	'Reptiles'	VARCHAR (150)
establishmentMeans	1	The process by which the biological individual(s) represented in the Occurrence became established at the location.	One item from the following controlled vocabulary: • Alive in NSW, Native • Extinct in NSW, Native • Introduced • Not Known from NSW • Hybrid	'Alive in NSW, Native'	VARCHAR (150)
primaryGrowthForm	1	The primary growth form of the species.	One item from the following controlled vocabulary: • Chenopod • Cycad • Epiphyte • Fern and fern allies	'Heath shrub'	VARCHAR (150)

Property name	Occurrence	Definition	Format	Example	Data type
			• Forb • Heath shrub • Hummock Grass • Mallee shrub • Mallee tree • Other Grass • Palm & palmlike • Rush • Sedge • Tree • Tree fern • Tussock Grass • Vine • Shrub • Xanthorrhoea **Note: this field does not apply to animals or fungi.**		
primaryGrowthFormGroup	1	The growth form group corresponding to the primary growth form.	One item from the following controlled vocabulary: • Fern (EG) • Forb (FG) • Grass and Grass-like (GG) • Other (OG) • Shrub (SG) • Tree (TG) **Note: this field does not apply to animals or fungi.**	'Shrub (SG)'	VARCHAR (150)
secondaryGrowthForms	0-n	The secondary growth form(s) of the species.	One or more item from the following controlled vocabulary: • Chenopod • Cycad • Epiphyte • Fern and fern allies • Forb • Heath shrub • Hummock Grass • Mallee shrub	'Shrub; Tree'	VARCHAR (max)

Property name	Occurrence	Definition	Format	Example	Data type
			• Mallee tree • Other Grass • Palm & palmlike • Rush • Sedge • Tree • Tree fern • Tussock Grass • Vine • Shrub • Xanthorrhoea **Notes:** **Where more than one item is given it is separated by a semi-colon.** **This field does not apply to animals or fungi.**		
secondaryGrowthFormGroups	0-n	The secondary growth form group(s) corresponding to the secondary growth form.	One or more item from the following controlled vocabulary: • Fern (EG) • Forb (FG) • Grass and Grass-like (GG) • Other (OG) • Shrub (SG) • Tree (TG) **Notes:** **Where more than one item is given it is separated by a semi-colon and the order of the items corresponds the with order of growth forms given in the secondaryGrowthForm field.** **This field does not apply to animals or fungi.**	'Shrub (SG); Tree (TG)'	VARCHAR (max)

Table 4   Legislative Status data fields

Property name	Occurrence	Definition	Form	Example	Data type
stateConservation	1	The Legal Status of the species within NSW under the *Biodiversity Conservation Act 2016* or the Fisheries Management Act 1994 No. 38 (FM Act 1994).	Controlled Vocabulary – see Appendix 1.1	'Vulnerable'	VARCHAR (150)
protectedInNSW	1	The Legal Status of the species within NSW under the *Biodiversity Conservation Act 2016.*	True/false	'true'	VARCHAR (10)
sensitivityClass	1	The category of the species in accordance with the DPIE Sensitive Species Data Policy (SSDP).	1 item from the following controlled vocabulary: • Category 1 • Category 2 • Category 3 • Not Sensitive	'Not Sensitive'	VARCHAR (100)
TSProfileID	1	The unique identifier for the related threatened species profile as stored in the Threatened Species Profile Database maintained by the Department of Planning, Industry and Environment. Otherwise this field gives the value 'N/A'.	Integer or N/A	'10212'	INT
countryConservation	1	The Legal Status of the species under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act).	Controlled Vocabulary – see Appendix 1.2	'Not Listed'	VARCHAR (150)
highThreatWeed	0-1	High threat weed cover is plant cover composed of vascular non-native plants that, if not controlled, will invade and outcompete native plant species. Also referred to as high threat weeds (HTW) or high threat exotic vegetation. HTW '– manageable' are a subset of high threat weeds for which sufficient evidence demonstrates their abundance and impact can be effectively controlled with well-planned and implemented management actions. HTW '– not manageable' are a subset of high threat weeds for which evidence is not available to demonstrate their abundance and impact can be effectively controlled with appropriate management actions.	1 item from the following controlled vocabulary: • High Threat Weed - manageable • High Threat Weed – not manageable • blank	'High Threat Weed – manageable'	VARCHAR (150)
widelyCultivatedNativeSpecies	0-1	A variety of a native species developed in cultivation, usually for the purposes of agriculture, forestry or horticulture, and which, when reproduced retains its distinguishing features, and any native species listed on the high threat weeds list published in the BAM-C.	1 item from the following controlled vocabulary: • Widely Cultivated Native Species • blank	'Widely Cultivated Native Species'	VARCHAR (150)

CAMBA	1	Indicates if the species is listed in the Bilateral China-Australia Migratory Bird Agreement (CAMBA) between the Government of Australia and the Government of the People's Republic of China for the protection of Migratory Birds and their Environment (Part 5, Commonwealth EPBC Act 1999).	True/false	'false'	VARCHAR (10)
JAMBA	1	Indicates if the species is listed in the Bilateral Japan-Australia Migratory Bird Agreement (JAMBA) between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment (Part 5, Commonwealth EPBC Act 1999).	True/false	'false'	VARCHAR (10)
ROKAMBA	1	Indicates if the species is listed in the Bilateral Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA) between the Government of Australia and the Government of the Republic of Korea for the protection of Migratory Birds and their Environment (Part 5, Commonwealth EPBC Act 1999).	True/false	'false'	VARCHAR (10)

Appendix 1 Lists of controlled vocabularies

A1.1 stateConservation

- Critical Habitat
- Critically Endangered
- Critically Endangered Ecological Community
- Critically Endangered Fish
- Endangered
- Endangered Fish
- Endangered Ecological Community
- Endangered Ecological Community of Fish
- Endangered Population
- Endangered Population of Fish
- Extinct Fish
- Key Threatening Process
- Key Threatening Process of Fish
- Not Listed
- Protected Fish
- Species presumed Extinct
- Vulnerable
- Vulnerable Fish
- Vulnerable Ecological Community

A1.2 countryConservation

- Conservation Dependent
- Critically Endangered
- Endangered
- Extinct
- Extinct in the Wild
- Key Threatening Process
- Not Listed
- Vulnerable

A1.3 generalType

- Algae, Mosses and Lichens
- Amphibians
- Aquatic Invertebrates
- Aquatic Plants
- Bats
- Birds

- Epiphytes and climbers
- Ferns and Cycads
- Fish
- Fungi
- Herbs and Forbs
- Invertebrates
- Mallees
- Marine Mammals
- Marsupials
- Orchids
- Reptiles
- Rodents
- Shrubs
- Trees
- Threatened Ecological Communities