Myrtle Rust database

Technical specifications for the use of the myrtle rust database

Version 1.0 March 2020

Table of contents

Introduction

The purpose of this document is to provide technical detail on the use of the myrtle rust database. Technical specifications contained in this document include details on the data collection, determination when derived, and use.

Data Management

Dataset COMPILERS

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Dataset DATE

March 2020

Dataset CUSTODIAN

Queensland Herbarium, Department of Environemnet and Science,

The University of Queensland

Dataset JURISDICTION

Queensland and New South Wales

Description ABSTRACT

Myrtle rust has rapidly emerged as a threat to the *Myrtaceae* family in Australian sub-tropical and tropical rainforest. Survey effort are urgently needed to understand the state of the disease and the threat to susceptible species.

Description SEARCH WORD(S)

Myrtle rust, Myrtaceae, Rainforest

Description GEOGRAPHIC EXTENT NAMES(S)

9°S 130°E, 36°S 154°E

Access STORED DATASET FORMAT(S)

Point locations

DATUM

Geocentric Datum of Australia (GDA94)

ACCESS AVAILABLE FORMAT TYPE(S)

CSV files

Data Quality LINEAGE

Field data collected from 2003 to present checked, tested and compiled by the Queensland Herbarium. Records are also sourced from experts and agencies that are conducting fieldwork in the impacted area.

Tables description

Site Locality

	Field Name	Description	Data type
1	site_name	Unique identifier for an individual site associated with a unique pair of Latitude and Longitude.	Primary Key, Short Text
2	locality	Description of the locality, using local names and extra information to find the site.	Short Text
3	region	Description of the region. Allowed values include: Central Queensland; Far North Queensland; Northern New South Wales; South-east Queensland; Wet Tropics.	Short Text
4	lat	Latitude in decimal degrees GDA94.	Double
5	long	Longitude in decimal degrees GDA94.	Double
6	elevation	Elevation AHD from the DEM (Wilson et al, 2011)	Double
7	type	Type of survey that determined how the Latitude and Longitude were acquired. Allowed values: Google_Earth (Google Earth); handheld_GPS; Herbrecs (Queensland Herbarium 2018); withheld: for some rare species, the actual coordinate are withheld and the displayed coordinate are accurate to 10km.	Short Text
8	topography	Description of the dominant topography. Allowed values: 1 flat; 2 slope; 3 shallow gully; 4 incised gully; 5 escarpment base; 6 ridgetop.	Integer
9	habitat	Description of the dominant habitat. Allowed values: 1 intact rainforest; 2 natural rainforest edge; 3 secondary rainforest; 4 roadside rainforest; 5 rainforest restoration; 6 wet eucalypt forest; 7 gully in eucalypt forest; 8 Open Forest; 9 coastal headland; 10 coastal heath; 11 paperbark swamp; 12 amenity and/or garden; 13 cleared edge; 14 remnant trees; 15 OTHER	Integer
10	skyline	Percentage of skyline obscured by hills.	Integer
11	slope	Slope in degree representative of the site.	Integer
12	aspect	Aspect in degree from 0 to <360.	Integer
13	old_proforma	Binary value describing the proforma used to record information. 0 is current, 1 is prior to October 2018. All the data entered prior to October 2018 has been converted to fit the new proforma.	Integer

	Field Name	Description	Data type
14	description	Supplementary description of the site and the species.	Long Text

Population

	Field Name	Description	Allowed Values
1	site_name	Unique identifier for an individual site associated with a unique pair of Latitude and Longitude.	Primary Key, Short Text
2	date_surveyed	Unique date for each visit.	Primary key, Date
3	species	Species code. The full species name is available in the species ID table.	Primary Key, Short Text
4	source_new	Name of the information provider. Expert or institution. In publicly released version, this is a code to protect individual privacy.	Short Text
5	source_type	The type of data extracted from the source. Allowed values are: Carnegie et al: as a reference to the data in Carnegie et al (2015); field: survey in the field; hrb: field survey of records from Herbrecs (Queensland Herbarium, 2018); pc: personal communication with an expert; pc-photos: personal communication with an expert enhanced by photographic evidence; Pegg et al: as a reference to the data in Pegg et al. (2017).	Short Text
6	pop_size	Number of individual present at the site.	Short Text
7	sample_size	Number of individual assessed for damage. For sites with large number of individuals, only a subsample of the population is assessed.	Integer
8	mean_damage_A_mean	Long term damage score as percentage of major branches dead and not resprouting. Allowed values: 0: No branches dead; 1: <10%; 2: 10-50%; 3: 50-90%; 4: >90%; 5: Tree branches dead but epicormics re-shooting from base; 6: Tree entirely dead.	Double
9	mean_damage_B_mean	Long term damage score as percentage of branchlets dead. Allowed values: 0: No dead branchlets; 1: <10%; 2: 10-50%; 3: 50-90%; 4: >90%.	Double
10	recent_rust_mean	Damage score as percentage of young shoot infected e.g. pustules on leaves/distortion/blackened. Allowed values: 0: No dead branchlets; 1: <10%; 2: 10-50%; 3: 50-90%; 4: >90%.	Integer
11	above_canopy	Canopy cover in percent for the site.	Integer

	Field Name	Description	Allowed Values
12	canopy	Canopy cover in percent of the sample species at the site.	Integer
13	plants_fertile	Presence or absence of any fertile parts on the plant. Allowed values: 1: presence; 0: absence.	Boolean
14	buds	Presence or absence of buds. Allowed values: 1: presence; 0: absence.	Boolean
15	flowers	Presence or absence of flowers. Allowed values: 1: presence; 0: absence.	Boolean
16	fruit	Presence or absence of fruits. Allowed values: 1: presence; 0: absence.	Boolean
17	leaf_flush_present	On the old proforma, presence or absence of new leaf flush. Allowed values: 1: presence; 0: absence.	Boolean
18	leaf_flush_damage	On the old proforma, presence or absence of damage on the new leaf flush. Allowed values: 1: presence; 0: absence.	Boolean
19	seedlings_present	Presence or absence of fruits. Allowed values: 1: presence; 0: absence.	Boolean
20	seedling_damage	Number of assessed seedling that have any myrtle rust damage.	Integer
21	seedling_density	Density of seedlings in the sampled area	Integer
22	native_range	The species population is within its native range (as opposition to be planted). Allowed values: Yes; No.	Boolean
23	notes	Extra information relative to the species at this site.	Long text

Individual

	Field Name	Description	Allowed Values
1	site_name	Unique identifier for an individual site associated with a unique pair of Latitude and Longitude.	Primary Key, Short Text
2	date_surveyed	Unique date for each visit.	Primary key, Date
3	species	Species code. The full species name is available in the species ID table.	Primary Key, Short Text
4	sample_number	Unique number assigned to each sampled tree at the site. The sample number are assigned by visit. E.g. sample 1 at Site A on the 01/01/2011 for rhopsi is different from sample 1 at Site A on the 01/01/2012 for rhospi.	Primary Key, Integer
5	damage_A_mean	Long term damage score as percentage of major branches dead and not resprouting. Allowed values: 0: No branches dead; 1: <10%; 2: 10-50%; 3: 50-90%; 4: >90%; 5: Tree branches dead but epicormics re-shooting from base; 6: Tree entirely dead.	Double
6	damage_B_mean	Long term damage score as percentage of branchlets dead. Allowed values: 0: No dead branchlets; 1: <10%; 2: 10-50%; 3: 50-90%; 4: >90%.	Double
7	recent_rust	Damage score as percentage of young shoot infected e.g. pustules on leaves/distortion/blackened. Allowed values: 0: No dead branchlets; 1: <10%; 2: 10-50%; 3: 50-90%; 4: >90%.	Integer
8	above_canopy	Canopy cover in percent for the site.	Integer
9	canopy	Canopy cover in percent of the sample species at the site.	Integer
10	plants_fertile	Presence or absence of any fertile parts on the plant. Allowed values: 1: presence; 0: absence.	Boolean
11	buds	Presence or absence of buds. Allowed values: 1: presence; 0: absence.	Boolean
12	flowers	Presence or absence of flowers. Allowed values: 1: presence; 0: absence.	Boolean
13	fruit	Presence or absence of fruits. Allowed values: 1: presence; 0: absence.	Boolean
14	leaf_flush_present	On the old proforma, presence or absence of new leaf flush. Allowed values: 1: presence; 0: absence.	Boolean

	Field Name	Description	Allowed Values
15	leaf_flush_damage	On the old proforma, presence or absence of damage on the new leaf flush. Allowed values: 1: presence; 0: absence.	Boolean
16	notes	Extra information relative to the species at this site.	Long text

Species_ID

	Field Name	Description	Allowed Values
1	species	Species code. The full species name is available in the species ID table.	Primary Key, Short Text
2	scientific_name	Complete scientific name.	Short Text
3	taxonomic _notes	Information about the taxonomic issues, uncertainty and synonym associated with this taxon.	Long Text

METADATA DATE

03/03/2020

References

Carnegie, A., Kathuria, A., Pegg, G., Entwistle, P.,Nagel, M., Giblin, F. (2015). Impact of the invasive rust Puccinia psidii (myrtle rust) on native Myrtaceae in natural ecosystems in Australia. *Biological Invasions*. 18. 10.1007/s10530-015-0996-y.

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Queensland Herbarium. (2018). Herbarium records for relevant species, Department of Environment and Science, Queensland, viewed 1 January 2018.

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