BioNet Vegetation Classification data standard

Version 2.5

**Department of Climate Change,
Energy, the Environment and Water**

Acknowledgement of Country

Department of Climate Change, Energy, the Environment and Water acknowledges the Traditional Custodians of the lands where we work and live.
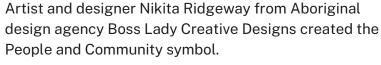
We pay our respects to Elders past, present and emerging.

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1. Introduction

The BioNet Vegetation Classification Web Service provides an open application programming interface (API). It enables IT application developers to integrate data held in the BioNet Vegetation Classification database with software applications. This open data initiative has many potential uses. These range from mobile apps to organisational decision-management business systems.

The web service complements the existing BioNet Vegetation Classification application. It provides direct programmatic access to BioNet data holdings.

Legacy BioMetric Vegetation Type data are not available via the web service. These are only available from the Archived BioNet datasets webpage.

This document sets out detailed information on the data available via the BioNet Vegetation Classification Web Service. You can use it to evaluate whether this will meet your data needs.

Please make sure the version of this data standard (2.5) matches the online metadata. Check the value in 'bioNet:dataStandardVersion' for 'EntitySet Name=VegetationClassification_PCTDefinition':

<EntitySet Name="VegetationClassification_PCTDefinition" EntityType="BioSvcApp.Models.BioSvcApp.Models.vwCUBE_VegClassificationPCTDefinition" bioNet:bioNetOpenAPIVersion="4.0.2" **bioNet:dataStandardVersion="2.5"** bioNet:dateLastBulkUpdate="01/02/2025">

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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.

The BioNet Web Service developer guide provides more background information about the protocol. OData makes data available via 'entity sets' structured as tables of data.

The Vegetation Classification Web Service has 4 entity sets linked by PCTID (Plant Community Type Identification).

- **VegetationClassification_PCTDefinition:** This entity set provides PCT attributes including vegetation descriptions, distribution information, relationships to higher levels of the NSW data vegetation classification hierarchy, and estimates of PCT clearing loss. Floristic data for qualitative plant community types (PCTID < 3000) are available in the VegetationClassification_PCTStratumData entity set. For quantitative plant community types (PCTID > 3000), floristic data are available in the VegetationClassification_PCTGrowthForm entity set.

- **VegetationClassification_PCTBenchmarks:** This entity set provides the data that business applications would use to evaluate the condition of a plant community type once it has been identified. (Table 2).

- **VegetationClassification_PCTStratumData:** This entity set provides floristic data forapproved and decommissioned qualitative plant community types, organised by stratum. As the quantitative PCT classification is extended throughout New South Wales, increasingly more qualitative plant community types will be decommissioned. Floristic data for quantitative PCTs are made available in the VegetationClassification_PCTGrowthForm entity set.

- **VegetationClassification_PCTGrowthForm:** This entity set provides detailed floristic data by growth form group for plant community types that have been quantitatively defined. If a plant community type is not quantitatively defined, then floristic data are available in the VegetationClassification_PCTStratumData entity set (Table 4).

Table 1　　**Overview of the categories of data shared via the VegetationClassification_PCTDefinition entity set**

Category	Description
Metadata	Metadata associated with the record, including information on rights and when the record was last updated.
PCT Classification	Information on the plant community type (PCT) itself, including its name and unique identifier plus the associated vegetation formation and class from the classification hierarchy.
Diagnostic data	Non-floristic data to help identify a plant community type, such as rainfall, soil and elevation range within which the PCT normally occurs.
Fire data	Data on the fire regime associated with the plant community type.
Extent	Data on the extent (past and present) of the plant community type within New South Wales.
Associated Threatened Biodiversity	Profile IDs for threatened species and threatened ecological communities (TECs) associated with the plant community type, enabling retrieval of detailed data on threatened entities from the BioNet Threatened Biodiversity data collection. In addition, data on the degree of match between the plant community type and relevant threatened ecological communities.
PCT Source	References to sources used to define the plant community type.

Table 2　　**Overview of the categories of data shared via the VegetationClassification_PCTBenchmarks entity set**

Category	Description
Metadata	Metadata associated with the record, including information on rights and when the record was last updated.
PCT Classification	Subset of the PCT Classification data given in the PCTDefinition table enabling linkage between the 2 tables. Linkage should be made based on the unique PCTID.
Benchmark metadata	Metadata associated with the benchmarks themselves. This includes information such as how the benchmarks have been calculated, sources,

Category	Description
	reference sites and variations of benchmarks depending on seasonality.
Benchmarks	The actual benchmark data for each plant community type.

Table 3 **Overview of the categories of data shared via the VegetationClassification_PCTStratumData entity set**

Category	Description
Metadata	Metadata associated with the record, including information on rights and when the record was last updated.
PCT Classification	Subset of the PCT Classification data given in the PCTDefinition table enabling linkage between the 2 tables. Linkage should be made based on the unique PCTID.
Florisitc Data	Detailed floristic data by strata to enable identification of the plant community type when evaluating vegetation communities in the field. Datra here include species list per stratum and detailed floristic data per substratum.

Table 4 **Overview of the categories of data shared via the VegetationClassification_PCTGrowthForm entity set**

Category	Description
Metadata	Metadata associated with the record, including information on rights and when the record was last updated.
PCT Classification	Subset of the PCT Classification data given in the PCTDefinition table enabling linkage between the 2 tables. Linkage should be made based on the unique PCTID.
Growth Form Data	Floristic data by species name and growth from to enable identification of the plant community type when evaluating vegetation communities in the field. This data relates to Quantitative PCTs.

Detailed descriptions of the data fields available within each category are given in the tables that follow.

3. Specifications for the VegetationClassification_PCTDefinition entity set

Tables 5 to 11 provide the specifications of the data fields available in each category of the VegetationClassification_PCTDefinition via the Vegetation Classification Web Service. Each table presents the group of terms that fall within the specified category.

Table 5   Available 'metadata' fields in the VegetationClassification_PCTDefinition entity set

Field name	Occurrence	Definition	Format	Example	Data type
institutionCode	1	The name (or acronym) in use by the institution that has custody of the object(s) or information referred to in the record.	Always 'NSW Department of Planning, Industry and Environment'	'NSW Dept of Planning, Industry and Environment'	"Edm.String"
collectionCode	1	The name, acronym, coden, or initialism identifying the collection or dataset from which the record was derived.	Always 'BioNet Vegetation Classification'	'BioNet Vegetation Classification'	"Edm.String"
datasetName	1	The name identifying the dataset from which the record was derived.	Always 'PCT Classification'	'PCT Classification'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
dcterms_rightsHolder	1	The person or organisation owning or managing rights over the resource.	Always 'NSW Department of Planning, Industry and Environment'	'NSW Dept of Planning, Industry and Environment'	"Edm.String"
dcterms_rights	1	Information about rights held in and over the resource. Typically, rights information includes a statement about various property rights associated with the resource, including intellectual property rights.	Always 'CC-BY 4.0'	'CC-BY 4.0'	"Edm.String"
dcterms_language	1	The language of the resource.	RFC 4646 [RFC4646]	'en' for English	"Edm.String"
dcterms_type	1	The nature or genre of the resource.	Always 'dataset'	'dataset'	"Edm.String"
dcterms_bibliographic Citation	1	A bibliographic reference for the resource, as a statement indicating how the record should be cited (attributed) when used.	'BioNet Vegetation Classification <current date> <HH:MM> <AM/PM> +<HH:MM offset from UTC>' Note: The date and time are Australian Eastern Standard Time adjusted for	'BioNet Vegetation Classification 7/02/2025 2:23 AM +11:00'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			daylight saving and reflect the date and time when the web service data were last refreshed from the source data (BioNet Vegetation Classification).		
dcterms_modified	1	The most recent date and time when the resource was changed.	YYYY-MM-DDTHH:MM:SS.000+HH:MM offset from UTC Note: The date modified relates to any change made in the source system (BioNet Vegetation Classification). It is thus possible that the date modified is updated but no actual changes are carried through into the data fields presented via the web service.	'2021-04-23T13:39:18.037+10:00'	"Edm.DateTimeOffset"
dcterms_available	1	Date (often a range) that the resource became or will become available.	YYYY-MM-DDTHH:MM:SS.000+HH:MM offset from UTC	'2005-12-31T00:00:00+11:00'	"Edm.DateTimeOffset"

Table 6   Available 'PCT classification' fields in the VegetationClassification_PCTDefinition entity set

Field name	Occurrence	Definition	Format	Example	Data type
PCTID	1	The unique identifier for the PCT. Provides a linking key between VegetationClassification_PCTDefinition, VegetationClassification_PCTBenchmarks, VegetationClassification_PCTStratumData and VegetationClassification_PCTGrowthForm.	Integer	'2'	"Edm.Int32" Nullable= "false"
PCTName	1	A colloquial plant community description that can be understood by non-botanists. It may include common names of dominant plant species, or names of a geographical region, a substrate, a soil type or a climatic zone.	Text	'River Red Gum-sedge dominated very tall open forest in frequently flooded forest wetland along major rivers and floodplains in south-western NSW'	"Edm.String"
PCTScientificName	1	The scientific name for the PCT.	Text	'River Red Gum-sedge dominated very tall open forest in frequently flooded	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
				forest wetland along major rivers and floodplains in south-western NSW'	
status	1	The PCT definition status of the PCT, as determined by the department's Executive Director Strategic Policy, Science and Engagement.	One of the following controlled vocabulary: Approved Decommissioned	'Approved'	"Edm.String"
classificationType	1	Indicates if the PCT has been determined using a quantitative or qualitative-based method Note: If the classification type equals 'Quantitative' then detailed floristic data for the PCT should be retrieved from the VegetationClassification_PCTGrowthForm entity set. If the classification type equals 'Qualitative',	Either 'Quantitative' or 'Qualitative'	'Qualitative'	"Edm.String" Nullable ="false"

Field name	Occurrence	Definition	Format	Example	Data type
		then detailed floristic data should be retrieved from the VegetationClassification_PCTStratumData entity set.			
classificationConfidenceLevel	1	Descending scale of a qualitative measure of confidence. These confidence ratings relate to the completeness of the data on the listed community.	One of the following controlled vocabulary (see Appendix A.1): Very High High Medium Low Very Low	'Medium'	"Edm.String"
vegetationClass	1	Equivalence of a community to one of the vegetation classes in the Keith (2004) statewide vegetation map.	Controlled vocabulary as per the vegetation classes defined in Keith (2004)	'Inland Riverine Forests'	"Edm.String"
vegetationClassID	1	The unique ID associated with the vegetationClass.	Whole number	'1309'	"Edm.String"
vegetationFormation	1	Equivalence of a community to one of the vegetation formations in the	Controlled vocabulary as per the vegetation formations defined in Keith (2004)	'Forested Wetlands'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		Keith (2004) statewide vegetation map.			
vegetationFormationID	1	The unique ID associated with the vegetationFormation.	Whole number	'1893'	"Edm.String"
IBRA	1–n	The name of the IBRA7 region. Refer to Australia's bioregions (IBRA) for more information on the IBRA framework.	Controlled vocabulary using IBRA Version 7 region names. Where there is more than one region, they will be separated by semicolons	'NSW South Western Slopes;Riverina;Cobar Peneplain;Murray Darling Depression'	"Edm.String"
IBRAID	1–n	The unique ID associated with the IBRA region.	Alphabetic code. Where there is more than one region ID, they will be separated by semicolons and the order will correspond to the associated IBRA name given in the IBRA field.	'NSS;RIV;COP;MDD'	"Edm.String"
IBRASubregion	1–n	The name of the IBRA7 region. Refer to Australia's bioregions (IBRA) for more information on the IBRA framework.	Controlled vocabulary using IBRA Version 7 subregion names. Where there is more than one subregion	'Murray Fans;Murray Scroll Belt;Lachlan Plains;Inland Slopes;Robinvale Plains;Lower Slopes;Murrumbidgee	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			they will be separated by semicolons.	;South Olary Plain;Lachlan'	
IBRASubregionID	1–n	The unique ID associated with the IBRA subregion.	Alphanumeric code. Where there is more than one subregion ID they will be separated by semicolons and the order will correspond to the associated subregion name given in the IBRASubregion field.	'RIV03;RIV06;COP05; NSS01;RIV05;NSS02; RIV02;MDD01;RIV01'	"Edm.String"
county	1–n	The full, unabbreviated name of the next smaller administrative region than stateProvince (county, shire, department, etc.) in which the location occurs. In the context of NSW, the local government area (LGA).	Text. Where the PCT occurs in more than one local government area the names will be separated by semicolons.	'CLARENCE VALLEY; COFFS HARBOUR;'	"Edm.String"
landscapeName	1–n	The name of the NSW Landscape (Mitchell).	Text. Where the PCT occurs in more than one NSW Landscape (Mitchell) the names	'Sturt Dunes;Mallee Cliffs Salt Lakes and Playas'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			will be separated by semicolons.		
isADerivedPlantCommunityType	0–1	Used to indicate whether the PCT is never derived, partially derived, or always derived.	One of the following controlled vocabulary: - No – never occurs as a derived community - Yes – is fully derived - Partial – occurs as both derived and original.	'No – never occurs as a derived community'	"Edm.String"
originalCommunityThisPCT DerivedFrom	0–n	Where the community is a derived community, the community type(s) from which this community has been derived.	Text. Where there is more than one original community type they will be separated by semicolons. Note: The name given here corresponds directly to the name given in the PCTName field of the original PCT from which this community is derived. If the community is not derived or there is no data, 'null' is given.	'Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion;'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
derivedFromCommunityType Comment	0–1	Comments pertaining to the PCT if derived type.	Free text Note: If there are no comments or the community is not derived, 'null' is given.	'Occurred extensively as an original community. Can occur as a derived community – predominantly from open Boree/Myall woodland (VCAID 26). Individual sites can be derived from other intergraded woodland communities.'	"Edm.String"
totalNumberOfReplicates	0–1	The total number of primary and secondary replicates associated with a PCT.	Integer	'3'	"Edm.Int32"
numberOfPrimaryReplicates	0–1	The number of replicates assigned to the PCT with a 'primary' assignment. Primary replicates are within the calculated statistical floristic threshold of the PCT. Primary replicates are used in floristic profiling of the PCT, as well as spatial and environmental	Integer	'2'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		profiling. Assignments of replicates to PCTs are undertaken and maintained by the department.			
numberOfSecondaryReplicates	0–1	The number of replicates assigned to the PCT with a 'secondary' assignment. Secondary replicates are not within the calculated statistical floristic threshold of the PCT. The assignment of secondary replicates to PCTs has been made on the basis of environmental and other auxiliary information. Secondary replicates may be disturbed, have incomplete species lists, or have not been collected using standard survey techniques.	Integer	'1'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		Secondary replicates are not used in the floristic profiling of the PCT, however, they are used in spatial and environmental profiling. Assignments of replicates to PCTs are undertaken and maintained by the department.			
medianNativeSpecies Richness	0–1	The median number of native species recorded in a 400 m^2 replicate, calculated from the primary replicate assignments to the PCT.	Text	'54'	"Edm.Int32"

Table 7   Available 'diagnostic' fields in the VegetationClassification_PCTDefinition entity set

Field name	Occurrence	Definition	Format	Example	Data type
minimumElevationInM eters	0–1	The minimum elevation in metres above sea level of a replicate assigned to the PCT. Calculated	Number to one decimal place	'203.3'	"Edm.Decimal" Scale ="variable"

Field name	Occurrence	Definition	Format	Example	Data type
		by intersecting replicates that define the PCT with elevation data.			
medianElevationInMeters	0–1	The median elevation in metres above sea level of a replicate assigned to the PCT. Calculated by intersecting replicates that define the PCT with elevation data.	Number to one decimal place	'376.1'	"Edm.Decimal" Scale ="variable"
maximumElevationInMeters	0–1	The maximum elevation in metres above sea level of a replicate assigned to the PCT. Calculated by intersecting replicates that define the PCT with elevation data.	Number to one decimal place	'765.2'	"Edm.Decimal" Scale ="variable"
minimumAnnualRainfallInMillimeters	0–1	The minimum annual rainfall in millimetres of a replicate assigned to the PCT. Calculated by intersecting replicates that define	Integer	'902'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		the PCT with rainfall data.			
medianAnnualRainfall InMillimeters	0–1	The median annual rainfall in millimetres of a replicate assigned to the PCT. Calculated by intersecting replicates that define the PCT with rainfall data.	Integer	'1299'	"Edm.Int32"
maximumAnnualRainf allInMillimeters	0–1	The maximum annual rainfall in millimetres of a replicate assigned to the PCT. Calculated by intersecting replicates that define the PCT with rainfall data.	Integer	'1554'	"Edm.Int32"
minimumAnnualMean TemperatureInCelsius	0–1	The minimum annual mean temperature in degrees Celsius or a replicate assigned to the PCT. Calculated by intersecting replicates that define	Number to 2 decimal places	'12.64'	"Edm.Decimal" Scale ="variable"

Field name	Occurrence	Definition	Format	Example	Data type
		the PCT with temperature data.			
medianAnnualMeanTemperatureInCelsius	0–1	The median annual mean temperature in degrees Celsius of a replicate assigned to the PCT. Calculated by intersecting replicates that define the PCT with temperature data.	Number to 2 decimal places	'14.62'	"Edm.Decimal" Scale ="variable"
maximumAnnualMeanTemperatureInCelsius	0–1	The maximum annual mean temperature in degrees Celsius of a replicate assigned to the PCT. Calculated by intersecting replicates that define the PCT with temperature data.	Number to 2 decimal places	'15.96'	"Edm.Decimal" Scale ="variable"
vegetationDescription	1	Summary description of the plant community.	Free text	'Very tall open forest dominated by river red gum (Eucalyptus camaldulensis subsp. camaldulensis) that grow to over 30 m high and sometimes exceed 45 m. Shrubs are usually absent.	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
				The ground cover may be sparse and covered in litter or mid-dense to dense. Occurs on black to grey silty-loam-clay alluvial (often self-mulching) soils in frequently flooded sites bordering stream channels, ox-bows and in nearby low-lying areas including intermittent lakes. Mainly distributed along the Murray River with smaller areas along the Murrumbidgee and Lachlan rivers in the Riverina and Murray–Darling Basin Bioregions of New South Wales and Victoria with small areas in the NSW South Western Slopes Bioregion.'	

Field name	Occurrence	Definition	Format	Example	Data type
variationAndNaturalDisturbance	0–1	Description of floristic variation in the community and natural disturbances that affect successional stages and species composition.	Free text Note: If no description exists, 'null' is given.	'This community occurs in low-lying areas and its species composition is adapted to frequent flooding. The ecology of regeneration of river red gum is discussed on pp33-34 in Forestry Commission of NSW (1985) and Stefano (2002).'	"Edm.String"

Table 8   Available 'fire' fields in the VegetationClassification_PCTDefinition entity set

Field name	Occurrence	Definition	Format	Example	Data type
fireRegime	0–1	Description of known or postulated fire regimes for the appropriate management of the community, and comments on the impacts of fire on the community.	Free text Note: If no description exists, 'null' is given.	'Rarely subject to fire due to flooding and low ground biomass. Crown fires are rare due to the height of the trees and a lack of shrubs. Intense or even medium-intense fires may kill river red gum trees by burning to the tree's cambium	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
				at the base of the trees.'	

Table 9   **Available 'extent' fields in the VegetationClassification_PCTDefinition entity set**

Field name	Occurrence	Definition	Format	Example	Data type
PCTPercentClearedSt atus	1	The percent cleared status of the PCT, as determined by the department's Executive Director Strategic Policy, Science and Engagement.	One of the following controlled vocabulary: • Draft • Proposed • Approved • Revised • Decommissioned	'Approved'	"Edm.String"
PCTPercentCleared	1	Proportion of the PCT cleared within NSW (i.e. area of pre-European extent minus the current extent, divided by the pre-European extent, expressed as a percentage). May be calculated from current and pre-European PCT mapping or based on expert opinion.	Percentage represented as a decimal value (e.g. 50% would be given in web services as 0.50)	'0.14'	"Edm.Decimal" Scale= "variable"

Field name	Occurrence	Definition	Format	Example	Data type
PCTPercentClearedAccuracy	1	A percent accuracy rating for the PCT percent cleared value.	One of the following controlled vocabulary: • +/– 10 • +/– 20 • +/– 30 • +/– 40 • +/– 50 • +/– 60 • +/– 70 • +/– 80 • +/– 90	'+/– 80'	"Edm.String"
PCTPercentClearedComments	0–1	Comments pertinent to PCT % cleared provided.	Free text	'PCT % Cleared value revised as BAM PCT Data Project (reference: Umwelt (Australia) Pty Limited).'	"Edm.String"
PCTPercentClearedSource	0–1	The source of the value given in the PCTPercentCleared field.	One of the following controlled vocabulary: • Calculated from current and Pre-European PCT mapping • Expert Opinion • Unknown	'Expert Opinion'	"Edm.String"
preEuropeanExtent	1	The measured or estimated pre-European extent of	Hectares	'35000'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		the plant community within NSW based on the best available information including mapping, modelling or expert advice.			
preEuropeanAccuracy	1	A percent accuracy rating for the pre-European extent value.	One of the following controlled vocabulary: • 10 • 30 • 50 • 70 • 90 • null	'30'	"Edm.String"
preEuropeanQualifiers	1	Description for derivation of pre-European extent.	One of the following controlled vocabulary: • Estimated from extant vegetation maps: full range • Estimated from extant vegetation maps: part range • Estimated from pre-European map: full range • Estimated from pre-European map: part range	'Expert estimate not based on any mapped vegetation'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			• Expert estimate not based on any mapped vegetation • Modelled from sound site or polygon data		
preEuropeanComments	0–1	Free format comments on the pre-European extent figure describing any qualifications about the figure.	Free text	'Extrapolated from current extent mapping on the Murray River with estimates from other rivers.'	"Edm.String"
currentExtent	1	The measured or estimated current extent of the plant community within NSW based on the best available information including mapping, modelling or expert advice.	Hectares	'30000'	"Edm.Int32"
currentAccuracy	1	A percent accuracy rating for the current extent value.	One of the following controlled vocabulary: • 10 • 30 • 50 • > 70 • > 90	'30'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			• null		
currentQualifiers	1	Description for derivation of current extent.	One of the following controlled vocabulary: • Estimated from broadly classified current extant vegetation map • Estimated from mapped extant vegetation: full range • Estimated from mapped extant vegetation: part range • Estimated from pre-European map: full range • Estimated from pre-European map: part range • Expert estimate • Measured from map of extant vegetation • Modelled from sound site data over unclassified	'Estimated from broadly classified current extant vegetation map'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			map of extant vegetation • null		
currentComments	0–1	Free format comments on the current extent figure describing any qualifications about the figure.	Free text	'Estimated that about 20,000 ha occurs along the Murray River in NSW. This has been estimated by attributing 5% of section 1, 5% of section 2, 20% of section 3, 20% of section 4, 5% of section 5 and 5% of section 6 of the structural map unit Red Gum Forest as mapped in Margules & Partners (1990) and by correlating the sampling plot frequency along the River of floristic communities 1 and 2 described in Smith & Smith (1990).'	"Edm.String"

Table 10   Available 'associated threatened biodiversity' fields in the VegetationClassification_PCTDefinition entity set

Field name	Occurrence	Definition	Format	Example	Data type
TSProfileID	0–n	The unique identifier for the related threatened species profile, as stored in the BioNet Threatened Biodiversity Profiles data collection maintained by the department.	Numeric code. Where more than one threatened species is associated with a PCT, the profile IDs are separated by commas. Note: If no threatened species profiles are associated with the PCT, 'null' is given.	'10045,10113,10116,10130,10159'	"Edm.String"
TECAssessed	1	Indicator of whether the associations between the PCT and TECs have been assessed.	One of the following controlled vocabulary: - Has associated TEC - No associated TEC - Not assessed	'No associated TEC'	"Edm.String"
stateTECProfileID	0–n	The unique identifier for the related state-listed TEC profile, as stored in the BioNet Threatened Biodiversity Profiles data collection maintained by the department. State-listed TECs are defined in the	Numeric code. Where more than one TEC is associated with a PCT, the profile IDs will be separated by commas. Note: If no threatened species profiles are associated with the PCT, 'null' is given.	'10065,10973'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		Biodiversity Conservation Act 2016 (BC Act).			
stateTECFitStatus	0–1	Indicator of the relationship between the PCT and the relevant BC Act TEC.	One of the following controlled vocabulary: • (Part) • (Equivalent)	'(Part); (Equivalent); (Part);'	"Edm.String"
stateTECDegreeOfFit	0–1	Description of the degree of match between the PCT and the relevant TEC.	One of the following controlled vocabulary: • The PCT is the listed community by definition • The PCT is represented by the TEC to a large degree. The PCT is part of the TEC and is defined as a finer scale community. The PCT does not occur other than within the TEC. The TEC may occur in some areas where the community does not represent the PCT. The PCT completely includes the TEC and	'The PCT to some greater or lesser degree includes the TEC, and is defined as a broader community than the TEC. The PCT and the TEC may occur in some areas independent of each other.'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			is defined as a broader community than the TEC. The TEC never occurs except as part of this community, but the PCT may occur in some areas that do not represent the TEC.		
			The PCT is, to some greater or lesser degree, a part of the TEC, and it is defined as a finer scale community. The PCT and the TEC may occur in some areas independently of each other.		
			The PCT, to some greater or lesser degree, includes the TEC, and it is defined as a broader community than the TEC. The PCT and the TEC may occur in some areas independently of each other.		

Field name	Occurrence	Definition	Format	Example	Data type
			The PCT and the TEC are likely to be related in some way, but the exact relationship is unknown.		
countryTECProfileID	0–n	The unique identifier for the related Commonwealth-listed TEC profile, as stored in the BioNet Threatened Biodiversity Profiles data collection maintained by the department. Commonwealth-listed TECs are defined in the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).	Numeric code. Where more than one TEC is associated with a PCT, the profile IDs are separated by commas. Note: If no threatened species profiles are associated with the PCT, 'null' is given.	'10175,10550,10749,10973'	"Edm.String"
countryTECFitStatus	0–1	Indicator of the relationship between the PCT and the relevant EPBC Act TEC.	One of the following controlled vocabulary: • (Part) • (Equivalent) • Where more than one TEC is	'(Part); (Part);'	

Field name	Occurrence	Definition	Format	Example	Data type
			associated with a PCT, the countryECFitStatus will be separated by a semicolon		
countryTECDegreeOfFit	0–1	Description of the degree of match between the PCT and the relevant TEC.	One of the following controlled vocabulary: The PCT is the listed community by definition. The PCT is represented by the TEC to a large degree. The PCT is part of the TEC and is defined as a finer scale community. The PCT does not occur other than within the TEC. The TEC may occur in some areas where the community does not represent the PCT. The PCT completely includes the TEC and is defined as a broader community than the TEC. The TEC never occurs except as part	'The PCT is to some greater or lesser degree a part of the TEC, and is defined as a finer scale community. The PCT and the TEC may occur in some areas independent of each other. ;The PCT is to some greater or lesser degree a part of the TEC, and is defined as a finer scale community. The PCT and the TEC may occur in some areas independent of each other. ;'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			of this community, but the PCT may occur in some areas that do not represent the TEC.		
			The PCT is, to some greater or lesser degree, a part of the TEC, and it is defined as a finer scale community. The PCT and the TEC may occur in some areas independently of each other.		
			The PCT, to some greater or lesser degree, includes the TEC, and it is defined as a broader community than the TEC. The PCT and the TEC may occur in some areas independently of each other.		
			The PCT and the TEC are likely to be related in some way, but the		

Field name	Occurrence	Definition	Format	Example	Data type
			exact relationship is unknown. Where more than one TEC is associated with a PCT, the countryTECFitStatus will be separated by a semicolon.		
TECComments	0–1	Detailed information about the PCT and its associated TEC/s to assist users in correctly determining TEC presence on site.	Free text. Sentence format. Where there is more than one TEC association comment, each comment begins as a new sentence.	'(Comment TEC1) Relates to the NSW Blue Mountains Swamps TEC. (Comment TEC2) Relates to the Commonwealth Temperate Highland Peat Swamps on Sandstone TEC where it occurs at elevations above 600 m asl.'	"Edm.String"

Table 11   Available 'PCT source' fields in the VegetationClassification_PCTDefinition entity set

Field name	Occurrence	Definition	Format	Example	Data type
fullReference	0–n	Full details for references for community information.	Text. As would be cited in a scientific journal, e.g. Short, J. Database Referencing. In	'Peake, TC (2006) The Vegetation of the Central Hunter Valley, New South Wales. A report on the	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			Journal of Database Referencing, vol. 2, pp.213–234. Database Publishing, Sydney. Where there is more than one reference, the references will be separated by semicolons.	findings of the Hunter Remnant Vegetation Project. Hunter-Central Rivers Catchment Management Authority, Paterson; Department of Sustainability, Environment, Water, Population and Communities (2011b). Weeping Myall Woodlands in Community and Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from: http://www.environment.gov.au/sprat.; NSW Scientific Committee (2005) Hunter Valley Weeping Myall Woodland of the	

Field name	Occurrence	Definition	Format	Example	Data type
				Sydney Basin Bioregion-endangered ecological community determination - final. DEC (NSW), Sydney.; Sivertsen D, Roff A, Somerville M, Thonell J and Denholm B 2011. Hunter Native Vegetation Mapping. Geodatabase Guide (Version 4.0), Internal Report for the Office of Environment and Heritage, Department of Premier and Cabinet, Sydney, Australia.; Somerville M (2009a) Hunter, Central & Lower North Coast Vegetation Classification & Mapping Project Volume 1: Vegetation Classification Technical Report. Hunter-Central Rivers Catchment	

Field name	Occurrence	Definition	Format	Example	Data type
				Management Authority, Tocal, NSW.;'	
profileSource	0–n	An indication of which vegetation community in each reference source (see fullReference field) is relevant for PCT information.	Free text, but each reference should give a code number corresponding to the vegetation community within the reference that is relevant to the PCT. Where there is more than one reference, the references are separated by semicolons. Note: If no data are present, 'null' is given.	'Benson 113 (Benson et al. 2006); Nandewar Unit 107 (Wall 2004);'	"Edm.String"
authority	1	Reference for classification (i.e. the dataset or project from which the PCT was obtained).	Free text	'VCA 1.1 – archive'	"Edm.String"
associatedReference Plots	0–n	The list of plotIDs from the BioNet Systematic Flora Survey database	Numeric code. Where there is more than one plotID they will be separated by semicolons	'1'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		associated with this PCT

Note: field not populated for version 2.2 of web service. | Note: If no plots are currently associated with the PCT, then 'null' is given. | | |

4. Specifications for the VegetationClassification_PCTBenchmarks entity set

Tables 12 to 15 provide the exact specifications of the data fields available in each category of the VegetationClassification_PCTBenchmarks via the Vegetation Classification Web Service. Each table presents the group of terms that fall within the specified category.

Table 12   **Available 'metadata' fields in the VegetationClassification_PCTBenchmarks entity set**

Field name	Occurrence	Definition	Format	Example	Data type
institutionCode	1	The name (or acronym) in use by the institution that has custody of the object(s) or information referred to in the record.	Always 'NSW Department of Planning, Industry and Environment'	'NSW Dept of Planning, Industry and Environment'	"Edm.String"
collectionCode	1	The name, acronym, coden, or initialism identifying the collection or dataset from which the record was derived.	Always 'BioNet Vegetation Classification'	'BioNet Vegetation Classification'	"Edm.String"
datasetName	1	The name identifying the dataset from which the record was derived.	Always 'PCT Classification'	'PCT Classification'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
dcterms_rightsHolder	1	The person or organisation owning or managing rights over the resource.	Always 'NSW Department of Planning, Industry and Environment'	'NSW Dept of Planning, Industry and Environment'	"Edm.String"
dcterms_rights	1	Information about rights held in and over the resource. Typically, rights information includes a statement about various property rights associated with the resource, including intellectual property rights.	Always 'CC-BY 4.0'	'CC-BY 4.0'	"Edm.String"
dcterms_language	1	The language of the resource.	RFC 4646 [RFC4646]	'en' for English	"Edm.String"
dcterms_type	1	The nature or genre of the resource.	Always 'dataset'	'dataset'	"Edm.String"
dcterms_bibliographic Citation	1	A bibliographic reference for the resource, as a statement indicating how the record should be cited (attributed) when used.	'BioNet Vegetation Classification <current date> <HH:MM> <AM/PM> +<HH:MM offset from UTC>' Note: The date and time are Australian Eastern Standard Time adjusted for	'BioNet Vegetation Cl assification 7/02/2025 2:23 AM +11:00'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			daylight saving and reflect the date and time when the web service data were last refreshed from the source data (BioNet Vegetation Classification).		
dcterms_modified	1	The most recent date and time when the resource was changed.	YYYY-MM-DDTHH:MM:SS.000+HH:MM offset from UTC Note: The date modified relates to any change made in the source system (BioNet Vegetation Classification). It is thus possible that the date modified is updated but no actual changes are carried through into the data fields presented via the web service.	'2021-04-23T13:39:18.037+10:00'	"Edm.DateTimeOffset"
dcterms_available	1	Date (often a range) that the resource became or will become available.	YYYY-MM-DDTHH:MM:SS.000+HH:MM offset from UTC	'2023-12-13T08:36:53.033+11:00'	"Edm.DateTimeOffset"

Field name	Occurrence	Definition	Format	Example	Data type
PCTBID	1	An indexing primary key.	Integer	'149194'	"Edm.Int32" Nullable="false"

Table 13 **Available 'PCT classification' fields in the VegetationClassification_PCTBenchmarks entity set**

Field name	Occurrence	Definition	Format	Example	Data type
PCTID	1	The unique identifier for the PCT. Provides a linking key between VegetationClassification_PCTDefinition, VegetationClassification_PCTBenchmarks, VegetationClassification_PCTStratumData and VegetationClassification_PCTGrowthForm.	Integer	'2'	"Edm.Int32" Nullable="false"
PCTName	1	A colloquial plant community description that can be understood by non-botanists. It may include common names of dominant plant species, or names of a geographical region, a	Text	'River Red Gum-sedge dominated very tall open forest in frequently flooded forest wetland along major rivers and floodplains in south-western NSW'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		substrate, a soil type or a climatic zone.			
status	1	The PCT Definition status of the PCT, as determined by the department's Executive Director Strategic Policy, Science and Engagement.	One of the following controlled vocabulary: • Approved • Decommissioned	'Approved'	"Edm.String"
vegetationClass	1	Equivalence of a community to one of the vegetation classes in the Keith (2004) statewide vegetation map.	Controlled vocabulary as per the vegetation classes defined in Keith (2004)	'Inland Riverine Forests'	"Edm.String"
vegetationClassID	1	The unique ID associated with the vegetationClass.	Whole number	'1309'	"Edm.Int32" Nullable= "false"
IBRA	1–n	The name of the IBRA7 region. Refer to Australia's bioregions (IBRA) – the National Reserve System (NRS) – for more information on the IBRA framework.	Controlled vocabulary using IBRA Version 7 region names. Where there is more than one region, they will be separated by semicolons.	'Cobar Peneplain'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
IBRAID	1–n	The unique ID associated with the IBRA region.	Alphabetic code. Where there is more than one region ID they will be separated by semicolons and the order will correspond to the associated IBRA name given in the IBRA field.	'COP'	dm.String" Nullable=" false"

Table 14   Available 'benchmark metadata' fields in the VegetationClassification_PCTBenchmarks entity set

Field name	Occurrence	Definition	Format	Example	Data type
benchmarkCalculation Level	1	Indicates whether the benchmarks have been calculated at the vegetation class/IBRA level or at the PCT level. PCTs that do not have PCT level benchmarks will draw on benchmark data from their VegetationClass/IBRA . All PCTs in the same VegetationClass/IBRA will have the same benchmark data.	One item from the following controlled vocabulary: • PCT • Class/IBRA	'Class/IBRA'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
benchmarkVariation	1	The time of year or environmental conditions against which the benchmark data applies.	One item from the controlled vocabulary (see Appendix A.2 for vocabulary list)	'monthly average, following AVERAGE RAINFALL year'	"Edm.String"
rainfallThreshold	0–1	The rainfall total for 12 months prior to the assessment that guides whether dry benchmarks (below rainfall threshold), average benchmarks (between rainfall thresholds) or wet benchmarks (above rainfall threshold) should be used. For more information refer to the *Guidance for assessors and decision-makers in applying modified benchmarks to assessments of vegetation integrity.*	Free text incorporating integer/s and <, - or > symbols	'<638'	"Edm.String"
benchmarkDefault	1	Indicates which benchmark data should be used by default for the	TRUE or FALSE	'TRUE'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		Biodiversity Assessment Method (BAM).			
benchmarkSource	1	How benchmark data were determined.	One item from the following controlled vocabulary: • Expert Opinion • Observed from raw data distribution • Predicted from raw data modelling • Multiple methods (see comments)	'Multiple methods'	"Edm.String"
benchmarkReference Site	1	Any census key that (at the time the plot was surveyed) was at or near benchmark (vegetation integrity score ≥95/100).	Alphanumeric code	'CPXEI0000001'	"Edm.String"
benchmarkConfidenc e	0–1	A measure of the confidence in the benchmark data.	Free text	'Composition: High | Structure: Moderate | Function: Logs-High; Litter-High; Large Trees-High'	"Edm.String"
benchmarkComments	0–1	Any further information on the benchmarks. For example, details on	Free text	'Composition-Structure Benchmark: Class/IBRA | Function: Logs-Class; Litter-	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		use of multiple methods for benchmark source, multiple benchmark calculation levels, or version numbers and dates for composition, structure and function attributes.		Class; Large Trees-Class'	
benchmarkStatus	1	The benchmark status/es for the PCT, as determined by the department's Executive Director Strategic Policy, Science and Engagement.	One item from the following controlled vocabulary: • Draft • Draft-Default • Proposed • Approved • Decommissioned	'Approved'	"Edm.String"

Table 15   Available 'benchmarks' fields in the VegetationClassification_PCTBenchmarks entity set

Field name	Occurrence	Definition	Format	Example	Data type
treeRichness	1	The number of native tree[a] species within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to	Whole number	'3'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		the Native Vegetation Integrity Benchmarks information sheet on the department's Vegetation Condition Benchmarks webpage). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM. [field assessment unit: 0.04 ha (20 m x 20 m plot)].			
shrubRichness	1	The number of native shrub[a] species within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal	Whole number	'3'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		to this number would score 100/100 for this attribute if assessed using the BAM.			
grassAndGrassLikeRichness	1	The number of native grass and grass-like[a] species within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM.	Whole number	'5'	"Edm.Int32"
forbRichness	1	The number of native forb[a] species within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary	Whole number	'14'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM.			
fernRichness	1	The number of native fern[a] species within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM.	Whole number	'1'	"Edm.Int32"
otherRichness	1	The number of native species within the	Whole number	'1'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		other[a] growth form group within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM.			
treeCover	1	The total foliage cover of native tree[a] species within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal	Percentage expressed as a number to one decimal place	'52.5'	"Edm.Decimal" Scale= "variable"

Field name	Occurrence	Definition	Format	Example	Data type
		to this number would score 100/100 for this attribute if assessed using the BAM. Total foliage cover is the sum of all the individual foliage cover estimates of all native tree species recorded within the plot. Foliage cover includes leaves, branches and twigs. Note, can be greater than 100.0% (refer to Native Vegetation Integrity Benchmarks – Technical details supporting Static Benchmarks).			
shrubCover	1	The total foliage cover of native shrub[a] species within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation	Percentage expressed as a number to one decimal place	'0.0'	"Edm.Decimal" Scale= "variable"

Field name	Occurrence	Definition	Format	Example	Data type
		Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM. Total foliage cover is the sum of all the individual foliage cover estimates of all native shrub species recorded within the plot. Foliage cover includes leaves, branches and twigs. Note, can be greater than 100.0% (refer to Native Vegetation Integrity Benchmarks – Technical details supporting Static Benchmarks).			
grassAndGrassLikeCover	1	The total foliage cover of native grass and grass-like[a] species within a 0.04 ha area plot that represents the best-on-offer	Percentage expressed as a number to one decimal place	'26.2'	"Edm.Decimal" Scale= "variable"

Field name	Occurrence	Definition	Format	Example	Data type
		reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM. Total foliage cover is the sum of all the individual foliage cover estimates of all native grass and grass-like species recorded within the plot. Foliage cover includes leaves, branches and twigs. Note, can be greater than 100.0% (refer to Native Vegetation Integrity Benchmarks – Technical details supporting Static Benchmarks).			

Field name	Occurrence	Definition	Format	Example	Data type
forbCover	1	The total foliage cover of native forb[a] species within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM. Total foliage cover is the sum of all the individual foliage cover estimates of all native forb species recorded within the plot. Foliage cover includes leaves, branches and twigs. Note, can be greater than 100.0% (refer to Native Vegetation Integrity Benchmarks	Percentage expressed as a number to one decimal place	'4.3'	"Edm.Decimal" Scale= "variable"

Field name	Occurrence	Definition	Format	Example	Data type
		– Technical details supporting Static Benchmarks).			
fernCover	1	The total foliage cover of native fern[a] species within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM. Total foliage cover is the sum of all the individual foliage cover estimates of all native fern species recorded within the plot. Foliage cover includes leaves, branches and twigs. Note, can be greater	Percentage expressed as a number to one decimal place	'0.0'	"Edm.Decimal" Scale= "variable"

Field name	Occurrence	Definition	Format	Example	Data type
		than 100.0% (refer to Native Vegetation Integrity Benchmarks – Technical details supporting Static Benchmarks).			
otherCover	1	The total foliage cover of native species within the other[a] growth form group within a 0.04 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM. Total foliage cover is the sum of all the individual foliage cover estimates of all native other species	Percentage expressed as a number to one decimal place	'11.5'	"Edm.Decimal" Scale= "variable"

Field name	Occurrence	Definition	Format	Example	Data type
		recorded within the plot. Foliage cover includes leaves, branches and twigs. Note, can be greater than 100.0% (refer to Native Vegetation Integrity Benchmarks – Technical details supporting Static Benchmarks).			
largeTreeThresholdSize	0–1	The tree stem size at and above which a living tree stem qualifies as a large tree. Tree stem size is measured as the stem diameter in centimetres at 1.3 m above ground height and over bark (DBH). Note: The attribute does not apply to PCTs classified under vegetation formations that are freshwater wetlands, saline wetlands, grasslands, alpine complex and	One item from the following controlled vocabulary: • 20 • 30 • 50 • 80	'50'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		arid shrublands. Also, does not apply to heathlands without trees (i.e. Southern Montane Heaths (NSW035), South Coast Heaths (NSW065), Coastal Headland Heaths (NSW070)).			
numberOfLargeTrees	0–1	The number of large trees within a 0.1 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM. The number of large trees is a count of all living stems within a 0.1 ha	Decimal	'4.00'	"Edm.Decimal" Scale= "variable"

Field name	Occurrence	Definition	Format	Example	Data type
		area plot with a diameter at 1.3 m above ground height and over bark (DBH) equal to or greater than the large tree threshold DBH size for that PCT or vegetation class. For a multi-stemmed tree, at least one living stem must be equal to or greater than the large tree threshold DBH size to count as a large tree. In a multi-stemmed tree only one stem can contribute to the count of large trees.			
totalLengthFallenLogs	0–1	The total length of fallen logs within a 0.1 ha area plot that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet).	Whole number	'78'	"Edm.Int32"

Field name	Occurrence	Definition	Format	Example	Data type
		Observed values greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM. The length of fallen logs is the total length in metres of woody material greater than 10 cm in diameter that is dead and entirely or in part on the ground within the plot. Where logs extend outside the plot, the assessor must only record the length of fallen log that is contained within the plot.			
litterCover	0–1	The % cover of litter that represents the best-on-offer reference state within the contemporary landscape (refer to the Native Vegetation Integrity Benchmarks information sheet). Observed values	Percentage expressed as a number to 2 decimal places	'27.75'	"Edm.Decimal" Scale= "variable"

| | | greater than or equal to this number would score 100/100 for this attribute if assessed using the BAM. The % cover of litter is assessed as the average percentage ground cover of litter recorded from 5 1 m x 1 m plots evenly located along a transect that bisects the 0.1 ha plot. Litter includes all plant material that has detached from a living plant, including leaves, seeds, twigs, branchlets and branches (<10 cm in diameter). Dead material still attached to a living plant (such as a grass) is assessed as litter cover where it is in contact with the ground. Dead material still attached to a living plant that is not | | | |

Field name	Occurrence	Definition	Format	Example	Data type
		in contact with the ground, or litter suspended in the canopies of other plants is not assessed as litter cover. Litter cover should be considered as the 2-dimensional litter layer and includes litter under the canopies of erect plants.			

a   For the definitions of growth forms (e.g. tree, shrub, grass and grass-like) refer to 'Appendix F: Growth form definitions' of the BAM (DPIE 2020). An up-to-date list of the primary growth form for each species can be obtained via the *BioNet Native Species by Growth Form data Power Query*.

5. Specifications for the VegetationClassification_PCTStratumData entity set

Note: This entity set is populated only for qualitative PCTs.

Table 16 **Available 'metadata' fields in the VegetationClassification_PCTStratumData entity set**

Field name	Occurrence	Definition	Format	Example	Data type
institutionCode	1	The name (or acronym) in use by the institution that has custody of the object(s) or information referred to in the record.	Always 'NSW Department of Planning, Industry and Environment'	'NSW Dept of Planning, Industry and Environment'	"Edm.String"
collectionCode	1	The name, acronym, CODEN, or initialism identifying the collection or dataset from which the record was derived.	Always 'BioNet Vegetation Classification'	'BioNet Vegetation Classification'	"Edm.String"
datasetName	1	The name identifying the dataset from which the record was derived.	Always 'PCT Classification'	'PCT Classification'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
dcterms_rightsHolder	1	The person or organisation owning or managing rights over the resource.	Always 'NSW Department of Planning, Industry and Environment'	'NSW Dept of Planning, Industry and Environment'	"Edm.String"
dcterms_rights	1	Information about rights held in and over the resource. Typically, rights information includes a statement about various property rights associated with the resource, including intellectual property rights.	Always 'CC-BY 4.0'	'CC-BY 4.0'	"Edm.String"
dcterms_language	1	The language of the resource.	RFC 4646 [RFC4646]	'en' for English	"Edm.String"
dcterms_type	1	The nature or genre of the resource.	Always 'dataset'	'dataset'	"Edm.String"
dcterms_bibliographic Citation	1	A bibliographic reference for the resource, as a statement indicating how the record should be cited (attributed) when used.	'BioNet Vegetation Classification <current date> <HH:MM> <AM/PM> +<HH:MM offset from UTC>' Note: The date and time are Australian Eastern Standard Time adjusted for	'BioNet Vegetation Classification'16/04/2 020 4:42 AM +10:00' BioNet Vegetation Classification 7/02/2025 2:25 AM +11:00	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			daylight saving and reflect the date and time when the web service data were last refreshed from the source data (BioNet Vegetation Classification).		
dcterms_modified	1	The most recent date and time when the resource was changed.	YYYY-MM-DDTHH:MM:SS.000+HH:MM offset from UTC Note: The date modified relates to any change made in the source system (BioNet Vegetation Classification). It is thus possible that the date modified is updated but no actual changes are carried through into the data fields presented via the web service.	'2021-04-23T13:39:18.037+10:00'	"Edm.DateTimeOffset"
dcterms_available	1	Date (often a range) that the resource became or will become available.	YYYY-MM-DDTHH:MM:SS.000+HH:MM offset from UTC	'2023-11-27T11:32:10.543+11:00'	"Edm.DateTimeOffset"

Table 17 **Available 'PCT classification' fields in the VegetationClassification_PCTStratumData entity set**

Field name	Occurrence	Definition	Format	Example	Data type
PCTID	1	The unique identifier for the PCT. Provides a linking key between VegetationClassification_PCTDefinition, VegetationClassification_PCTBenchmarks, VegetationClassification_PCTStratumData and VegetationClassification_PCTGrowthForm.	Integer	'1081'	"Edm.Int32" Nullable= "false"
PCTName	1	A colloquial plant community description that can be understood by non-botanists. It may include common names of dominant plant species, or names of a geographical region, a substrate, a soil type or a climatic zone.	Text	'Red Bloodwood – Grey Gum woodland on the edges of the Cumberland Plain, Sydney Basin Bioregion'	"Edm.String"
status	1	The formal listing status of the PCT, as determined by the department's	Controlled vocabulary as follows: Approved	'Approved'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		Executive Director Strategic Policy, Science and Engagement.	Decommissioned		

Table 18   Available 'floristic' fields in the VegetationClassification_PCTStratumData entity set

Consult the *Structural Terms* information sheet for additional information regarding the definitions of the stratum and substratum.

Field name	Occurrence	Definition	Format	Example	Data type
emergentStratumSpeciesList	0–n	The list of species, separated by semicolon(s), present in the emergent stratum.	\<genus\> \<specific epithet\> \<connecting term\> \<infraspecific epithet\>; Where the connecting term can be one of the following: subsp. = subspecies var. = variety. Note: If this stratum is not present, this is indicated by 'null'.	'null'	"Edm.String"
upperStratumSpeciesList	0–n	The list of species, separated by semicolon(s), present in the upper stratum.	\<genus\> \<specific epithet\> \<connecting term\> \<infraspecific epithet\>;	'Corymbia gummifera;Eucalyptus punctata;Angophora costata;Syncarpia glomulifera;Eucalyptus piperta;Eucalyptus	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			Where the connecting term can be one of the following: • subsp. = subspecies • var. = variety. Note: If this stratum is not present, this is indicated by 'null'.	oblonga;Eucalyptus sclerophylla;'	
midStratumSpeciesList	0–n	The list of species, separated by semicolon(s), present in the mid-stratum.	<genus> <specific epithet> <connecting term> <infraspecific epithet>; Where the connecting term can be one of the following: • subsp. = subspecies • var. = variety. Note: If this stratum is not present, this is indicated by 'null'.	'Phyllanthus hirtellus;Persoonia linearis;Leptospermum trinervium;Acacia ulicifolia;'	"Edm.String"
groundStratumSpeciesList	0–n	The list of species, separated by semicolon(s), present in the ground stratum.	<genus> <specific epithet> <connecting term> <infraspecific epithet>;	'Entolasia stricta;Lomandra obliqua;Pomax umbellata;Themeda australis;Lomandra	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			Where the connecting term can be one of the following: • subsp. = subspecies • var. = variety. Note: If this stratum is not present, this is indicated by 'null'.	multiflora;Lepidosperma laterale;'	
emergentGroupFrequency	0–n	Data on the frequency at which a species occurs within the emergent stratum (if present).	\<species name>,\<group frequency>,\<group score> See 'B.1 Group frequency' in Appendix B for definitions. If more than one species is present, then the data blocks are separated by a semicolon Note: If the substratum is not present, this is indicated by 'null'.	'null'	"Edm.String"
upper1GroupFrequency	0–n	Data on the frequency with which a species occurs within the first	\<species name>,\<group	'Corymbia gummifera,null,null;Eucalyptus	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		upper substratum (if present).	frequency>,<group score> See 'B.1 Group frequency' in Appendix B for definitions. If more than one species is present, then the data blocks are separated by a semicolon. Note: If the substratum is not present, this is indicated by 'null'.	punctata,null,null;Ang ophora costata,null,null;Sync arpia glomulifera,null,null;E ucalyptus piperita,null,null;Eucal yptus oblonga,null,null;Euca lyptus sclerophylla,null,null;'	
upper2GroupFrequen cy	0–n	Data on the frequency with which a species occurs within the second upper substratum (if present).	<species name>,<group frequency>,<group score> See 'B.1 Group frequency' in Appendix B for definitions. If more than one species is present, then the data blocks are separated by a semicolon. Note: If the substratum is not	'null'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			present, this is indicated by 'null'.		
upper3GroupFrequency	0–n	Data on the frequency with which a species occurs within the third upper substratum (if present).	<species name>,<group frequency>,<group score> See 'B.1 Group frequency' in Appendix B for definitions. If more than one species is present, then the data blocks are separated by a semicolon. Note: If the substratum is not present, this is indicated by 'null'.	'null'	"Edm.String"
mid1GroupFrequency	0–n	Data on the frequency with which a species occurs within the first mid substratum (if present).	<species name>,<group frequency>,<group score> See 'B.1 Group frequency' in Appendix B for definitions. If more than one species is present, then the data	'Phyllanthus hirtellus,null,null;Persoonia linearis,null,null;Leptospermum trinervium,null,null;Acacia ulicifolia,null,null;Persoonia levis,null,null;Acacia linifolia,null,null;'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			blocks are separated by a semicolon. Note: If the substratum is not present, this is indicated by 'null'.		
mid2GroupFrequency	0–n	Data on the frequency with which a species occurs within the second mid substratum (if present).	<species name>,<group frequency>,<group score> See 'B.1 Group frequency' in Appendix B for definitions. If more than one species is present, then the data blocks are separated by a semicolon. Note: If the substratum is not present, this is indicated by 'null'.	'null'	"Edm.String"
mid3GroupFrequency	0–n	Data on the frequency with which a species occurs within the third mid substratum (if present).	<species name>,<group frequency>,<group score> See 'B.1 Group frequency' in	'null'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			Appendix B for definitions. If more than one species is present, then the data blocks are separated by a semicolon Note: If the substratum is not present, this is indicated by 'null'.		
ground1GroupFrequency	0–n	Data on the frequency with which a species occurs within the first ground substratum (if present).	\<species name>,\<group frequency>,\<group score> See 'B.1 Group frequency' in Appendix B for definitions. If more than one species is present, then the data blocks are separated by a semicolon. Note: If the substratum is not present, this is indicated by 'null'.	'Entolasia stricta,null,null;Lomandra obliqua,null,null;Pomax umbellata,null,null;Themeda australis,null,null;Lomandra multiflora,null,null;Lepidosperma laterale,null,null;'	"Edm.String"
ground2GroupFrequency	0–n	Data on the frequency with which a species occurs within the	\<species name>,\<group	'null'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		second ground substratum (if present).	frequency>,<group score> See 'B.1 Group frequency' in Appendix B for definitions. If more than one species is present, then the data blocks are separated by a semicolon. Note: If the substratum is not present, this is indicated by 'null'.		
dominantStratum	1	Indication of the dominant stratum (entered at substratum level).	Text	'2nd Upper substratum'	"Edm.String"
upper1CoverData	0–1	Data on the combined foliage cover of all species within the first upper substratum (if present) as a percentage of the plot area.	<min>;<max>;<mean>; <cover type code>;<cover surrogate derived> See 'B.2 Cover data' in Appendix B for definitions. Note: If there are no species data for the	'5.3;16.7;11.0;2N;no;'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			substratum the value 'null' is given.		
upper2CoverData	0–1	Data on the combined foliage cover of all species within the second upper substratum (if present), as a percentage of the plot area.	\<min\>;\<max\>;\<mean\>; \<cover type code\>;\<cover surrogate derived\> See 'B.2 Cover data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'10.9;31.7;21.3;2N;no;'	"Edm.String"
upper3CoverData	0–1	Data on the combined foliage cover of all species in the third upper substratum (if present) as a percentage of the plot area.	\<min\>;\<max\>;\<mean\>; \<cover type code\>;\<cover surrogate derived\> See 'B.2 Cover data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'null'	"Edm.String"
mid1CoverData	0–1	Data on the combined foliage cover of all species within the first mid-storey	\<min\>;\<max\>;\<mean\>; \<cover type code\>;\<cover surrogate derived\>	'2.7;29.1;15.9;2N;no;'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		substratum (if present), as a percentage of the plot area.	See 'B.2 Cover data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.		
mid2CoverData	0–1	Data on the combined foliage cover of all species within the second mid-storey substratum (if present), as a percentage of the plot area.	<min>;<max>;<mean>; <cover type code>;<cover surrogate derived> See 'B.2 Cover data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'1.8;33.4;17.6;2N;no;'	"Edm.String"
mid3CoverData	0–1	Data on the combined foliage cover of all species within the third mid-storey substratum (if present), as a percentage of the plot area.	<min>;<max>;<mean>; <cover type code>;<cover surrogate derived> See 'B.2 Cover data' in Appendix B for definitions. Note: If there are no species data for the	'null'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			substratum the value 'null' is given.		
ground1CoverData	0–1	Data on the combined foliage cover of all species within the first ground substratum (if present), as a percentage of the plot area.	\<min>;\<max>;\<mean>; \<cover type code>;\<cover surrogate derived> See 'B.2 Cover data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'8.5;51.3;29.9;2N;no;'	"Edm.String"
ground2CoverData	0–1	Data on the combined foliage cover of all species within the second ground substratum (if present), as a percentage of the plot area.	\<min>;\<max>;\<mean>; \<cover type code>;\<cover surrogate derived> See 'B.2 Cover data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'null'	"Edm.String"
upper1HeightData	0–1	Data on the height of species occurring within the first upper	\<min>;\<max>;\<mean>; \<height surrogate derived>	'20.8;22.2;21.5;no;'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			substratum (if present). See 'B.3 Height data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.		
upper2HeightData	0–1	Data on the height of species occurring within the second upper substratum (if present).	\<min\>;\<max\>;\<mean\>; \<height surrogate derived\> See 'B.3 Height data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'13.6;21.8;17.7;no;'	"Edm.String"
upper3HeightData	0–1	Data on the height of species occurring within the third upper substratum (if present).	\<min\>;\<max\>;\<mean\>; \<height surrogate derived\> See 'B.3 Height data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'null'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
mid1HeightData	0–1	Data on the height of species occurring within the first mid-storey substratum (if present).	<min>;<max>;<mean>; <height surrogate derived> See 'B.3 Height data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'4.4;11.4;7.9;no;'	"Edm.String"
mid2HeightData	0–1	Data on the height of species occurring within the second mid-storey substratum (if present).	<min>;<max>;<mean>; <height surrogate derived> See 'B.3 Height data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'1.5;2.9;2.2;no;'	"Edm.String"
mid3HeightData	0–1	Data on the height of species occurring within the third mid-storey substratum (if present).	<min>;<max>;<mean>; <height surrogate derived> See 'B.3 Height data' in Appendix B for definitions. Note: If there are no species data for the	'null'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			substratum the value 'null' is given.		
ground1HeightData	0–1	Data on the height of species occurring within the first ground substratum (if present).	<min>;<max>;<mean>; <height surrogate derived> See 'B.3 Height data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'0.6;1.2;0.9;no;'	"Edm.String"
ground2HeightData	0–1	Data on the height of species occurring within the second ground substratum (if present).	<min>;<max>;<mean>; <height surrogate derived> See 'B.3 Height data' in Appendix B for definitions. Note: If there are no species data for the substratum the value 'null' is given.	'null'	"Edm.String"
diagnosticSpecies	0–n	The list of species, separated by semicolons, considered to be diagnostic of the community.	The format for the species name is as follows: *<genus> <specific epithet> <connecting term> <infraspecific*	'Poa labillardierei (Tussock);'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			epithet> (vernacular name); Where the *connecting term* can be one of the following: • subsp. = subspecies • var. = variety.		
diagnosticSpeciesMethod	1	Method used to identify diagnostic species.	Method used to identify diagnostic species, according to the following controlled vocabulary: • Quantitative – e.g. fidelity analyses • Qualitative – expert opinion • Combination of quantitative and qualitative.	'Quantitative – e.g. fidelity analysis'	"Edm.String"

6. Specifications for the VegetationClassification_PCTGrowthForm entity set

Note: This entity set is populated only for quantitative plant community types.

Table 19 **Available 'metadata' fields in the VegetationClassification_PCTGrowthForm entity set**

Field name	Occurrence	Definition	Format	Example	Data type
institutionCode	1	The name (or acronym) in use by the institution that has custody of the object(s) or information referred to in the record.	Always 'NSW Department of Planning, Industry and Environment'	'NSW Dept of Planning, Industry and Environment'	"Edm.String"
collectionCode	1	The name, acronym, CODEN, or initialism identifying the collection or dataset from which the record was derived.	Always 'BioNet Vegetation Classification'	'BioNet Vegetation Classification'	"Edm.String"
datasetName	1	The name identifying the dataset from which the record was derived.	Always 'PCT Classification'	'PCT Classification'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
dcterms_rightsHolder	1	The person or organisation owning or managing rights over the resource.	Always 'NSW Department of Planning, Industry and Environment'	'NSW Dept of Planning, Industry and Environment'	"Edm.String"
dcterms_rights	1	Information about rights held in and over the resource. Typically, rights information includes a statement about various property rights associated with the resource, including intellectual property rights.	Always 'CC-BY 4.0'	'CC-BY 4.0'	"Edm.String"
dcterms_language	1	The language of the resource.	RFC 4646 [RFC4646]	'en' for English	"Edm.String"
dcterms_type	1	The nature or genre of the resource.	Always 'dataset'	'dataset'	"Edm.String"
dcterms_bibliographic Citation	1	A bibliographic reference for the resource, as a statement indicating how the record should be cited (attributed) when used.	'BioNet Vegetation Classification <current date> <HH:MM> <AM/PM> + <HH:MM offset from UTC>' Note: The date and time are Australian Eastern Standard Time adjusted for	'BioNet Vegetation Classification 16/04/2020 4:42 AM +10:00' BioNet Vegetation Cla ssification 7/02/2025 2:25 AM +11:00	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			daylight saving and reflect the date and time when the web service data were last refreshed from the source data (BioNet Vegetation Classification).		
dcterms_modified	1	The most recent date and time when the resource was changed.	YYYY-MM-DDTHH:MM:SS.000+HH:MM offset from UTC Note: The date modified relates to any change made in the source system (BioNet Vegetation Classification). It is thus possible that the date modified is updated but no actual changes are carried through into the data fields presented via the web service.	'2021-04-23T13:39:18.037+10:00'	"Edm.DateTimeOffset"
dcterms_available	1	Date (often a range) that the resource became or will become available.	YYYY-MM-DDTHH:MM:SS.000+HH:MM offset from UTC	'2023-11-27T11:32:10.543+11:00'	"Edm.DateTimeOffset"

Field name	Occurrence	Definition	Format	Example	Data type
PCTGFID	1	An indexing primary key.	Integer	'1176176854'	"Edm.Int32" Nullable= "false"

Table 20 **Available 'PCT classification' fields in the VegetationClassification_PCTGrowthForm entity set**

Field name	Occurrence	Definition	Format	Example	Data type
PCTID	1	The unique identifier for the PCT. Provides a linking key between VegetationClassification_PCTDefinition, VegetationbClassification_PCTBenchmarks, VegetationClassification_PCTStratumData and VegetationClassification_PCTGrowthForm.	Integer	'3081'	"Edm.Int32" Nullable= "false"
PCTName	1	A colloquial plant community description that can be understood by non-botanists. It may include common names of dominant plant species, or names of a geographical region, a	Text	'Kowmung Limestone Sheltered Open Woodland'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		substrate, a soil type or a climatic zone.			
status	1	The PCT Definition Status of the PCT, as determined by the department's Executive Director Strategic Policy, Science and Engagement.	Controlled vocabulary as follows: Approved Decommissioned	'Approved'	"Edm.String"

Table 21   Available 'growth form' fields in the VegetationClassification_PCTGrowthForm entity set

Field name	Occurrence	Definition	Format	Example	Data type
primaryGrowthFormGroup	1	The primary growth form group of the species.	One of the following controlled vocabulary: Tree (TG) Shrub (SG) Grass and Grass-like (GG) Forb (FG) Fern (EG) Other (OG) Unassigned (UA)	'Tree (TG)'	"Edm.String"
scientificName	1	The full scientific name of the species.	<genus> <specific epithet> <connecting	'Brachychiton populneus'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
			term> <intraspecific epithet>; Where the connecting term can be one of the following: • subsp. = subspecies • var. = variety		
speciesFrequency	1	How often the species has been recorded as occurring within a plot, expressed as a percentage of the total number of plots used to define the PCT. For example, if species x occurred in 4 of the 20 plots used to define this PCT, then the group frequency would be (4/20) x 100 = 20. The intent is to provide a measure of how common the species is within the PCT.	Percentage expressed as a decimal (e.g. 0.43 = 43%)	'1.00' where 1.00 = 100%	"Edm.Decimal" Scale= "variable"
medianCoverScore	1	The median cover score recorded for the species within sites	One of the following controlled vocabulary:	'2'	"Edm.String"

Field name	Occurrence	Definition	Format	Example	Data type
		used to classify the PCT as a result of an analysis. The meaning of the values of the controlled vocabulary is: • 1 (< 5% and uncommon) • 2 (< 5% and common) • 3 (5–20%) • 4 (> 20–50%) • 5 (> 50–75%) • 6 (> 75%)	• 1 • 2 • 3 • 4 • 5 • 6		

7. References

DPE (Department of Planning and Environment) (2022) *Updating BioNet Plant Community Types: Eastern New South Wales PCT Classification Version 1.1 (2022)*, NSW Department of Planning and Environment, Parramatta.

DPIE (Department of Planning, Industry and Environment) (2020) *Biodiversity Assessment Method*, NSW Department of Planning, Industry and Environment, Parramatta.

Keith D (2004) *Ocean Shores to Desert Dunes: the Native Vegetation of New South Wales and the ACT*, NSW National Parks and Wildlife Service, Sydney.

Sivertsen D (2009) *Native Vegetation Interim Type Standard*, Department of Environment, Climate Change and Water NSW, Sydney.

Walker J and Hopkins MS (1990) 'Vegetation', in RC McDonald, RF Isbell, JG Speight, J Walker and MS Hopkins (eds), *Australian Soil and Land Survey Field Handbook*, Inkata Press, Melbourne.

8. More information

- Australia's bioregions (IBRA)
- Biodiversity Assessment Method
- BioNet Native Species by Growth Form data Power Query
- BioNet Vegetation Classification application
- BioNet Web Service
- BioNet Web Service online metadata
- Guidance for assessors and decision-makers in applying modified benchmarks to assessments of vegetation integrity
- Native Vegetation Integrity Benchmarks – Technical details supporting Static Benchmarks
- Plant Community Types: change control
- Updated IBRA7 datasets
- Updating BioNet Plant Community Types: Eastern New South Wales PCT Classification Version 1.1 (2022)
- Vegetation Condition Benchmarks

Appendix A   Controlled vocabularies

A.1   ClassificationConfidenceLevel

- Very High
- High
- Moderate
- Very Low
- Low

A classification confidence level (CCL) is assigned to each plant community type that is approved in the master list of vegetation community types for New South Wales. It describes the strength and robustness of the classification unit and recognises that each plant community type differs in its classification confidence level based on the method and information used to describe its floristic and habitat attributes and spatial distribution. The eastern NSW PCT definition applies to quantitative plant community types released for eastern New South Wales.

Code	Explanation
Very High	**Eastern NSW PCT CCL definition**: PCT plot membership comprises 15 or more standard samples. PCT records reliability scores that are above the 95th percentile for all PCTs and accuracy scores that are above the 90th percentile. Very high confidence scores imply that the PCT retains internally consistent floristic composition and is unlikely to be confused with other PCTs when assigning new plot samples to the eastern NSW PCT typology using the online PCT identification tool.
	Western NSW PCT CCL definition: The PCT is based on quantitative analysis of verifiable, high-quality classification plots that are archived in a publicly accessible database such as the BioNet Flora surveys module. Classification plots meet the minimum requirements set out in the survey design and field sampling sections of the Native Vegetation Interim Type Standard (Sivertsen 2009). Classification plots used in the analysis must sample the full geographic distribution of the type. In addition, plots that form the basis for closely related types must have been compared. For a NSW vegetation class (Keith 2004), the majority of component community types must have a High to Very High level of confidence.
High	**Eastern NSW PCT CCL definition:** This level includes confidence level metrics from both sampling effort classes (>15 standard samples; 5–14 standard samples). PCTs that have 15 or more standard samples, High confidence is defined by PCTs that record reliability and accuracy scores that fall between the 90th and 95th percentile of all PCTs. PCTs that have a plot membership between 5 and 14 standard samples, High confidence is defined by those that record low floristic overlap with any other PCT in eastern New South Wales.

Code	Explanation
	Taken collectively the High CCL implies that the PCT is unlikely to be confused with other PCTs in eastern New South Wales when using standard survey methods and identification tools. However, sampling effort may be lower, or the internal variation of the type may be higher than those PCTs in the Very High category. **Western NSW CCL definition:** The community type is based on quantitative analysis of classification plots but does not sample the full geographic distribution of the type, or is limited in degree of quantitative comparison with closely related types, or plots are not archived in a publicly accessible database such as the BioNet Flora surveys module. Classification plots otherwise meet the requirements for a Very High level of confidence. This includes for example, the classification products of high-quality plot-based mapping or classification projects that have been artificially restricted to a Catchment Management Authority, LGA or regional boundary. This level is deemed equivalent to NSWVCA classification confidence level 1.
Moderate	**Eastern NSW CCL definition:** This level includes confidence level metrics from both sampling effort classes (>15 standard samples; 5–14 standard samples). PCTs that have 15 or more standard samples, Moderate confidence is defined by PCTs that record reliability scores that fall between the 90th and 95th percentile of all PCTs but a lower accuracy score that falls below the 90th percentile. Alternatively, the reliability score is low (<90th percentile but the accuracy score is very high, >95th percentile). PCTs that have a plot membership between 5 and 14 standard samples, Moderate confidence is defined by those that record moderate to high floristic overlap with any other PCT in eastern New South Wales. Taken collectively the Moderate CCL implies that the PCT supports a less internally consistent plant assemblage and performed less strongly in separating from other related PCTs. Users may experience difficulty discriminating a target PCT from related PCTs on the basis of floristic information alone because of the gentle gradation between types, or because factors such as disturbance are inherent in samples that are used to define it. May also be more common in types that are subject to seasonal variation in floristic composition, which results in higher levels of variation in floristic composition among samples. **Western NSW CCL definition:** Type is based on plot data that are incomplete, not accessible to others, or not published; or if so, only in an incomplete summary (floristic) table (such as only reporting dominant or characteristic species of a type). Or the type is highly distinct as judged by expert ecologists but as yet poorly sampled. Type has been consistently mapped and is referred to in several publications. This level is deemed equivalent to NSWVCA classification confidence level 2.
Low	**Eastern NSW CCL definition:** This level includes confidence level metrics from both sampling effort classes (>15 standard samples; 5–14 standard samples). PCTs that have 15 or more standard samples, Low confidence is defined by PCTs that record reliability scores below the 90th percentile of all PCTs and accuracy scores below the 95th percentile.

Code	Explanation
	PCTs that have a plot membership between 5 and 14 standard samples, Low confidence is defined by those that record either high floristic overlap with any other PCT in eastern New South Wales, or low measures of internal reliability. Taken collectively the Low CCL implies that the PCT may have low levels of reliability when compared to other types. Users may experience difficulty discriminating a target PCT from related PCTs on the basis of floristic information alone because of the gentle gradation between types, or because factors such as disturbance are inherent in samples that are used to define it. May also be more common in types that are subject to seasonal variation in floristic composition, which results in higher levels of variation in floristic composition among samples. **Western NSW CCL definition:** Community type is based on informal analysis, anecdotal information, or community descriptions, and is not based on any plot data analysis. Local experts have often identified these types. Although there is a high level of confidence that they represent significant vegetation entities that should be incorporated in the PCT List, it is not clear that they would meet the standard for floristic types in concept or in the PCT classification approach if data were available. This Level is deemed equivalent to NSWVCA classification confidence level 3.
Very Low	**Eastern NSW CCL definition:** PCTs with fewer than 5 standard samples. Known colloquially as 'placeholders' they describe plant assemblages that suggest different compositional attributes to all other PCTs using the ecological dissimilarity metric thresholds, but evidence is limited to only a few standard samples. The floristic composition is supported by the location of the samples that suggest that they occupy poorly surveyed areas, or a discrete environmental condition such as geological or topographic feature. The available floristic data is unlikely to fully characterise the assemblage of plants likely to occur or the relationships to other related PCTs. The data is also unlikely to describe the spatial distribution with any confidence. Candidate for additional survey. **Western NSW CCL definition:** Community type is based on informal analysis, anecdotal information, or community descriptions, and is not based on any plot data analysis. Local experts have often identified these types. Although there is a high level of confidence that they represent significant vegetation entities that should be incorporated in the PCT List, it is not clear that they would meet the standard for floristic types in concept or in the PCT classification approach if data were available. This level is deemed equivalent to BioMetric Vegetation Types defined on the east coast prior to 2006 that were identified through expert workshops.

Source: DPE (2022)

A.2 benchmarkVariation

monthly average, following AVERAGE RAINFALL year

monthly average, following WET RAINFALL year

monthly average, following DRY RAINFALL year

January, following WET year

January, following AVERAGE RAINFALL year

January, following DRY year

February, following WET year

February, following AVERAGE RAINFALL year

February, following DRY year

March, following WET year

March, following AVERAGE RAINFALL year

March, following DRY year

April, following WET year

April, following AVERAGE RAINFALL year

April, following DRY year

May, following WET year

May, following AVERAGE RAINFALL year

May, following DRY year

June, following WET year

June, following AVERAGE RAINFALL year

June, following DRY year

July, following WET year

July, following AVERAGE RAINFALL year

July, following DRY year

August, following WET year

August, following AVERAGE RAINFALL year

August, following DRY year

September, following WET year

September, following AVERAGE RAINFALL year

September, following DRY year

October, following WET year

October, following AVERAGE RAINFALL year

October, following DRY year

November, following WET year

November, following AVERAGE RAINFALL year

November, following DRY year

December, following WET year

December, following AVERAGE RAINFALL year

December, following DRY year

Appendix B   Common data formats

B.1   Group frequency

The format for the frequency data is as follows: <species name>,<group frequency>,<group score>;

Where:

- **species name** = <genus> <specific epithet> <connecting term> <intraspecific epithet>
- **group frequency** = how often the species has been recorded as occurring within a plot within this substratum, expressed as a percentage of the total number of plots used to define the PCT.

  For example, if species x occurred in stratum y in 4 of the 20 plots used to define this PCT, then the group frequency would be (4/20) x 100 = 20. The intent is to provide a measure of how common the species is within the stratum
- **group score** = the mean cover score of the species within the substratum across the plots where it occurs, expressed by using the Braun–Blanquet scale.

  For example, if species x occurred in the emergent stratum y in 4 of the 20 plots with cover scores of 3, 4, 4 and 5, then the 16 plots where it did not occur would be excluded and the mean would be (3+4+4+5)/4 = 4. The intent is to provide a measure of how abundant the species is within the stratum when it is present.

This format applies to these group frequency data fields:

- emergentGroupFrequency
- upper1GroupFrequency
- upper2GroupFrequency
- upper3GroupFrequency
- mid1GroupFrequency
- mid2GroupFrequncy
- mid3GroupFrequency
- ground1GroupFrequency
- ground2GroupFrequency.

B.2 Cover data

The format of the cover data is as follows:<min>;<max>;<mean>;<cover type code>;<cover surrogate derived>

Where:

- **min** = the minimum score recorded for the foliage cover from all plots used to define the PCT, expressed as a percentage of the plot area
- For example, if 3 plots were used to define the PCT, with cover scores in this substratum of 10%, 15% and 18%, then the min would be 10%
- **max** = the maximum score recorded for the foliage cover from all plots used to define the PCT, expressed as a percentage of the plot area
- **mean** = the mean score recorded for the foliage cover from all plots used to define the PCT, expressed as a percentage of the plot area
- **cover type code** = a code indicating the type of measure used to calculate the cover values (min, max and mean). See below for a definition of the codes
- **cover surrogate derived** = an indication of whether the cover was estimated (= yes) or quantitatively determined (= no).

Cover type codes – controlled vocabulary:

- 1N
- 1C
- 2N
- 2C
- 3N
- 3C
- 4N
- 4C.

The cover type codes specify the type of measure used for the cover values (i.e. minimum, maximum, mean and median percentage cover). The cover type codes are a combination of the information specified in the 'Cover type method' field and subsequently the 'Cover type' field.

Cover type method – controlled vocabulary:

- CC Canopy Cover
- FC Foliage Cover
- PC Percentage Cover
- FPC Foliage Projective Cover
- NA Not applicable
- Unknown.

Once 'Cover type method' is specified, the 'Cover type' field can be populated from a controlled vocabulary which includes the final cover type code. The letter part of each code denotes whether the measure is a numeric real value ('N') or includes the upper and lower ranges of a cover class category ('C').

Code	Explanation
1N	**Crown or canopy cover**: Crown cover is defined as the percentage of the sample site within the vertical projection of the periphery of the crowns. In this case, crowns are treated as opaque (Walker and Hopkins 1990). Crown cover is estimated using the mean gap between crowns divided by mean crown width (the crown separation ratio) (Walker and Hopkins 1990).
2N	**Foliage cover:** Foliage cover is defined as the percentage of the sample site occupied by the vertical projection of foliage and branches (if woody) (Walker and Hopkins 1990). For ground vegetation, it is measured by using line-intercept methods. It will, to some degree, take into account the thickness of a clump of grass. % crown cover x crown type (Walker and Hopkins 1990).
3N	**Percentage cover:** The percentage of a strictly defined plot area, covered by vegetation, generally applicable to ground vegetation that has been estimated rather than measured using line-intercept methods. It does not necessarily take into account the thickness of a clump of grass.
4N	**Projective foliage cover:** The percentage of the sample site occupied by the vertical projection of foliage only (Walker and Hopkins 1990).
1C	**Crown or canopy cover:** As for 1N above, but for data derived from, or containing, class intervals. Crown cover is defined as the percentage of the sample site within the vertical projection of the periphery of the crowns. In this case crowns are treated as opaque.
2C	**Foliage cover:** As for 2N above, but for data derived from or containing class intervals. Foliage cover is defined as the percentage of the sample site occupied by the vertical projection of foliage and branches (Walker and Hopkins 1990). For ground vegetation it is measured by using line-intercept methods. It will, to some degree, consider the thickness of a clump of grass.
3C	**Percentage cover:** As for 3N above, but for data derived from, or containing, class intervals. It is the percentage of a strictly defined plot area covered by vegetation and is generally applicable to ground vegetation that has been estimated rather than measured by using line-intercept methods. It does not necessarily take into account the thickness of a clump of grass.
4C	**Projective foliage cover:** As for 2N above, but for data derived from, or containing, class intervals. The percentage of the sample site occupied by the vertical projection of foliage only (not branches) (Walker and Hopkins 1990).
5C	**Cover abundance rating:** Abundance class system, e.g. Braun–Blanquet.

Source: *Explanation of Cover Type Codes*

This format applies to these cover data fields:

- upper1CoverData
- upper2CoverData
- upper3CoverData
- mid1CoverData
- mid2CoverData
- mid3CoverData
- ground1CoverData
- ground2CoverData.

B.3 Height data

The format for the height data is as follows: <min>;<max>;<mean>;<height surrogate derived>

Where:

- **min** = the minimum estimated maximum height (in metres) of the substratum from all plots used to define the PCT. Note that the height is measured to the top of the crown, tussock, etc.

  For example, if 3 plots were used to define the PCT, with estimated heights in this substratum of 25 m, 26 m and 30 m, then the min would be 25.

- **max** = the maximum estimated maximum height (in metres) of the substratum from all plots used to define the PCT. Note that the height is measured to the top of the crown, tussock, etc.

- **mean** = the mean of the estimated maximum height (in metres) of the substratum from all plots used to define the PCT. Note that the height is measured to the top of the crown, tussock, etc.

- **height surrogate derived** = an indication of whether the height was estimated (=yes) or quantitatively determined (=no).

This format applies to these height data fields:

- upper1HeightData
- upper2HeightData
- upper3HeightData
- mid1HeightData
- mid2HeightData
- mid3HeightData
- ground1HeightData
- ground2HeightData.