



Department of Planning and Environment

BioNet Threatened Biodiversity Web Service data standard

BioNet Web Services Version 1.2



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1.Introduction

The BioNet Threatened Biodiversity Web Service provides an open application programming interface (API) to enable IT developers to integrate profile data on threatened species, populations, ecological communities and key threatening processes held in the BioNet Threatened Biodiversity Data Collection with 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.

The web service does not replace the existing BioNet Atlas or Threatened Biodiversity Profiles User Interfaces, as the web service is intended for use by software applications, not as a user interface.

This document provides detailed information on the data available via the BioNet Threatened Biodiversity 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 online metadata and confirm that the version of this document (1.2) aligns with the value in '*bioNet:dataStandardVersion*' for '*EntitySet Name=ThreatenedBiodiversity_Species*' (see Figure 1).

```
-<EntitySet Name="ThreatenedBiodiversity_Species"  
  EntityType="BioSvcApp.Models.vwCUBE_ThreatenedEntities_Species"  
  bioNet:bioNetOpenAPIVersion="3.1.0.0" bioNet:dataStandardVersion="1.1"  
  bioNet:dateLastBulkUpdate="03/12/2017">  
  <NavigationPropertyBinding Path="ThreatenedBiodiversity_TSGeographicData"  
    Target="ThreatenedBiodiversity_TSGeographicData"/>  
</EntitySet>
```

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 used for the BioNet Species Sightings Web Service. The following resources provide more background about the OData 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 best way to REST](#) – the OData community website.

OData makes data available via entity sets. For the Threatened Biodiversity Web Service, seven entity sets are available, which are linked by profileID (Figure 2).

BioNet Threatened Biodiversity Web Service data standard 1.2

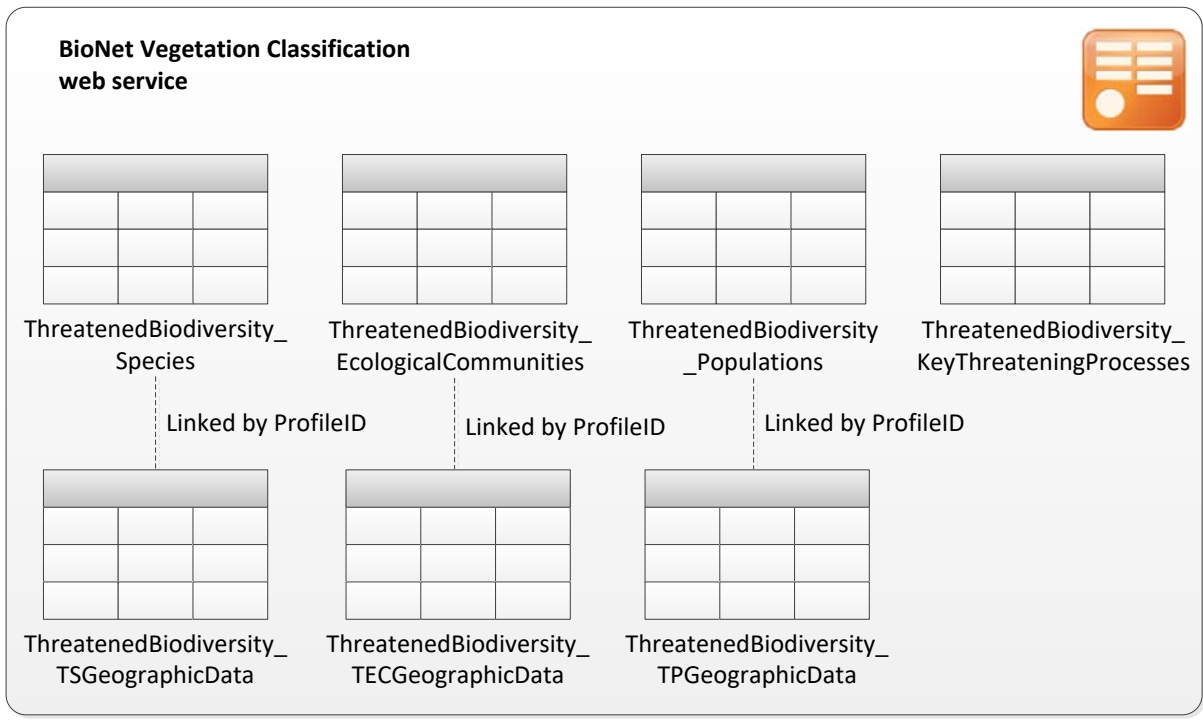


Figure 2 Conceptual overview of data exposure via the OData-based BioNet Threatened Biodiversity Web Service. RESTful, Representational State Transfer

Figures 3–9 give a high-level overview of the categories of data communicated in each of the entity sets, with detailed descriptions of the data fields available within each category given in the tables in Sections 3–9.

BioNet Threatened Biodiversity Web Service data standard 1.2

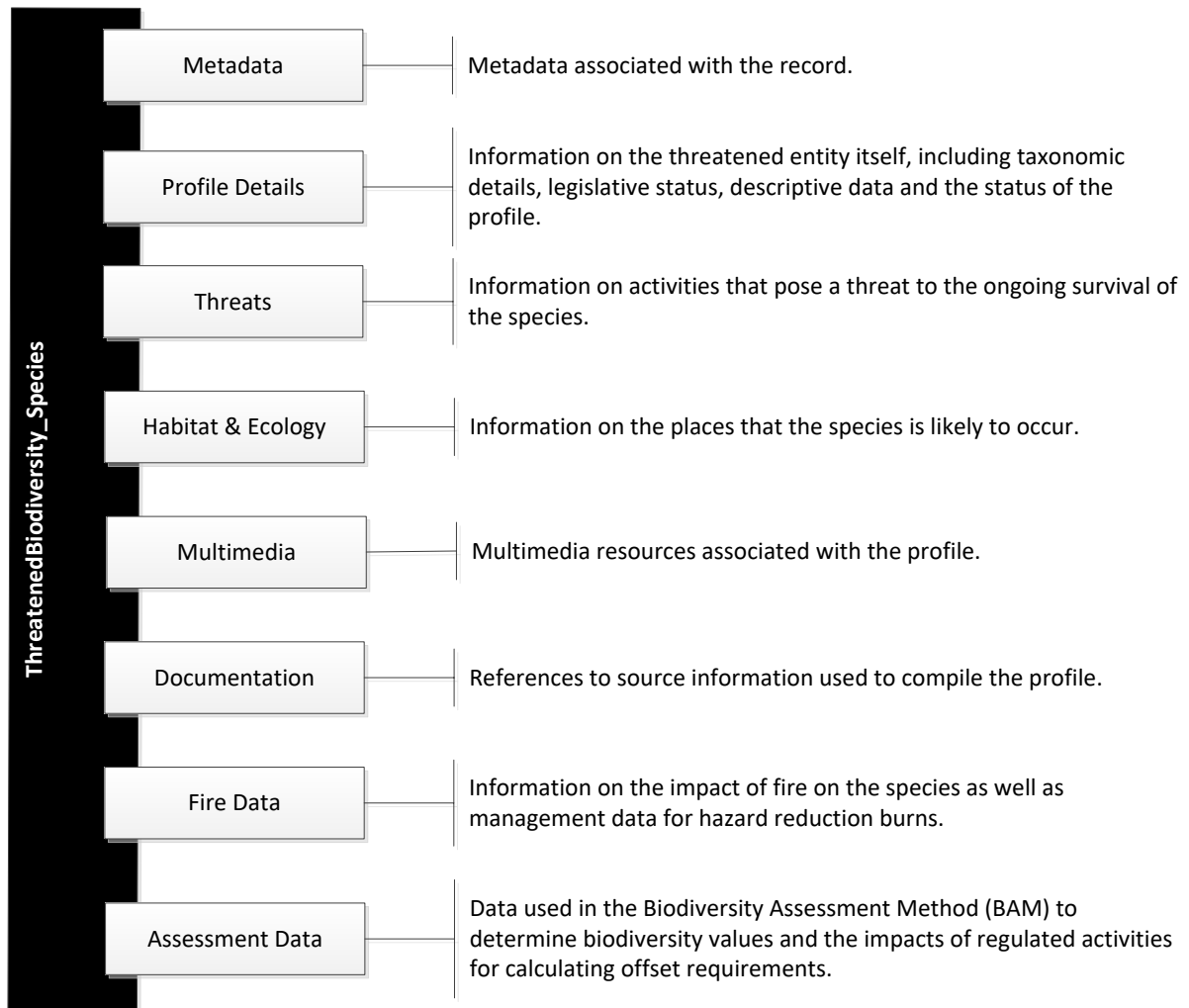


Figure 3 Overview of the categories of data shared via the ThreatenedBiodiversity_Species entity set

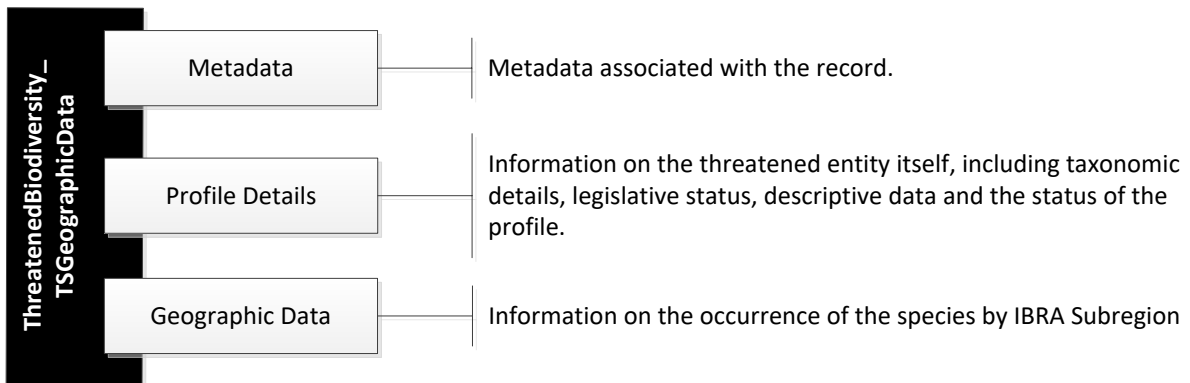


Figure 4 Overview of the categories of data shared via the ThreatenedBiodiversity_TSGeographicData entity set



Figure 5 Overview of the categories of data shared via the ThreatenedBiodiversity_EcologicalCommunities entity set

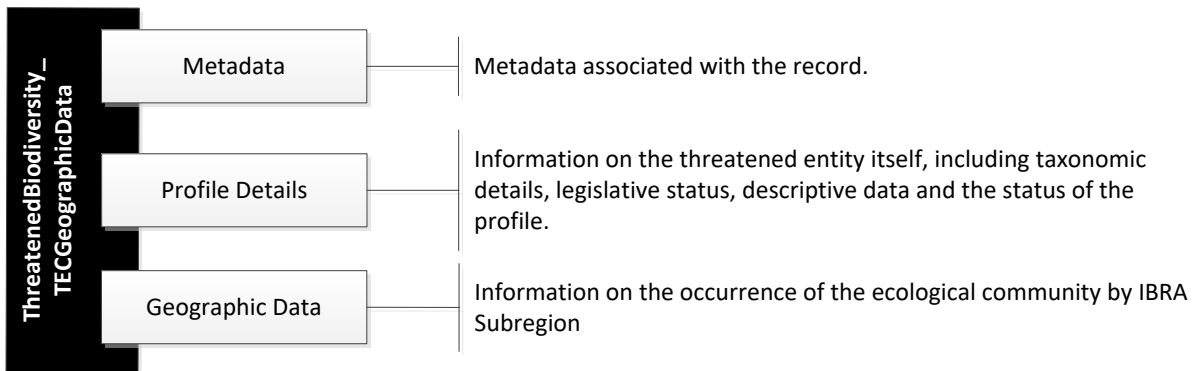


Figure 6 Overview of the categories of data shared via the ThreatenedBiodiversity_TEC GeographicData entity set

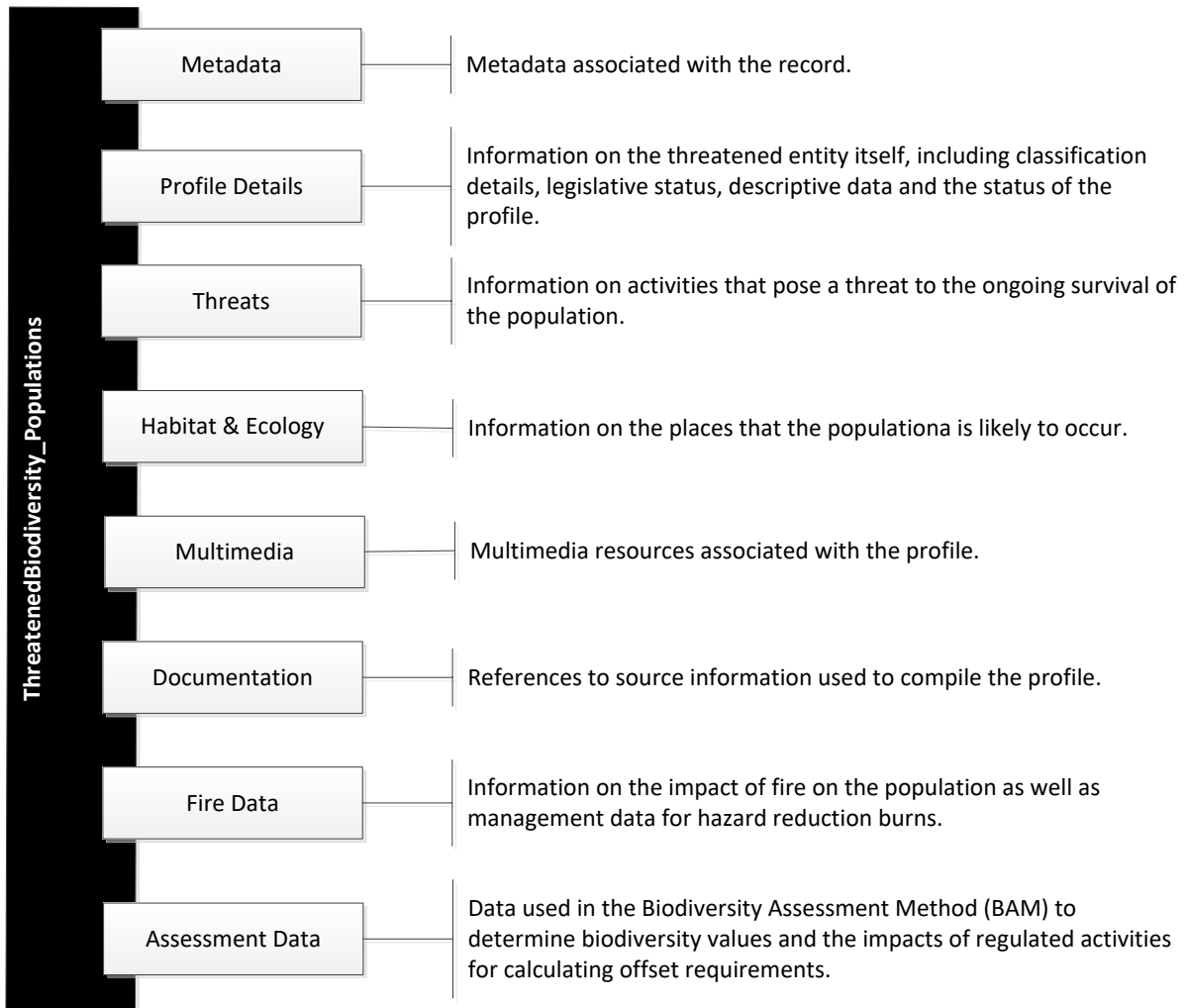


Figure 7 Overview of the categories of data shared via the ThreatenedBiodiversity_Populations entity set

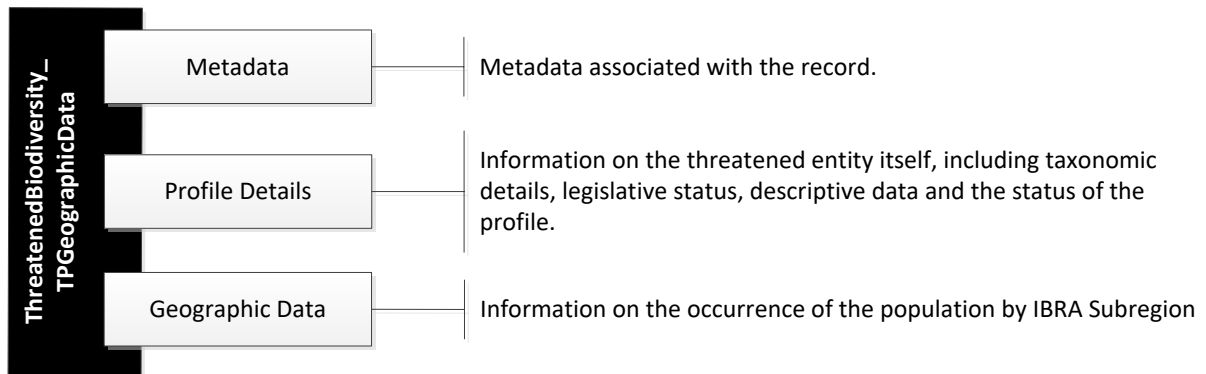


Figure 8 Overview of the categories of data shared via the ThreatenedBiodiversity_TP GeographicData entity set

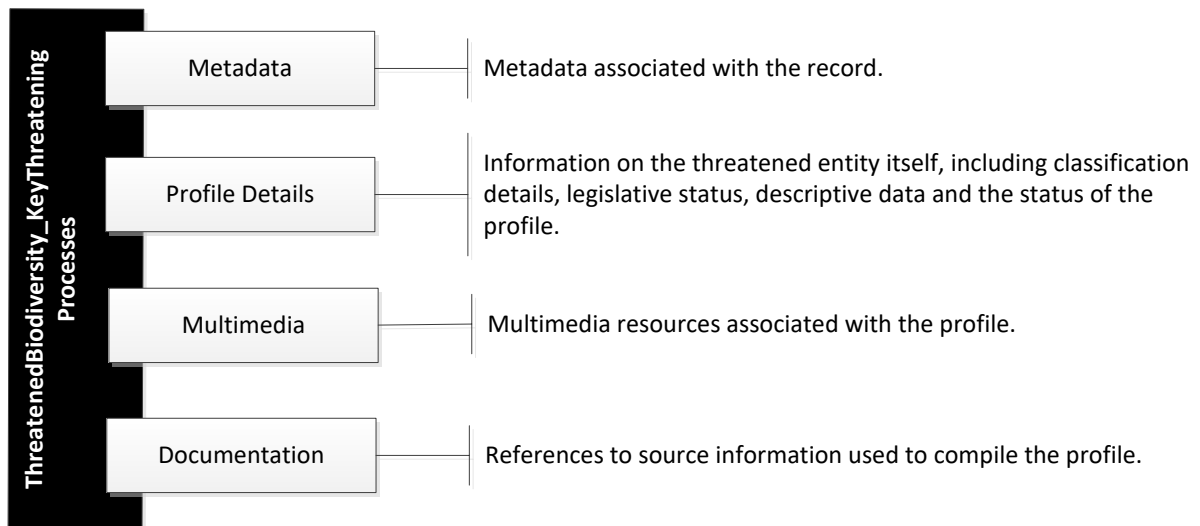


Figure 9 Overview of the categories of data shared via the ThreatenedBiodiversity_Key ThreateningProcesses entity set

3. Specifications for the ThreatenedBiodiversity_Species entity set

Tables 1–8 provide the exact specifications of the data fields available in each category of ThreatenedBiodiversity_Species entity set available via the BioNet Threatened Biodiversity Web Service.

Table 1 Metadata data fields

Property name	Occurrence	Definition	Format	Data type
institutionCode	1	The name (or acronym) in use by the institution having custody of the object(s) or information referred to in the record.	Always: NSW Dept of Planning, Industry and Environment	VARCHAR (50)
collectionCode	1	The name, acronym, coden or initialism identifying the collection or dataset from which the record was derived.	Always: BioNet Threatened Biodiversity	VARCHAR (50)
datasetName	1	The name identifying the dataset from which the record was derived.	Always: NSW Threatened Species	VARCHAR (50)
dcterms_rightsHolder	1	A person or organisation owning or managing rights over the resource.	Always: NSW Dept of Planning, Industry and Environment	VARCHAR (50)
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	VARCHAR (50)
dcterms_language	1	The language of the resource based on RFC 4646 [RFC4646].	Always: en	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: dataset	VARCHAR (50)
dcterms_bibliographicCitation	1	A bibliographic reference for the resource as a statement indicating how this record should be cited (attributed) when used. Note: the date and time are AEST adjusted for daylight saving and reflect the date and time that the web service data was last refreshed from the source data (AtlasDB).	BioNet Threatened Species DD/MM/YYYY HH:MM AM/PM +HH:MM offset from UTC	VARCHAR (100)
dcterms_modified	1	The most recent datetime on which resource was the changed based on ISO 8601:2004(E).	DD/MM/YYYY HH:MM:SS AM/PM +HH:MM offset from UTC	DATETIME

Property name	Occurrence	Definition	Format	Data type
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	DATETIME

Table 2 Profile Details data fields

Property name	Occurrence	Definition	Format	Data type
profileID	1	The unique identifier for the threatened species profile as stored in the Threatened Biodiversity Data Collection.	Integer	INT NOT NULL
scientificName	1	The full scientific name of the species.	<genus> <specific epithet> <connecting term> <infraspecific epithet> where the connecting term can be one of the following: <ul style="list-style-type: none"> • subsp. = subspecies • var. = variety 	VARCHAR (500)
vernacularName	0-1	The common name or vernacular name of the species (if any).	Text	VARCHAR (500)
displayNameHTML	1	The name of the species including HTML tags for rendering in HTML applications.	Text with HTML tags	VARCHAR (500)
stateConservation	1-n	The Legal Status of the species within NSW under the <i>Biodiversity Conservation Act 2016</i> (BC Act 2016) or the <i>Fisheries Management Act 1994</i> No. 38 (FM Act 1994).	Controlled Vocabulary – see Appendix 1.1	VARCHAR (150)
countryConservation	1	The Legal Status of the species under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).	Controlled Vocabulary – see Appendix 1.2	VARCHAR (150)
kingdom	1	The full scientific name of the kingdom in which the taxon is classified.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Animalia • Plantae • Fungi 	VARCHAR (150)
family	1	The full scientific name of the family in which the taxon is classified.	Text	VARCHAR (30)

Property name	Occurrence	Definition	Format	Data type
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	VARCHAR (150)
dateOfFinalGazettal	1	The date of final gazettal.	DD/MM/YYYY	VARCHAR (20)
description	0-1	Description of the species.	Text with HTML tags	VARCHAR (max)
distribution	0-1	Description of where the species occurs.	Text with HTML tags	VARCHAR (max)
profileStatus	1	Indicates if all the attributes for the entity has been evaluated and populated in the system.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Complete • Incomplete 	VARCHAR (150)

Table 3 Threats data fields

Property name	Occurrence	Definition	Format	Data type
threats	1-n	Describes the kind of activities which would harm the sustenance of the species.	<Threat Category 1>;<Threat Category 2>;<Threat> <Threat Category 1>;<Threat Category 2>;<Threat>	VARCHAR (max)

Table 4 Habitat and Ecology data fields

Property name	Occurrence	Definition	Format	Data type
habitatAndEcology	1-n	Describes the places where the species is likely to occur or grow and the ecological environment surrounding these places.	<habitat>;<order> <habitat>;<order> Where any given element is text with HTML tags	VARCHAR (max)

Table 5 Multimedia data fields

Property Name	Occurrence	Definition	Format	Data type
associatedMedia	0-n	The unique identifier for multimedia resources (such as photos and sounds) associated with the profile listed in order of display. The actual resource can be retrieved via the BioNet Multimedia web service.	<identifier>;<identifier>	VARCHAR (500)

Table 6 Documentation

Property name	Occurrence	Definition	Format	Data type
fullReference	0-n	Documentation associated with the profile.	<document key>;<title>;<authors>;<year>;<URI> <document key>;<title>;<authors>;<year>;<URI> Where any given element is text with HTML tags	VARCHAR (max)

Table 7 Fire Data fields

Property name	Occurrence	Definition	Format	Data type
mechanicalHRDescription	1	Information on any restrictions on the use of Mechanical Hazard Reduction Techniques within 100 metres of the Occurrence record. Otherwise this field gives the value 'N/A'.	Free text	VARCHAR (200)
potentialImpact	1	A categorisation of the information recorded in speciesFireDescription into one of three broad categories related to the use of fire as Hazard Reduction techniques.	Controlled vocabulary – see Appendix 1.8. Otherwise this field gives the value 'N/A'.	VARCHAR (150)
speciesFireDescription	1	Information on any restrictions on the use of Controlled Burning as a Hazard Reduction Technique within 100 metres of the Occurrence record. Otherwise this field gives the value 'N/A'.	Free text	VARCHAR (200)
fireCodeStatus	1	Indicates if the species is included on the Fire code.	Controlled vocabulary – see Appendix 1.9. Otherwise this field gives the value 'N/A.'	VARCHAR (150)

reasonForExclusion	0-1	Optional comments on why the species was not included on the fire code.	Free text	VARCHAR (200)
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Table 8 Assessment Data fields

Property name	Occurrence	Definition	Format	Data type
classOfCredit	1	Biodiversity credits are the currency used to assess biodiversity loss and gain in the Biodiversity Assessment Method. Credit class indicates whether the species is assessed for ecosystem credits or species credits. Some species have been split, with species credits applying to some components of their habitat requirements and ecosystem credits applying to the remaining components. For example, cave roosting bats may have species credits applying to breeding habitat and ecosystem credits applying to foraging and shelter habitat. Note: Where classOfCredit does not apply, null is given	Controlled vocabulary – see Appendix 1.4	VARCHAR (max)
patchSize	1	The minimum area of vegetated habitat that a species would be expected to occupy or periodically use. Note this applies only to fauna.	Controlled Vocabulary – see Appendix 1.5	VARCHAR (max)
nativeVegetationCover	1	The proportion of native vegetation a species requires in the landscape to occupy or periodically use a site. Note: this field only applies to fauna, N/A is given for flora and fungi	Controlled vocabulary – see Appendix 1.6	VARCHAR (150)
associatedPCTs	1-n	List of PCTIDs associated with the species.	List of PCTIDs separated by semi-colon	VARCHAR (max)
habitatConstraints	1-n	A habitat constraint is an element of habitat that must be present on a site for the species to occupy or periodically use the site. For example, species dependent on rocky areas will not occupy or use sites without rocks. Additional details on the habitat constraint may be provided in the comments. For example, a habitat constraint of 'rocky areas' might be further qualified with a comment 'within 200m of a gibber'. Note: where habitat constraints have been split between foraging and breeding, they are given separately in the	<constraint>;<comment> <constraint>;<comment> where <ul style="list-style-type: none"> constraint is a controlled vocabulary as per Appendix 1.7 comment is free text 	VARCHAR (max)

Property name	Occurrence	Definition	Format	Data type
		habitatConstraintsForaging and habitatConstraintsBreeding fields. In this case a value of N/A is given here.		
habitatConstraintsForaging	1-n	<p>A habitat constraint (foraging) is an element of habitat that must be present on a site for the species to occupy or periodically use the site. For example, species dependent on rocky areas will not occupy or use sites without rocks. Additional details on the habitat constraint may be provided in the comments. For example, a habitat constraint of 'rocky areas' might be further qualified with a comment 'within 200m of gibber'.</p> <p>Note: where habitat constraints have not been split between foraging and breeding, they are given in the habitatConstraints field. In this case a value of N/A is given here.</p>	<p><constraint>;<comment> <constraint>;<comment> where</p> <ul style="list-style-type: none"> constraint is a controlled vocabulary as per Appendix 1.7 comment is free text 	VARCHAR (max)
habitatConstraintsBreeding	1-n	<p>A habitat constraint (breeding) is an element of habitat that must be present on a site for the species to breed on the site. For example, hollow breeding species will not breed on sites where tree hollow area absent. Additional details on the habitat constraint may be provided in the comments. For example, a habitat constraint of 'tree hollow' might be further qualified with a comment 'living or dead trees with hollows greater than 20cm in diameter and four metres above ground'.</p> <p>Note: where habitat constraints have not been split between foraging and breeding, they are given in the habitatConstraints field. In this case a value of N/A is given here.</p>	<p><constraint>;<comment> <constraint>;<comment> where</p> <ul style="list-style-type: none"> constraint is a controlled vocabulary as per Appendix 1.7 comment is free text 	VARCHAR (max)
monthsOfSurvey	1-12	<p>Indicates the optimum months to detect a species using survey.</p> <p>Note: where the survey months have been split between foraging and breeding, they are given in the monthsOfSurveyForaging and monthsOfSurveyBreeding fields. In this case a value of N/A is given here.</p>	List of months separated by semi-colon	VARCHAR (max)
monthsOfSurveyForaging	1-12	Indicates the optimum months to detect foraging individuals using survey.	List of months separated by semi-colon	VARCHAR (max)

Property name	Occurrence	Definition	Format	Data type
		Note: where the survey months have not been split between foraging and breeding, they are given in the monthsOfSurvey field. In this case a value of N/A is given here.		
monthsOfSurveyBreeding	1-12	Indicates the optimum months to detect breeding individuals using survey. Note: where the survey months have not been split between foraging and breeding, they are given in the monthsOfSurvey field. In this case a value of N/A is given here.	List of months separated by semi-colon	VARCHAR (max)
surveyComments	0-1	Specific information to assist in the survey for a species, to describe survey effort required or to define the appropriate method for developing a species polygon.	Free text	VARCHAR (max)
occupyPaddockTrees	1	Indicates if paddock trees are important habitat (e.g. breeding habitat, connectivity) for the species. Note: Most flora will score 'false' for this field. However, this field can be true where paddock trees are important habitat for some epiphytes, or if the species itself can be a paddock tree.	True or False	VARCHAR (max)
occupyPaddockTreesComment	0-1	Additional comments to describe the types of, or situations when the paddock trees might be used by the species.	Free text	VARCHAR (max)
geographicDistribution	1	Identifies the number of known locations of the species in NSW. If present, it is used to determine sensitivity to loss. This field is only populated when: <ol style="list-style-type: none"> the number of locations will result in a higher sensitive to loss category than provided by the current listing status It is supported by quantitative data 	Controlled Vocabulary – see Appendix 1.10	VARCHAR (150)
populationSize	1	Identifies number of individuals (taken as the total number of known mature individuals) in NSW. If present, it is used to determine the sensitivity to loss. The field is only populated when: <ol style="list-style-type: none"> the number of individuals will result in a higher sensitivity to loss category than provided by the current listing status 	Controlled Vocabulary – see Appendix 1.11	VARCHAR (max)

Property name	Occurrence	Definition	Format	Data type
		2. it is supported by quantitative data.		
rateOfDecline	1	Identifies the rate of decline of the species within NSW. If present it is used to determine the sensitivity to loss. The field is only populated when: <ol style="list-style-type: none"> the rate of decline will result in a higher sensitivity to loss category than provided by the current listing status it is supported by quantitative data. 	Controlled Vocabulary – see Appendix 1.12	VARCHAR (150)
ecologyIsPoorlyKnown	1	Whether the species life history and/or ecology is poorly known and thus renders it difficult to determine effective management actions and/or anticipate the likely response of the species to management applied at an offset site. Species that meet this criterion will generally be those for which there is little to no published literature and any conservation actions would be targeted towards research rather than management. Examples include the Green-thighed Frog.	True or False	VARCHAR (150)
effectivenessOfManagement	1	The ability to control the most difficult to control threat on a stewardship site (i.e. based on the ability of management actions to overcome this threat).	Controlled Vocabulary – see Appendix 1.13	VARCHAR (150)
effectivenessOfManagementComments	0-1	A brief description of the key threat driving the selection of the value for the effectivenessOfManagement field. Comments should be provided where 'Threats beyond control' or 'Limited ability to control threats' have been selected.	Free text	VARCHAR (500)
speciesDependOnHabitatAttribute	1	Indicates if a critical component of the species life-cycle is dependent on a feature/s that takes considerable time to respond to management actions at a stewardship site. Non-responding attributes are those that cannot be improved or increased at a stewardship site (e.g. caves). <p>Notes:</p> <ul style="list-style-type: none"> This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given. Where the habitat dependency data have been split between foraging and breeding, they are given in the speciesDependOnHabitatAttributeBreeding and 	Controlled Vocabulary – see Appendix 1.14	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
speciesDependOnHabitatAttributeForaging fields. In this case a value of N/A is given here.				
speciesDependOnHabitatAttributeComment	0-1	A brief description of the habitat feature driving the value selected for speciesDependOnHabitatAttribute.	Free text	VARCHAR (500)
speciesDependOnHabitatAttributeBreeding	1	Indicates if a critical component of the species breeding-cycle is dependent on a feature/s that takes considerable time to respond to management actions at a stewardship site. Non-responding attributes are those that cannot be improved or increased at a stewardship site (e.g. caves). Notes: <ul style="list-style-type: none">• This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given.• Where the habitat dependency data have been split between foraging and breeding, they are given in the speciesDependOnHabitatAttributeBreeding and speciesDependOnHabitatAttributeForaging fields. In this case a value of N/A is given here.	Controlled Vocabulary – see Appendix 1.14	VARCHAR (150)
speciesDependOnHabitatAttributeBreedingComments	0-1	A brief description of the habitat feature driving the value selected for speciesDependOnHabitatAttributeBreeding.	Free text	VARCHAR (500)
speciesDependOnHabitatAttributeForaging	1	Indicates if a critical component of the species foraging habitat is dependent on a feature/s that takes considerable time to respond to management actions at a stewardship site. Non-responding attributes are those that cannot be improved or increased at a stewardship site (e.g. caves). Notes: <ul style="list-style-type: none">• This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given.• Where the habitat dependency data have been split between foraging and breeding, they are given in the speciesDependOnHabitatAttributeBreeding and speciesDependOnHabitatAttributeForaging fields. In this case a value of N/A is given here.	Controlled Vocabulary – see Appendix 1.14	VARCHAR (150)
speciesDependOnHabitatAttributeForagingComments	0-1	A brief description of the habitat feature driving the value selected for speciesDependOnHabitatAttributeForaging.	Free text	VARCHAR (500)

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Property name	Occurrence	Definition	Format	Data type
dependOnNonRespondingAttributes	1	The species depends on highly specific habitat requirements that cannot be recreated (e.g. symbiotic relationships required by some plant species to persist).	True or False	VARCHAR (150)
colonisationAbility	1	An evaluation of the dispersal ability of a species (taken as passive or active movement, usually one way, from the point of origin, to another location where the individual will reproduce) with a view to estimating its ability to recolonise stewardship sites in landscapes likely to have been subject to clearing.	Categories differ between fauna and flora. For fauna the following controlled vocabulary is used: <ul style="list-style-type: none"> Disperse < 100m and/or specific dispersal corridor or vector requirements Disperse between 100m and 10km Disperse > 10km For flora the following controlled vocabulary is used: <ul style="list-style-type: none"> Disperse near the adult plant Disperse beyond the adult plant but within the population Wide dispersal – outside the population 	VARCHAR (150)
ageFemalesFirstProduce	1	The average age at which females are first able to produce offspring. Note: This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given.	Controlled Vocabulary – see Appendix 1.16	VARCHAR (150)
averageNumberOfOffspring	1	The average number of offspring produced annually per adult female. Note: This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given.	Controlled Vocabulary – see Appendix 1.16	VARCHAR (150)
reproductiveStrategy	1	The recruitment strategy used by the species. Note: This field does not apply to Fauna; where the species is an animal N/A is given.	Controlled Vocabulary – see Appendix 1.17	VARCHAR (150)
lifespan	1	The average lifespan of the species. Note: This field does not apply to Fauna; where the species is an animal N/A is given.	Controlled Vocabulary – see Appendix 1.18	VARCHAR (150)
ageAtFirstFlowering	1	The average age at which the first significant flowering event occurs. Estimated from the time at which the species can be	Controlled Vocabulary – see Appendix 1.19	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
		<p>expected to start producing quantities of seed that are likely to be sufficient to enable recruitment to occur under suitable conditions.</p> <p>Note: This field does not apply to Fauna; where the species is an animal N/A is given.</p>		
seedProduction	1	<p>The estimated average quantity of seed produced per year per mature individual in a population.</p> <p>Note: This field does not apply to Fauna; where the species is an animal N/A is given.</p>	Controlled Vocabulary – see Appendix 1.20	VARCHAR (150)
seedbank	1	<p>The ability of seed to persist in the seedbank.</p> <p>Note: This field does not apply to Fauna; where the species is an animal N/A is given.</p>	Controlled Vocabulary – see Appendix 1.21	VARCHAR (150)
isPredator	1	<p>Indicates if the majority of the species diet is vertebrate prey.</p> <p>Note: This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given.</p>	True or False	VARCHAR (150)
unitOfMeasure	1	<p>The unit by which the carrying capacity of a site for a species is measured. Estimates are used in credit calculations.</p>	Area or Count	VARCHAR (20)
sensitivityToLoss	1	<p>An assessment of the vulnerability of the species to the Biodiversity Offsets Scheme. Considers the impacts on the species that will likely lead to, or increase the risk of, extinction should a population be lost through development impacts and the increased extinction risk posed to a species during the time-lag between the loss of habitat at that site and the realisation of ecological improvement in habitat condition at a stewardship site. The sensitivity to loss class is taken from either:</p> <ol style="list-style-type: none"> 1. the threatened status of the species from relevant legislation 2. quantitative assessment against extinction risk criteria (see Population Size, Geographic Distribution and Rate of Decline criteria) leading to a higher sensitivity to loss class than provided by point 1 above. 	Controlled Vocabulary – see Appendix 1.22	VARCHAR (150)

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Property name	Occurrence	Definition	Format	Data type
sensitivityToLossJustification	0-1	Provides the justification for the category of sensitivityToLoss assigned to the species.	Free text	VARCHAR (150)
sensitivityToPotentialGain	1	<p>An estimate of the species ability to respond to improvements in habitat condition through active management actions applied at a specific site.</p> <p>A series of quantitative and qualitative criteria relating to life history characteristics, threat management and knowledge of the species are used to allocate species to a sensitivity to potential gain class.</p> <p>Note: where the sensitivity to gain has been split between the foraging and breeding activities of an animal, they are given separately in the sensitivityToPotentialGainForaging and sensitivityToPotentialGainBreeding fields. In this case a value of N/A is given here.</p>	Controlled Vocabulary – see Appendix 1.23	VARCHAR (150)
sensitivityToPotentialGainJustification	0-1	Provides the justification for the category of sensitivityToPotentialGain assigned to the species.	Free text	VARCHAR (150)
sensitivityToPotentialGainForaging	1	<p>An estimate of the species ability to respond to improvements in habitat condition, where that habitat is used for foraging, through active management actions applied at a specific site.</p> <p>A series of quantitative and qualitative criteria relating to life history characteristics, threat management and knowledge of the species are used to allocate species to a sensitivity to potential gain class.</p> <p>Note: where the sensitivity to gain has been not been split between the foraging and breeding activities of an animal, it is given in the sensitivityToPotentialGain field. In this case a value of N/A is given here.</p>	Controlled Vocabulary – see Appendix 1.23	VARCHAR (150)
sensitivityToPotentialGainForagingJustification	0-1	Provides the justification for the category of sensitivityToPotentialGainForaging assigned to the species.	Free text	VARCHAR (150)
sensitivityToPotentialGainBreeding	1	<p>An estimate of the species ability to respond to improvements in habitat condition, where that habitat is used for breeding, through active management actions applied at a specific site.</p> <p>A series of quantitative and qualitative criteria relating to life history characteristics, threat management and knowledge of</p>	Controlled Vocabulary – see Appendix 1.23	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
		<p>the species are used to allocate species to a sensitivity to potential gain class.</p> <p>Note: where the sensitivity to gain has been not been split between the foraging and breeding activities of an animal, it is given in the sensitivityToPotentialGain field. In this case a value of N/A is given here.</p>		
sensitivityToPotentialGainBreedingJustification	0-1	Provides the justification for the category of sensitivityToPotentialGainBreeding assigned to the species.	Free text	VARCHAR (150)
levelOfBiodiversityConcern	1	<p>The level of biodiversity concern is an overall evaluation of the risks involved in impacting on and offsetting habitat for a species, considering both the sensitivity to loss and sensitivity to potential gain.</p> <p>Note: where the level of biodiversity concern has been split between the foraging and breeding activities of an animal, they are given in the levelOfBiodiversityConcernForaging and levelOfBiodiversityConcernBreeding fields. In this case a value of N/A is given here.</p>	Controlled Vocabulary – see Appendix 1.24	VARCHAR (150)
levelOfBiodiversityConcernForaging	1	<p>The level of biodiversity concern is an overall evaluation of the risks involved in impacting on and offsetting foraging habitat for a species, considering both the sensitivity to loss and sensitivity to potential gain.</p> <p>Note: where the level of biodiversity concern has not been split between the foraging and breeding activities of an animal, it is given in the levelOfBiodiversityConcern field. In this case a value of N/A is given here.</p>	Controlled Vocabulary – see Appendix 1.24	VARCHAR (150)
levelOfBiodiversityConcernBreeding	1	<p>The level of biodiversity concern is an overall evaluation of the risks involved in impacting on and offsetting breeding habitat for a species, considering both the sensitivity to loss and sensitivity to potential gain.</p> <p>Note: where the level of biodiversity concern has not been split between the foraging and breeding activities of an animal, it is given in the levelOfBiodiversityConcern field. In this case a value of N/A is given here.</p>	Controlled Vocabulary – see Appendix 1.24	VARCHAR (150)

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Property name	Occurrence	Definition	Format	Data type
SAII	1	Identifies species that, if impacted by development, are likely to trigger a 'Serious or Irreversible Impact' (SAII). These species meet one of the four principles for determining SAII, as listed in <i>Guidance and Criteria to assist a decision-maker to determine a serious or irreversible impact</i> published by NSW Department of Planning, Industry and Environment. Note: where the SAII Flag has been split between the breeding and foraging habitats of an animal, it is given in the SAIIFlagBreeding and SAIIFlagForaging fields. In this case a value of N/A is given here.	True or False	VARCHAR (5)
SAIIBreeding	1	Identifies species breeding habitat that, if impacted by development, are likely to trigger a 'Serious or Irreversible Impact' (SAII). These species meet one of the four principles for determining SAII, as listed in <i>Guidance and Criteria to assist a decision-maker to determine a serious or irreversible impact</i> published by NSW Department of Planning, Industry and Environment. Note: where the SAII Flag has not been split between the breeding and foraging habitats of an animal, it is given in the SAII field. In this case a value of N/A is given here.	True or False	VARCHAR (5)
SAIIForaging	1	Identifies species foraging habitat that, if impacted by development, are likely to trigger a 'Serious or Irreversible Impact' (SAII). These species meet one of the four principles for determining SAII, as listed in <i>Guidance and Criteria to assist a decision-maker to determine a serious or irreversible impact</i> published by NSW Department of Planning, Industry and Environment. Note: where the SAII Flag has not been split between the breeding and foraging habitats of an animal, it is given in the SAII field. In this case a value of N/A is given here.	True or False	VARCHAR (5)
generalNotes	0-1	Additional information about the species including references.	Free text	VARCHAR (max)
offsetMultiplier	0-1	The biodiversity risk weighting is based on the level of biodiversity concern and is used to calculate biodiversity credits from the impacts of development.	Numeric with 2 decimal places	VARCHAR (10)

Property name	Occurrence	Definition	Format	Data type
		<p>Notes: Where the biodiversity risk weighting has been split between the breeding and foraging habitats of an animal, it is given in the offsetMultiplierBreeding and offsetMultiplierForaging fields. In this case a value of N/A is given here. For ecosystem species, Biodiversity risk weighting will not be populated. This is because it is calculated based on site context and assessment.</p>		
offsetMultiplierForaging	1	<p>The biodiversity risk weighting is based on the level of biodiversity concern and is used to calculate species credits generated from the impacts of development on a species foraging habitat.</p> <p>Note: where the biodiversity risk weighting has not been split between the breeding and foraging habitats of an animal, it is given in the offsetMultiplier field. In this case a value of N/A is given here.</p>	Numeric with 2 decimal places	VARCHAR (10)
offsetMultiplierBreeding	1	<p>The biodiversity risk weighting is based on the level of biodiversity concern and is used to calculate species credits generated from the impacts of development on a species breeding habitat.</p> <p>Note: where the biodiversity risk weighting has not been split between the breeding and foraging habitats of an animal, it is given in the offsetMultiplier field. In this case a value of N/A is given here.</p>	Numeric with 2 decimal places	VARCHAR (10)

4. Specifications for the ThreatenedBiodiversity_TSGeographicData entity set

Tables 9–11 provide the exact specifications of the data fields available in each category of ThreatenedBiodiversity_TSGeographicData entity set available via the BioNet Threatened Biodiversity Web Service.

It should be noted that unlike the ThreatenedBiodiversity_Species entity set where there is only one row per profileID, there are multiple rows per profileID in the geographic data. However, for any given profileID there will only be one unique row per profileID and IBRASubregion combination. This enables the specific occurrence of any given species in an IBRASubregion to be conveyed.

Table 9 Metadata data fields

Property name	Occurrence	Description	Format	Data type
institutionCode	1	The name (or acronym) in use by the institution having custody of the object(s) or information referred to in the record.	NSW Dept of Planning, Industry and Environment	VARCHAR (50)
collectionCode	1	The name, acronym, coden or initialism identifying the collection or dataset from which the record was derived.	Always: BioNet Threatened Biodiversity	VARCHAR (50)
datasetName	1	The name identifying the dataset from which the record was derived.	Always: NSW Threatened Species	VARCHAR (50)
dcterms_bibliographicCitation	1	A bibliographic reference for the resource as a statement indicating how this record should be cited (attributed) when used. Note: the date and time are AEST adjusted for daylight saving and reflect the date and time that the web service data was last refreshed from the source data (AtlasDB).	BioNet TS Geographic Data DD/MM/YYYY HH:MM AM/PM +HH:MM offset from UTC	VARCHAR (100)
dcterms_language	1	The language of the resource based on RFC 4646 [RFC4646].	Always: 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:SS AM/PM +HH:MM offset from UTC	DATETIME
dcterms_available	1	Date (often a range) that the resource became or will become available.	DD/MM/YYYY HH:MM:SS AM/PM +HH:MM offset from UTC	DATETIME
dcterms_rights	1	Information about rights held in and over the resource. Typically, rights information includes a statement about	Always: CC-BY 4.0	VARCHAR (50)

Property name	Occurrence	Description	Format	Data type
		various property rights associated with the resource, including intellectual property rights.		
dcterms_rightsHolder	1	A person or organisation owning or managing rights over the resource.	Always: NSW Dept 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: dataset	VARCHAR (50)

Table 10 Profile Details data fields

Property name	Occurrence	Description	Format	Data type
profileID	1	The unique identifier for the threatened species profile as stored in the Threatened Species Profile Database.	Integer	NT NOT NULL
scientificName	1	The full scientific name of the species.	<genus> <specific epithet> <connecting term> <infraspecific epithet>; where the connecting term can be one of the following: <ul style="list-style-type: none"> • subsp. = subspecies • var. = variety 	VARCHAR (500)
vernacularName	1	The common name of the species.	Text	VARCHAR (500)
stateConservation	1	The Legal Status of the species within NSW under the <i>Biodiversity Conservation Act 2016</i> (BC Act 2016) or the <i>Fisheries Management Act 1994</i> No. 38 (FM Act 1994).	Controlled Vocabulary – see Appendix 1.1	VARCHAR (150)
countryConservation	1	The Legal Status of the species under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).	Controlled Vocabulary – see Appendix 1.2	VARCHAR (150)
kingdom	1	The full scientific name of the kingdom in which the taxon is classified.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Animalia • Plantae • Fungi 	VARCHAR (150)

Property name	Occurrence	Description	Format	Data type
family	1	The full scientific name of the family in which the taxon is classified.	Text	VARCHAR (30)
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	VARCHAR (150)
dateOfFinalGazettal	1	The date of final gazettal.	DD/MM/YYYY	VARCHAR (20)

Table 11 Geographic Data fields

Property name	Occurrence	Description	Format	Data type
IBRASubregion	1	The name of the IBRA7 subregion. Refer to Australia's bioregions (IBRA) - The National Reserve –System (NRS) for more information on the IBRA framework. Note: Where a subregion occurs outside of NSW then the subregion name is not given, just the name of the state (e.g. QLD).	Controlled vocabulary using IBRA Version 7 subregion names.	VARCHAR (100)
IBRASubregionID	1	The unique ID associated with the IBRA subregion.	Alphanumeric code	
occurrence	1	If the threatened entity is known or predicted to occur within the IBRA subregion.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Known • Predicted 	VARCHAR (20)
geographicalConstraints	0-1	Describes any special conditions for distribution of the species in the IBRA subregion.	Free text	VARCHAR (500)

5. Specifications for the ThreatenedBiodiversity_EcologicalCommunities entity set

Tables 12–19 provide the exact specifications of the data fields available in each category of ThreatenedBiodiversity_ entity set available via the BioNet Threatened Biodiversity Web Service.

Table 12 Metadata data fields

Property name	Occurrence	Description	Format	Data type
institutionCode	1	The name (or acronym) in use by the institution having custody of the object(s) or information referred to in the record.	Always: NSW Dept of Planning, Industry and Environment	VARCHAR (50)
collectionCode	1	The name, acronym, coden or initialism identifying the collection or dataset from which the record was derived.	Always: BioNet Threatened Biodiversity	VARCHAR (50)
datasetName	1	The name identifying the dataset from which the record was derived.	Always: NSW Threatened Ecological Communities	VARCHAR (50)
dcterms_bibliographicCitation	1	A bibliographic reference for the resource as a statement indicating how this record should be cited (attributed) when used. Note: the date and time are AEST adjusted for daylight saving and reflect the date and time that the web service data was last refreshed from the source data (AtlasDB).	BioNet Threatened Ecological Communities DD/MM/YYYY HH:MM AM/PM +HH:MM offset from UTC	VARCHAR (100)
dcterms_language	1	The language of the resource based on RFC 4646 [RFC4646].	Always: 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:SS offset from UTC	DATETIME
dcterms_available	1	Date (often a range) that the resource became or will become available.	DD/MM/YYYY HH:MM:SS AM/PM +HH:MM offset from UTC	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	VARCHAR (50)

Property name	Occurrence	Description	Format	Data type
dcterms_rightsHolder	1	A person or organisation owning or managing rights over the resource.	Always: NSW Dept 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: dataset	VARCHAR (50)

Table 13 Profile Details data fields

Property name	Occurrence	Description	Format	Data type
profileID	1	The unique identifier for the threatened ecological community profile as stored in the Threatened Species Profile Database.	Integer	INT NOT NULL
TECName	1	The full name of the community.	Free text	VARCHAR (500)
displayNameHTML	1	The name of the community including HTML tags for rendering in HTML applications.	Text with HTML tags	VARCHAR (500)
stateConservation	1	The Legal Status of the species within NSW under the <i>Biodiversity Conservation Act 2016</i> (BC Act 2016) or the <i>Fisheries Management Act 1994</i> No. 38 (FM Act 1994).	Controlled Vocabulary – see Appendix 1.1	VARCHAR (150)
countryConservation	1	The Legal Status of the species under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).	Controlled Vocabulary – see Appendix 1.2	VARCHAR (150)
generalType	1	Grouping of species using vernacular terms to enable software developers to filter records based on communities of interest. Note: for the Threatened Ecological Communities dataset this field will only return 'Threatened Ecological Communities'	Controlled vocabulary – see Appendix 1.3	VARCHAR (150)
dateOfFinalGazettal	1	The date of final gazettal.	DD/MM/YYYY	VARCHAR (20)
description	0-1	Description of the community.	Text with HTML tags	VARCHAR (max)

Property name	Occurrence	Description	Format	Data type
distribution	0-1	Description of where the community occurs.	Text with HTML tags	VARCHAR (max)
profileStatus	1	Indicates if all the attributes for the entity has been evaluated and populated in the system.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> Complete Incomplete 	VARCHAR (150)

Table 14 Threats data fields

Property name	Occurrence	Description	Format	Data type
threats	1-n	Describes the kind of activities which would harm the sustenance of the species.	<Threat Category 1>;<Threat Category 2>;<Threat> <Threat Category 1>;<Threat Category 2>;<Threat>	VARCHAR (max)

Table 15 Habitat and Ecology data fields

Property name	Occurrence	Description	Format	Data type
habitatAndEcology	1-n	Describes the places where the species is likely to occur or grow and the ecological environment surrounding these places.	<habitat>;<order> <habitat>;<order>	VARCHAR (max)

Table 16 Multimedia data fields

Property name	Occurrence	Description	Format	Data type
associatedMedia	0-n	The unique identifier for multimedia resources (such as photos and sounds) associated with the profile listed in order of display. The actual resource can be retrieved via the BioNet Multimedia web service.	<identifier>;<identifier>	VARCHAR (500)

Table 17 Documentation data fields

Property name	Occurrence	Description	Format	Data type
fullReference	1-n	Documentation associated with the profile.	<document key>;<title>;<authors>;<year>;<URI> <document key>;<title>;<authors>;<year>;<URI>. Where any given element is text with HTML tags	VARCHAR (max)

Table 18 Fire Data fields

Property name	Occurrence	Description and format	Format	Data type
mechanicalHRDescription	1	Information on any restrictions on the use of Mechanical Hazard Reduction Techniques within 100 metres of the Occurrence record. Otherwise this field gives the value 'N/A'.	Free text	VARCHAR (200)
potentialImpact	1	A categorisation of the information recorded in speciesFireDescription into one of three broad categories related to the use of fire as Hazard Reduction techniques.	Controlled vocabulary – see Appendix 1.8; otherwise this field gives the value 'N/A'	VARCHAR (150)
speciesFireDescription	0-1	Information on any restrictions on the use of Controlled Burning as a Hazard Reduction Technique within 100 metres of the Occurrence record.	Free text	VARCHAR (200)
fireCodeStatus	1	Indicates if the ecological community is included on the Fire code.	Controlled vocabulary – see Appendix 1.9; otherwise this field gives the value 'N/A'	VARCHAR (150)
reasonForExclusion	0-1	Optional comments on why the community was not included on the fire code.	Free text	VARCHAR (200)

Table 19 Assessment Data fields

Property name	Occurrence	Description	Format	Data type
classOfCredit	1	Biodiversity credits are the currency used to assess biodiversity loss and gain in the Biodiversity Assessment Method. Credit class indicates whether the species is assessed for ecosystem credits or species credits. Some species have been split, with species credits applying to	Controlled vocabulary – see Appendix 1.4	VARCHAR (max)

Property name	Occurrence	Description	Format	Data type
		<p>some components of their habitat requirements and ecosystem credits applying to the remaining components. For example, cave roosting bats may have species credits applying to breeding habitat and ecosystem credits applying to foraging and shelter habitat.</p> <p>Note: where classOfCredit does not apply, null is given.</p>		
associatedPCTs	0-n	List of PCTIDs associated with the species.	List of PCTIDs separated by semi-colon	VARCHAR (max)
geographicDistribution	1	<p>Identifies continuing decline of the ecological communities are of occupancy or extent of occurrence in NSW. If present, it is used to determine the sensitivity to loss. The field is generally (but not always) populated when:</p> <ol style="list-style-type: none"> the declines will result in a higher sensitivity to loss category than provided by the current listing status it is supported by quantitative data. 	Controlled Vocabulary – see Appendix 1.10	VARCHAR (150)
populationSize	1	<p>Identifies ecological communities that are considered to have a very large degree of environmental degradation or disruption of biotic process or interactions in NSW. If present, it is used to determine the sensitivity to loss. The field is generally (but not always) populated when:</p> <ol style="list-style-type: none"> the extent and severity will result in a higher sensitivity to loss category than provided by the current listing status it is supported by quantitative data. 	Controlled Vocabulary – see Appendix 1.11	VARCHAR (max)
rateOfDecline	1	<p>Identifies the rate of decline as a reduction in distribution within NSW. If present it is used to determine the sensitivity to loss. The field is generally (but not always) populated when:</p> <ol style="list-style-type: none"> the reduction in distribution will result in a higher sensitivity to loss category than provided by the current listing status it is supported by quantitative data 	Controlled Vocabulary – see Appendix 1.12	VARCHAR (150)
sensitivityToLoss	1	An assessment of the vulnerability of the ecological community to the Biodiversity Offsets Scheme. Considers the impacts on the ecological community that will likely lead to, or increase the risk of, extinction should an area be lost	Controlled Vocabulary – see Appendix 1.22	VARCHAR (150)

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Property name	Occurrence	Description	Format	Data type
		<p>through development impacts and the increased extinction risk posed to an ecological community during the time-lag between the loss of area at that site and the realisation of ecological improvement in condition at a stewardship site. The sensitivity to loss class is taken from either:</p> <ol style="list-style-type: none"> 1. the threatened status of the ecological community from relevant legislation 2. quantitative assessment against extinction risk criteria leading to a higher sensitivity to loss class than provided by point 1 above. 		
sensitivityToLossJustification	1	Provides the justification for the category of sensitivityToLoss assigned to the ecological community.	Free text	VARCHAR (150)
SAll	1	Identifies species that, if impacted by development, are likely to trigger a 'Serious or Irreversible Impact' (SAll). These species meet one of the four principles for determining SAll, as listed in <i>Guidance and Criteria to assist a decision-maker to determine a serious or irreversible impact</i> published by NSW Department of Planning, Industry and Environment.	True or False	VARCHAR (5)
generalNotes	1	Additional information about the species including references.	Free text	VARCHAR (max)

6. Specifications for the ThreatenedBiodiversity_TECGeographicData entity set

Tables 20–22 provide the exact specifications of the data fields available in each category of ThreatenedBiodiversity_TECGeographicData entity set available via the BioNet Threatened Biodiversity Web Service.

It should be noted that, unlike the ThreatenedBiodiversity_EcologicalCommunity entity set where there is only one row per profileID, there are multiple rows per profileID in the geographic data. However, for any given profileID, there will only be one unique row per profileID and IBRASubregion combination. This enables the specific occurrence of any given ecological community in an IBRA subregion to be conveyed.

Table 20 Metadata data fields

Property name	Occurrence	Definition	Format	Data type
institutionCode	1	The name (or acronym) in use by the institution having custody of the object(s) or information referred to in the record.	Always: NSW Dept of Planning, Industry and Environment	VARCHAR (50)
collectionCode	1	The name, acronym, coden or initialism identifying the collection or dataset from which the record was derived.	Always: BioNet Threatened Biodiversity	VARCHAR (50)
datasetName	1	The name identifying the dataset from which the record was derived.	Always: NSW Threatened Ecological Communities	VARCHAR (50)
dcterms_bibliographicCitation	1	A bibliographic reference for the resource as a statement indicating how this record should be cited (attributed) when used. Note: the date and time are AEST adjusted for daylight saving and reflect the date and time that the web service data was last refreshed from the source data.	BioNet TEC Geographic Data DD/MM/YYYY HH:MM AM/PM +HH:MM offset from UTC	VARCHAR (100)
dcterms_language	1	The language of the resource based on RFC 4646 [RFC4646].	Always: 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:SS AM/PM +HH:MM offset from UTC	DATETIME
dcterms_available	1	Date (often a range) that the resource became or will become available.	DD/MM/YYYY HH:MM:SS AM/PM +HH:MM offset from UTC	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	VARCHAR (50)

Property name	Occurrence	Definition	Format	Data type
dcterms_rightsHolder	1	A person or organisation owning or managing rights over the resource.	Always: NSW Dept 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: dataset	VARCHAR (50)

Table 21 Profile Details data fields

Property name	Occurrence	Definition	Format	Data type
profileID	1	The unique identifier for the threatened ecological community profile as stored in the Threatened Species Profile Database.	Integer	INT NOT NULL
TECName	1	The name of the threatened ecological community.	Text	VARCHAR (500)
stateConservation	1	The Legal Status of the species within NSW under the <i>Biodiversity Conservation Act 2016</i> (BC Act 2016) or the <i>Fisheries Management Act 1994</i> No. 38 (FM Act 1994).	Controlled Vocabulary – see Appendix 1.1	VARCHAR (150)
countryConservation	1	The Legal Status of the species under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).	Controlled Vocabulary – see Appendix 1.2	VARCHAR (150)
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	VARCHAR (150)
dateOfFinalGazettal	0-1	The date of final gazettal.	DD/MM/YYYY	VARCHAR (20)

Table 22 Geographic Data fields

Property name	Occurrence	Definition	Format	Data type
IBRASubregion	1	The name of the IBRA7 subregion. Refer to Australia's bioregions (IBRA) for more information on the IBRA framework.	Controlled vocabulary using IBRA Version 7 subregion names. Where a subregion occurs outside of NSW then the subregion name is	VARCHAR (100)

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Property name	Occurrence	Definition	Format	Data type
			not given, just the name of the state (e.g. QLD)	
IBRASubregionID	1	The unique ID associated with the IBRA subregion.	Alphanumeric code	
occurrence	1	If the threatened entity is known or predicted to occur within the IBRA subregion.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Known • Predicted 	VARCHAR (20)
geographicalConstraints	0-1	Describes any special conditions for distribution of the species in the IBRA subregion (e.g. Within 100 metres of river bank). Entered via Mapping tool, it is visible only in TS Web App. Defined at IBRA subregion level for each profile	Text	VARCHAR (500)

7. Specifications for the ThreatenedBiodiversity_Populations entity set

Tables 23–30 provide the exact specifications of the data fields available in each category of ThreatenedBiodiversity_Populations entity set available via the BioNet Threatened Biodiversity Web Service.

Table 23 Metadata data fields

Property name	Occurrence	Definition	Format	Data type
institutionCode	1	The name (or acronym) in use by the institution having custody of the object(s) or information referred to in the record.	Always: NSW Dept of Planning, Industry and Environment	VARCHAR (50)
collectionCode	1	The name, acronym, coden or initialism identifying the collection or dataset from which the record was derived.	Always: BioNet Threatened Biodiversity	VARCHAR (50)
datasetName	1	The name identifying the dataset from which the record was derived.	Always: NSW Threatened Populations	VARCHAR (50)
dcterms_bibliographicCitation	1	A bibliographic reference for the resource as a statement indicating how this record should be cited (attributed) when used. Note: the date and time are AEST adjusted for daylight saving and reflect the date and time that the web service data was last refreshed from the source data (AtlasDB).	BioNet Threatened Populations DD/MM/YYYY HH:MM AM/PM +HH:MM offset from UTC	VARCHAR (100)
dcterms_language	1	The language of the resource based on RFC 4646 [RFC4646].	Always: 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:SS AM/PM +HH:MM offset from UTC	DATETIME
dcterms_available	1	Date (often a range) that the resource became or will become available.	DD/MM/YYYY HH:MM:SS AM/PM +HH:MM offset from UTC	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	VARCHAR (50)
dcterms_rightsHolder	1	A person or organisation owning or managing rights over the resource.	Always: NSW Dept of Planning, Industry and Environment	VARCHAR (50)

Property name	Occurrence	Definition	Format	Data type
dcterms_type	1	The nature or genre of the resource based on the Dublin Core recommended best practice controlled vocabulary (DCMI Type Vocabulary).	Always: dataset	VARCHAR (50)

Table 24 Profile Details data fields

Property name	Occurrence	Definition	Format	Data type
profileID	1	The unique identifier for the threatened species profile as stored in the Threatened Biodiversity Data Collection.	Integer	INT NOT NULL
scientificName	1	The full scientific name of the species.	<genus> <specific epithet> <connecting term> <infraspecific epithet>; where the connecting term can be one of the following: <ul style="list-style-type: none"> • subsp. = subspecies • var. = variety 	VARCHAR (500)
vernacularName	0-1	The common name or vernacular name of the species (if any).	Text	VARCHAR (500)
populationName	1	The name of the endangered population as listed under the <i>Biodiversity Conservation Act 2016</i> (BC Act 2016).	Free text	VARCHAR (500)
displayNameHTML	1	The name of the species including HTML tags for rendering in HTML applications.	Text with HTML tags	VARCHAR (500)
stateConservation	1	The Legal Status of the species within NSW under the <i>Biodiversity Conservation Act 2016</i> (BC Act 2016) or the <i>Fisheries Management Act 1994</i> No. 38 (FM Act 1994).	Controlled Vocabulary – see Appendix 1.1	VARCHAR (150)
countryConservation	1	The Legal Status of the species under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).	Controlled Vocabulary – see Appendix 1.2	VARCHAR (150)
kingdom	1	The full scientific name of the kingdom in which the taxon is classified.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Animalia • Plantae • Fungi 	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
family	1	The full scientific name of the family in which the taxon is classified.	Text	VARCHAR (30)
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	VARCHAR (150)
dateOfFinalGazettal	1	The date of final gazettal.	DD/MM/YYYY	VARCHAR (20)
description	1	Description of the species.	Text with HTML tags	VARCHAR (max)
distribution	1	Description of where the species occurs.	Text with HTML tags	VARCHAR (max)
profileStatus	1	Indicates if all the attributes for the entity has been evaluated and populated in the system.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Complete • Incomplete 	VARCHAR (150)

Table 25 Threats data fields

Property name	Occurrence	Definition	Format	Data type
threats	0-n	Describes the kind of activities which would harm the sustenance of the species.	<Threat Category 1>;<Threat Category 2>;<Threat> <Threat Category 1>;<Threat Category 2>;<Threat>	VARCHAR (max)

Table 26 Habitat and Ecology data fields

Property name	Occurrence	Definition	Format	Data type
habitatAndEcology	0-n	Describes the places where the species is likely to occur or grow and the ecological environment surrounding these places.	<habitat>;<order> <habitat>;<order>, where any given element is text with HTML tags	VARCHAR (max)

Table 27 Multimedia data fields

Property name	Occurrence	Definition	Format	Data type
associatedMedia	0-n	The unique identifier for multimedia resources (such as photos and sounds) associated with the profile listed in order of display. The actual resource can be retrieved via the BioNet Multimedia web service.	<identifier>;<identifier>	VARCHAR (500)

Table 28 Documentation data fields

Property name	Occurrence	Definition	Format	Data type
fullReference	0-n	Documentation associated with the profile.	<document key>;<title>;<authors>;<year>;<URI> <document key>;<title>;<authors>;<year>;<URI> where any given element is text with HTML tags	VARCHAR (max)

Table 29 Fire Data fields

Property name	Occurrence	Definition	Format	Data type
mechanicalHRDescription	1	Information on any restrictions on the use of Mechanical Hazard Reduction Techniques within 100 metres of the Occurrence record. Otherwise this field gives the value 'N/A'.	Free text	VARCHAR (200)
potentialImpact	1	A categorisation of the information recorded in speciesFireDescription into one of three broad categories related to the use of fire as Hazard Reduction techniques.	Controlled vocabulary – see Appendix 1.8. Otherwise this field gives the value 'N/A'	VARCHAR (150)
speciesFireDescription	1	Information on any restrictions on the use of Controlled Burning as a Hazard Reduction Technique within 100 metres of the Occurrence record. Otherwise this field gives the value 'N/A'.	Free text	VARCHAR (200)
fireCodeStatus	1	Indicates if the population is included on the Fire code.	Controlled vocabulary – see Appendix 1.9. Otherwise this field gives the value 'N/A'	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
reasonForExclusion	0-1	Optional comments on why the population was not included on the fire code.	Free text	VARCHAR (200)

Table 30 Assessment Data fields

Property name	Occurrence	Definition	Format	Data type
classOfCredit	1	Biodiversity credits are the currency used to assess biodiversity loss and gain in the Biodiversity Assessment Method. Credit class indicates whether the species is assessed for ecosystem credits or species credits. Some species have been split, with species credits applying to some components of their habitat requirements and ecosystem credits applying to the remaining components. For example, cave roosting bats may have species credits applying to breeding habitat and ecosystem credits applying to foraging and shelter habitat. Note: Where classOfCredit does not apply, null is given	Controlled vocabulary – see Appendix 1.4	VARCHAR (max)
patchSize	1	The minimum area of vegetated habitat that a species would be expected to occupy or periodically use. Note this applies only to fauna.	Controlled Vocabulary – see Appendix 1.5	VARCHAR (max)
nativeVegetationCover	1	The proportion of native vegetation a species requires in the landscape to occupy or periodically use a site. Note: this field only applies to fauna, N/A is given for flora and fungi	Controlled vocabulary – see Appendix 1.6	VARCHAR (150)
associatedPCTs	1-n	List of PCTIDs associated with the species.	List of PCTIDs separated by semi-colon	VARCHAR (max)
habitatConstraints	1-n	A habitat constraint is an element of habitat that must be present on a site for the species to occupy or periodically use the site. For example, species dependent on rocky areas will not occupy or use sites without rocks. Additional details on the habitat constraint may be provided in the 'comments' field. For example, a habitat constraint of 'rocky areas' might be further qualified with a comment 'within 200m of a gibber'.	<constraint>;<comment> <constraint>;<comment>; , where <ul style="list-style-type: none"> constraint is a controlled vocabulary as per Appendix 1.7 comment is free text 	VARCHAR (max)

Property name	Occurrence	Definition	Format	Data type
		<p>Note: where habitat constraints have been split between foraging and breeding, they are given separately in the habitatConstraintsForaging and habitatConstraintsBreeding fields. In this case a value of N/A is given here.</p>		
habitatConstraintsForaging	1-n	<p>A habitat constraint (foraging) is an element of habitat that must be present on a site for the species to occupy or periodically use the site. For example, species dependent on rocky areas will not occupy or use sites without rocks. Additional details on the habitat constraint may be provided in the 'comments' field. For example, a habitat constraint of 'rocky areas' might be further qualified with a comment 'within 200 m of gibber'.</p> <p>Note: where habitat constraints have not been split between foraging and breeding, they are given in the habitatConstraints field. In this case a value of N/A is given here.</p>	<p><constraint>;<comment> <constraint>;<comment> , where</p> <ul style="list-style-type: none"> constraint is a controlled vocabulary as per Appendix 1.7 comment is free text 	VARCHAR (max)
habitatConstraintsBreeding	1-n	<p>A habitat constraint (breeding) is an element of habitat that must be present on a site for the species to breed on the site. For example, hollow breeding species will not breed on sites where tree hollow area absent. Additional details on the habitat constraint may be provided in the 'comments' field. For example, a habitat constraint of 'tree hollow' might be further qualified with a comment 'living or dead trees with hollows greater than 20 cm in diameter and four metres above ground'.</p> <p>Note: where habitat constraints have not been split between foraging and breeding, they are given in the habitatConstraints field. In this case a value of N/A is given here.</p>	<p><constraint>;<comment> <constraint>;<comment> , where</p> <ul style="list-style-type: none"> constraint is a controlled vocabulary as per Appendix 1.7 comment is free text 	VARCHAR (max)
monthsOfSurvey	1-12	<p>Indicates the optimum months to detect a species using survey.</p> <p>Note: where the survey months have been split between foraging and breeding, they are given in the monthsOfSurveyForaging and monthsOfSurveyBreeding fields. In this case a value of N/A is given here.</p>	List of months separated by semi-colon	VARCHAR (max)

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Property name	Occurrence	Definition	Format	Data type
monthsOfSurveyForaging	1-12	Indicates the optimum months to detect foraging individuals using survey. Note: where the survey months have not been split between foraging and breeding, they are given in the monthsOfSurvey field. In this case a value of N/A is given here.	List of months separated by semi-colon	VARCHAR (max)
monthsOfSurveyBreeding	1-12	Indicates the optimum months to detect breeding individuals using survey. Note: where the survey months have not been split between foraging and breeding, they are given in the monthsOfSurvey field. In this case a value of N/A is given here.	List of months separated by semi-colon	VARCHAR (max)
surveyComments	0-1	Specific information to assist in the survey for a species, to describe survey effort required or to define the appropriate method for developing a species polygon.	Free text	VARCHAR (max)
occupyPaddockTrees	1	Indicates if paddock trees are important habitat (e.g. breeding habitat, connectivity) for the species.	True or False. Note: Most flora will score 'false' for this field. However, this field can be true where paddock trees are important habitat for some epiphytes, or if the species itself can be a paddock tree.	VARCHAR (max)
occupyPaddockTreesComment	0-1	Additional comments to describe the types of, or situations when the paddock trees might be used by the species.	Free text	VARCHAR (max)
geographicDistribution	1	Identifies the number of known locations of the species in NSW. If present, it is used to determine sensitivity to loss. This field is only populated when: <ul style="list-style-type: none"> 1. the number of locations will result in a higher sensitive to loss category than provided by the current listing status 2. it is supported by quantitative data 	Controlled Vocabulary – see Appendix 1.10	VARCHAR (150)
populationSize	1	Identifies number of individuals (taken as the total number of known mature individuals) in NSW. If present, it is used to determine the sensitivity to loss. The field is only populated when:	Controlled Vocabulary – see Appendix 1.11	VARCHAR (max)

BioNet Threatened Biodiversity Web Service data standard 1.2

Property name	Occurrence	Definition	Format	Data type
		<ol style="list-style-type: none"> the number of individuals will result in a higher sensitivity to loss category than provided by the current listing status it is supported by quantitative data. 		
rateOfDecline	1	<p>Identifies the rate of decline of the species within NSW. If present it is used to determine the sensitivity to loss. The field is only populated when:</p> <ol style="list-style-type: none"> the rates of decline will result in a higher sensitivity to loss category than provided by the current listing status it is supported by quantitative data. 	Controlled Vocabulary – see Appendix 1.12	VARCHAR (150)
ecologyIsPoorlyKnown	1	<p>Whether the species life history and/or ecology is poorly known and thus renders it difficult to determine effective management actions and/or anticipate the likely response of the species to management applied at an offset site. Species that meet this criterion will generally be those for which there is little to no published literature and any conservation actions would be targeted towards research rather than management. Examples include the Green-thighed Frog.</p>	True or False	VARCHAR (150)
effectivenessOfManagement	1	<p>The ability to control the most difficult to control threat on a stewardship site (i.e. based on the ability of management actions to overcome this threat).</p>	Controlled Vocabulary – see Appendix 1.13	VARCHAR (150)
effectivenessOfManagementComments	0-1	<p>A brief description of the key threat driving the selection of the value for the effectivenessOfManagement field. Comments should be provided where 'Threats beyond control' or 'Limited ability to control threats' have been selected.</p>	Free text	VARCHAR (500)
speciesDependOnHabitatAttribute	1	<p>Indicates if a critical component of the species life-cycle is dependent on a feature/s that takes considerable time to respond to management actions at a stewardship site. Non-responding attributes are those that cannot be improved or increased at a stewardship site (e.g. caves).</p> <p>Notes:</p>	Controlled Vocabulary – see Appendix 1.14	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
		This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given. Where the habitat dependency data have been split between foraging and breeding, they are given in the speciesDependOnHabitatAttributeBreeding and speciesDependOnHabitatAttributeForaging fields. In this case a value of N/A is given here.		
speciesDependOnHabitatAttributeComment	0-1	A brief description of the habitat feature driving the value selected for speciesDependOnHabitatAttribute.	Free text	VARCHAR (500)
speciesDependOnHabitatAttributeBreeding	1	Indicates if a critical component of the species breeding-cycle is dependent on a feature/s that takes considerable time to respond to management actions at a stewardship site. Non-responding attributes are those that cannot be improved or increased at a stewardship site (e.g. caves). Notes: <ul style="list-style-type: none"> • This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given. • Where the habitat dependency data have been split between foraging and breeding, they are given in the speciesDependOnHabitatAttributeBreeding and speciesDependOnHabitatAttributeForaging fields. In this case a value of N/A is given here. 	Controlled Vocabulary – see Appendix 1.14	VARCHAR (150)
speciesDependOnHabitatAttributeBreedingComments	0-1	A brief description of the habitat feature driving the value selected for speciesDependOnHabitatAttributeBreeding.	Free text	VARCHAR (500)
speciesDependOnHabitatAttributeForaging	1	Indicates if a critical component of the species foraging habitat is dependent on a feature/s that takes considerable time to respond to management actions at a stewardship site. Non-responding attributes are those that cannot be improved or increased at a stewardship site (e.g. caves). Notes: <ul style="list-style-type: none"> • This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given. • Where the habitat dependency data have been split between foraging and breeding, they are given in the speciesDependOnHabitatAttributeBreeding and 	Controlled Vocabulary – see Appendix 1.14	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
speciesDependOnHabitatAttributeForaging fields. In this case a value of N/A is given here.				
speciesDependOnHabitatAttributeForagingComments	0-1	A brief description of the habitat feature driving the value selected for speciesDependOnHabitatAttributeForaging.	Free text	VARCHAR (500)
speciesDependentOnNonRespondingAttributes	1	The species depends on highly specific habitat requirements that cannot be recreated (e.g. symbiotic relationships required by some plant species to persist). Note: This field does not apply to Fauna; where the species is an animal N/A is given.	True or False	VARCHAR (150)
colonisationAbility	1	An evaluation of the dispersal ability of a species (taken as passive or active movement, usually one way, from the point of origin, to another location where the individual will reproduce) with a view to estimating its ability to recolonise stewardship sites in landscapes likely to have been subject to clearing.	Categories differ between fauna and flora. For fauna the following controlled vocabulary is used: <ul style="list-style-type: none"> Disperse < 100m and/or specific dispersal corridor or vector requirements Disperse between 100m and 10km Disperse > 10km For flora the following controlled vocabulary is used: <ul style="list-style-type: none"> Disperse near the adult plant Disperse beyond the adult plant but within the population Wide dispersal – outside the population 	VARCHAR (150)
ageFemalesFirstProduce	1	The average age at which females are first able to produce offspring. Note: This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given.	Controlled Vocabulary – see Appendix 1.16	VARCHAR (150)
averageNumberOfOffspring	1	The average number of offspring produced annually per adult female. Note: This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given.	Controlled Vocabulary – see Appendix 1.16	VARCHAR (150)
reproductiveStrategy	1	The recruitment strategy used by the species. Note: This field does not apply to Fauna; where the species is an animal N/A is given.	Controlled Vocabulary – see Appendix 1.17	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
lifespan	1	The average lifespan of the species. Note: This field does not apply to Fauna; where the species is an animal N/A is given.	Controlled Vocabulary – see Appendix 1.18	VARCHAR (150)
ageAtFirstFlowering	1	The average age at which the first significant flowering event occurs. Estimated from the time at which the species can be expected to start producing quantities of seed that are likely to be sufficient to enable recruitment to occur under suitable conditions. Note: This field does not apply to Fauna; where the species is an animal N/A is given.	Controlled Vocabulary – see Appendix 1.19	VARCHAR (150)
seedProduction	1	The estimated average quantity of seed produced per year per mature individual in a population. Note: This field does not apply to Fauna; where the species is an animal N/A is given.	Controlled Vocabulary – see Appendix 1.20	VARCHAR (150)
seedbank	1	The ability of seed to persist in the seedbank. Note: This field does not apply to Fauna; where the species is an animal N/A is given.	Controlled Vocabulary – see Appendix 1.21	VARCHAR (150)
isPredator	1	Indicates if most of the species diet is vertebrate prey. Note: This field does not apply to Flora or Fungi; where the species is a plant or fungi N/A is given.	True or False	VARCHAR (150)
unitOfMeasure	1	The unit by which the carrying capacity of a site for a species is measured. Estimates are used in credit calculations.	Area or Count	VARCHAR (20)
sensitivityToLoss	1	An assessment of the vulnerability of the species to the Biodiversity Offsets Scheme. Considers the impacts on the species that will likely lead to, or increase the risk of, extinction should a population be lost through development impacts and the increased extinction risk posed to a species during the time-lag between the loss of habitat at that site and the realisation of ecological improvement in habitat condition at a stewardship site. The sensitivity to loss class is taken from either: <ol style="list-style-type: none">1. the threatened status of the species from relevant legislation	Controlled Vocabulary – see Appendix 1.22	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
		2. quantitative assessment against extinction risk criteria (see Population Size, Geographic Distribution and Rate of Decline criteria) leading to a higher sensitivity to loss class than provided by point 1 above.		
sensitivityToLossJustification	0-1	Provides the justification for the category of sensitivityToLoss assigned to the species.	Free text	VARCHAR (150)
sensitivityToPotentialGain	1	<p>An estimate of the species ability to respond to improvements in habitat condition through active management actions applied at a specific site. A series of quantitative and qualitative criteria relating to life history characteristics, threat management and knowledge of the species are used to allocate species to a sensitivity to potential gain class.</p> <p>Note: where the sensitivity to gain has been split between the foraging and breeding activities of an animal, they are given separately in the sensitivityToPotentialGainForaging and sensitivityToPotentialGainBreeding fields. In this case a value of N/A is given here.</p>	Controlled Vocabulary – see Appendix 1.23	VARCHAR (150)
sensitivityToPotentialGainJustification	0-1	Provides the justification for the category of sensitivityToPotentialGain assigned to the species.	Free text	VARCHAR (150)
sensitivityToPotentialGainForaging	1	<p>An estimate of the species ability to respond to improvements in habitat condition, where that habitat is used for foraging, through active management actions applied at a specific site. A series of quantitative and qualitative criteria relating to life history characteristics, threat management and knowledge of the species are used to allocate species to a sensitivity to potential gain class.</p> <p>Note: where the sensitivity to gain has been not been split between the foraging and breeding activities of an animal, it is given in the sensitivityToPotentialGain field. In this case a value of N/A is given here.</p>	Controlled Vocabulary – see Appendix 1.23	VARCHAR (150)
sensitivityToPotentialGainForagingJustification	0-1	Provides the justification for the category of sensitivityToPotentialGainForaging assigned to the species.	Free text	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
sensitivityToPotentialGainBreeding	1	An estimate of the species ability to respond to improvements in habitat condition, where that habitat is used for breeding, through active management actions applied at a specific site. A series of quantitative and qualitative criteria relating to life history characteristics, threat management and knowledge of the species are used to allocate species to a sensitivity to potential gain class. Note: where the sensitivity to gain has been not been split between the foraging and breeding activities of an animal, it is given in the sensitivityToPotentialGain field. In this case a value of N/A is given here.	Controlled Vocabulary – see Appendix 1.23	VARCHAR (150)
sensitivityToPotentialGainBreedingJustification	0-1	Provides the justification for the category of sensitivityToPotentialGainBreeding assigned to the species.	Free text	VARCHAR (150)
levelOfBiodiversityConcern	1	The level of biodiversity concern is an overall evaluation of the risks involved in impacting on and offsetting habitat for a species, considering both the sensitivity to loss and sensitivity to potential gain. Note: where the level of biodiversity concern has been split between the foraging and breeding activities of an animal, they are given in the levelOfBiodiversityConcernForaging and levelOfBiodiversityConcernBreeding fields. In this case a value of N/A is given here.	Controlled Vocabulary – see Appendix 1.24	VARCHAR (150)
levelOfBiodiversityConcernForaging	1	The level of biodiversity concern is an overall evaluation of the risks involved in impacting on and offsetting foraging habitat for a species, considering both the sensitivity to loss and sensitivity to potential gain. Note: where the level of biodiversity concern has not been split between the foraging and breeding activities of an animal, it is given in the levelOfBiodiversityConcern field. In this case a value of N/A is given here.	Controlled Vocabulary – see Appendix 1.24	VARCHAR (150)
levelOfBiodiversityConcernBreeding	1	The level of biodiversity concern is an overall evaluation of the risks involved in impacting on and offsetting breeding habitat for a species, considering both the sensitivity to loss and sensitivity to potential gain.	Controlled Vocabulary – see Appendix 1.24	VARCHAR (150)

Property name	Occurrence	Definition	Format	Data type
		Note: where the level of biodiversity concern has not been split between the foraging and breeding activities of an animal, it is given in the levelOfBiodiversityConcern field. In this case a value of N/A is given here.		
SAII	1	Identifies species that, if impacted by development, are likely to trigger a 'Serious or Irreversible Impact' (SAII). These species meet one of the four principles for determining SAII, as listed in <i>Guidance and Criteria to assist a decision-maker to determine a serious or irreversible impact</i> published by NSW Department of Planning, Industry and Environment. Note: where the SAII Flag has been split between the breeding and foraging habitats of an animal, it is given in the SAIIFlagBreeding and SAIIFlagForaging fields. In this case a value of N/A is given here.	True or False	VARCHAR (5)
SAIIBreeding	1	Identifies species breeding habitat that, if impacted by development, are likely to trigger a 'Serious or Irreversible Impact' (SAII). These species meet one of the four principles for determining SAII, as listed in <i>Guidance and Criteria to assist a decision-maker to determine a serious or irreversible impact</i> published by NSW Department of Planning, Industry and Environment. Note: where the SAII Flag has not been split between the breeding and foraging habitats of an animal, it is given in the SAII field. In this case a value of N/A is given here.	True or False	VARCHAR (5)
SAIIForaging	1	Identifies species foraging habitat that, if impacted by development, are likely to trigger a 'Serious or Irreversible Impact' (SAII). These species meet one of the four principles for determining SAII, as listed in <i>Guidance and Criteria to assist a decision-maker to determine a serious or irreversible impact</i> published by NSW Department of Planning, Industry and Environment. Note: where the SAII Flag has not been split between the breeding and foraging habitats of an animal, it is	True or False	VARCHAR (5)

Property name	Occurrence	Definition	Format	Data type
		given in the SAIL field. In this case a value of N/A is given here.		
generalNotes	0-1	Additional information about the species including references.	Free text	VARCHAR (max)
offsetMultiplier	0-1	The biodiversity risk weighting is based on the level of biodiversity concern and is used to calculate biodiversity credits from the impacts of development. Notes: Where the biodiversity risk weighting has been split between the breeding and foraging habitats of an animal, it is given in the offsetMultiplierBreeding and offsetMultiplierForaging fields. In this case a value of N/A is given here. For ecosystem species, biodiversity risk weighting will not be populated. This is because it is calculated based on site context and assessment.	Numeric with 2 decimal places	VARCHAR (10)
offsetMultiplierForaging	1	The biodiversity risk weighting is based on the level of biodiversity concern and is used to calculate species credits generated from the impacts of development on a species foraging habitat. Note: where the biodiversity risk weighting has not been split between the breeding and foraging habitats of an animal, it is given in the offsetMultiplier field. In this case a value of N/A is given here.	Numeric with 2 decimal places	VARCHAR (10)
offsetMultiplierBreeding	1	The biodiversity risk weighting is based on the level of biodiversity concern and is used to calculate species credits generated from the impacts of development on a species breeding habitat. Note: where the biodiversity risk weighting has not been split between the breeding and foraging habitats of an animal, it is given in the offsetMultiplier field. In this case a value of N/A is given here.	Numeric with 2 decimal places	VARCHAR (10)

8. Specifications for the ThreatenedBiodiversity_TPGeographicData entity set

Tables 31–33 provide the exact specifications of the data fields available in each category of ThreatenedBiodiversity_TPGeographicData entity set available via the BioNet Threatened Biodiversity Web Service.

It should be noted that unlike the ThreatenedBiodiversity_Populations entity set where there is only one row per profileID, there are multiple rows per profileID in the geographic data. However, for any given profileID there will only be one unique row per profileID and IBRASubregion combination. This enables the specific occurrence of any given population in an IBRASubregion to be conveyed.

Table 31 Metadata data fields

Property name	Occurrence	Description	Format	Data type
institutionCode	1	The name (or acronym) in use by the institution having custody of the object(s) or information referred to in the record.	Always: NSW Dept of Planning, Industry and Environment	VARCHAR (50)
collectionCode	1	The name, acronym, coden or initialism identifying the collection or dataset from which the record was derived.	Always: BioNet Threatened Biodiversity	VARCHAR (50)
datasetName	1	The name identifying the dataset from which the record was derived.	Always: NSW Threatened Populations	VARCHAR (50)
dcterms_bibliographicCitation	1	A bibliographic reference for the resource as a statement indicating how this record should be cited (attributed) when used. Note: the date and time are AEST adjusted for daylight saving and reflect the date and time that the web service data was last refreshed from the source data (AtlasDB).	BioNet TP Geographic Data DD/MM/YYYY HH:MM AM/PM +HH:MM offset from UTC	VARCHAR (100)
dcterms_language	1	The language of the resource based on RFC 4646 [RFC4646].	Always: 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:SS AM/PM +HH:MM offset from UTC	DATETIME
dcterms_available	1	Date (often a range) that the resource became or will become available.	DD/MM/YYYY HH:MM:SS AM/PM +HH:MM offset from UTC	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	VARCHAR (50)

Property name	Occurrence	Description	Format	Data type
dcterms_rightsHolder	1	A person or organisation owning or managing rights over the resource.	Always: NSW Dept 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: dataset	VARCHAR (50)

Table 32 Profile Details data fields

Property name	Occurrence	Description	Format	Data type
profileID	1	The unique identifier for the threatened species profile as stored in the Threatened Species Profile Database.	Integer	INT NOT NULL
scientificName	1	The full scientific name of the species.	<genus> <specific epithet> <connecting term> <infraspecific epithet>; where the connecting term can be one of the following: <ul style="list-style-type: none"> • subsp. = subspecies • var. = variety 	VARCHAR (500)
vernacularName	1	The common name of the species.	Text	VARCHAR (500)
populationName	1	The name of the endangered population as listed under the <i>Biodiversity Conservation Act 2016</i> .	Free text	VARCHAR (500)
stateConservation	1	The Legal Status of the species within NSW under the <i>Biodiversity Conservation Act 2016</i> (BC Act 2016) or the <i>Fisheries Management Act 1994</i> No. 38 (FM Act 1994).	Controlled Vocabulary – see Appendix 1.1	VARCHAR (150)
countryConservation	1	The Legal Status of the species under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).	Controlled Vocabulary – see Appendix 1.2	VARCHAR (150)
kingdom	1	The full scientific name of the kingdom in which the taxon is classified.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Animalia • Plantae • Fungi 	VARCHAR (150)

Property name	Occurrence	Description	Format	Data type
family	1	The full scientific name of the family in which the taxon is classified.	Text	VARCHAR (30)
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	VARCHAR (150)
dateOfFinalGazettal	0-1	The date of final gazettal.	DD/MM/YYYY	VARCHAR (20)

Table 33 Geographic Data fields

Property name	Occurrence	Description	Format	Data type
IBRASubregion	1	The name of the IBRA7 subregion. Refer to Australia's bioregions (IBRA) for more information on the IBRA framework. Note: Where a subregion occurs outside of NSW then the subregion name is not given, just the name of the state (e.g. QLD).	Controlled vocabulary using IBRA Version 7 subregion names	VARCHAR (100)
IBRASubregionID	1	The unique ID associated with the IBRA subregion.	Alphanumeric code	
occurrence	1	If the threatened entity is known or predicted to occur within the IBRA subregion.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Known • Predicted 	VARCHAR (20)
geographicalConstraints	0-1	Describes any special conditions for distribution of the species in the IBRA subregion.	Free text	VARCHAR (500)

9. Specifications for the ThreatenedBiodiversity_KeyThreateningProcesses entity set

Tables 34–37 provide the exact specifications of the data fields available in each category of ThreatenedBiodiversity_KeyThreateningProcesses entity set available via the BioNet Threatened Biodiversity Web Service.

Table 34 Metadata data fields

Property name	Occurrence	Description	Format	Data type
institutionCode	1	The name (or acronym) in use by the institution having custody of the object(s) or information referred to in the record.	Always: NSW Dept of Planning, Industry and Environment	VARCHAR (50)
collectionCode	1	The name, acronym, coden or initialism identifying the collection or dataset from which the record was derived.	Always: BioNet Threatened Biodiversity	VARCHAR (50)
datasetName	1	The name identifying the dataset from which the record was derived.	Always: NSW Key Threatening Processes	VARCHAR (50)
dcterms_bibliographic Citation	1	A bibliographic reference for the resource as a statement indicating how this record should be cited (attributed) when used.	BioNet Key Threatening Processes DD/MM/YYYY HH:MM AM/PM +HH:MM offset from UTC. Note: the date and time are AEST adjusted for daylight saving and reflect the date and time that the web service data was last refreshed from the source data (AtlasDB).	VARCHAR (100)
dcterms_language	1	The language of the resource based on RFC 4646 [RFC4646].	Always: 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:SS AM/PM +HH:MM offset from UTC	DATETIME
dcterms_available	1	Date (often a range) that the resource became or will become available.	DD/MM/YYYY HH:MM:SS AM/PM +HH:MM offset from UTC	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	VARCHAR (50)

Property name	Occurrence	Description	Format	Data type
dcterms_rightsHolder	1	A person or organisation owning or managing rights over the resource.	Always: NSW Dept 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: dataset	VARCHAR (50)

Table 35 Profile Details data fields

Property name	Occurrence	Description	Format	Data type
profileID	1	The unique identifier for the key threatening process as stored in the Threatened Species Profile Database.	Integer	INT NOT NULL
KTPName	1	The name of the key threatening process as listed under the <i>Biodiversity Conservation Act 2016</i> (BC Act 2016).	Free text	VARCHAR (500)
displayNameHTML	1	The common name of the species including HTML tags for rendering in HTML applications.	Text with HTML tags	VARCHAR (500)
stateConservation	1	The Legal Status of the species within NSW under the <i>Biodiversity Conservation Act 2016</i> (BC Act 2016) or the <i>Fisheries Management Act 1994</i> No. 38 (FM Act 1994).	Controlled Vocabulary – see Appendix 1.1	VARCHAR (150)
countryConservation	1	The Legal Status under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).	Controlled Vocabulary – see Appendix 1.2	VARCHAR (150)
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	VARCHAR (150)
dateOfFinalGazettal	1	The date of final gazettal.	DD/MM/YYYY	VARCHAR (20)
description	0-1	Description of the key threatening process.	Text with HTML tags	VARCHAR (max)
distribution	0-1	Description of where the key threatening process occurs.	Text with HTML tags	VARCHAR (max)
profileStatus	1	Indicates if all the attributes for the entity has been evaluated and populated in the system.	One item from the following controlled vocabulary: <ul style="list-style-type: none"> • Complete • Incomplete 	VARCHAR (150)

Table 36 Multimedia data fields

Property name	Occurrence	Description	Format	Data type
associatedMedia	0-1	The unique identifier for multimedia resources (such as photos and sounds) associated with the profile listed in order of display. The actual resource can be retrieved via the BioNet Multimedia web service.	<identifier>;<identifier>	VARCHAR (500)

Table 37 Documentation data fields

Property name	Occurrence	Description	Format	Data type
fullReference	0-n	Documentation associated with the profile.	<document key>;<title>;<authors>;<year>;<URI> <document key>;<title>;<authors>;<year>;<URI> , where any given element is text with HTML tags	VARCHAR (max)

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
- Protected Fish
- Species presumed Extinct
- Vulnerable
- Vulnerable Fish
- Vulnerable Ecological Community
- Not Listed

A1.2 countryConservation

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

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

A1.4 classOfCredit

- Species
- Ecosystem
- Species/Ecosystem
- EEC/Marine

A1.5 patchSize

- < 5 ha
- 5 – <25 ha
- 25 – <100 ha
- >= 100 ha
- N/A

A1.6 nativeVegetationCover

- intact (> 70% natural habitat retained)
- variegated (between 31 and 70% habitat retained)
- fragmented (between 11 and 30% habitat retained)
- relictual (with 10% or less habitat retained)
- N/A

A1.7 habitatConstraints

- Burrows
- Caves
- Claypans
- Cliffs
- Dunes
- Epiphytes
- Escarpments

- Fallen/standing dead timber including logs
- Hollow bearing trees
- Intertidal zones
- Other
- Rocky areas
- Semi-permanent/ephemeral wet areas
- Swamps
- Termite mounds
- Waterbodies
- N/A

A1.8 potentialImpact

- Exclude Bush Fire
- Restrict Bush Fire
- No Conditions

A1.9 fireCodeStatus

- Include on Fire Code
- New Profile for Assessment
- Not on Fire Code

A1.10 geographicDistribution

- Known from ≤ 3 locations and/or an AOO $< 10\text{km}^2$ or an EOO of $< 100\text{km}^2$
- Known from 4 – < 6 locations and/or an AOO $< 500\text{km}^2$ or an EOO of $< 5000\text{km}^2$
- Known from 6 – ≤ 10 locations and/or an AOO 200km^2 or an EOO $< 20\,000\text{km}^2$
- None

A1.11 populationSize

- < 50 individuals or < 250 individuals where threats are known
- 50 - < 250 individuals or 250 - < 2500 individuals where threats are known
- 250 - < 1000 individuals or 2500 to $< 10\,000$ individuals where threats are known
- None

A1.12 rateOfDecline

- Population reduction of $\geq 80\%$ in 10 years or three generations
- Population reduction of $\geq 50\%$ in 10 years or three generations
- Population reduction $\geq 30\%$ in 10 years or three generations
- None

A1.13 effectivenessOfManagement

- Threats beyond control
- Limited ability to control threats
- Moderate ability to control threats

- Good ability to control threats

A1.14 speciesDependOnHabitatAttribute

- Non-responding attributes
- Very slow developing attributes
- Slow Developing attributes
- Not dependant
- N/A

A1.15 ageFemalesFirstProduce

- > 4 years
- 2 – 4 years
- < 2 years
- N/A

A1.16 averageNumberOfOffspring

- < 1
- 1 – 3
- 4 – 9
- 10 - 100
- > 100
- N/A

A1.17 reproductiveStrategy

- Sterile or primarily clonal
- Resprouts and only occasionally sets seed
- Primarily sets seeds
- Resprouts and sets seeds
- N/A

A1.18 lifespan

- < 1 year
- 1 -5 years
- > 5 years
- N/A

A1.19 ageAtFirstFlowering

- > 10 years
- 5 - 10 years
- < 5 years
- N/A

A1.20 seedProduction

- < 50
- in the 100s
- in the 1000s
- N/A

A1.21 seedbank

- Transient canopy seedbank (0 - 2 years)
- Transient soil seedbank (0 - 2 years)
- Persistent canopy or soil seedbank (> 2 years)
- N/A

A1.22 sensitivityToLoss

- Very High Sensitivity to Loss
- High Sensitivity to Loss
- Moderate Sensitivity to Loss
- N/A

A1.23 sensitivityToPotentialGain

- Very High Sensitivity to Potential Gain
- High Sensitivity to Potential Gain
- Moderate Sensitivity to Potential Gain
- Low Sensitivity to Potential Gain
- N/A

A1.24 levelOfBiodiversityConcern

- Very High
- High
- Moderate
- Low
- N/A