



A handbook for the

Weed Spotters Network Queensland

Queensland Herbarium
November 2024



Queensland
Government

Prepared by

MJ Laidlaw, MA Louden, AR Bean and P French
Queensland Herbarium
Department of Environment, Tourism, Science and Innovation
Brisbane Botanic Gardens
Mt Coot-tha Rd
Toowong QLD 4066

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Introduction

Weeds are non-native (or occasionally native) plants growing in a place where they are not wanted. They are often the first species to colonise and dominate disturbed habitats and excel at surviving and reproducing under these conditions.

Weeds cost the Queensland economy in excess of \$600 million a year in control and lost productivity costs (Biosecurity Queensland, 2016). They also damage our diverse ecosystems, impact our unique flora and fauna and many sectors of our community. Approximately 1400 naturalised plant species (or weeds) are known to occur in Queensland, with an average of 10 new weeds becoming established across the state each year.

Addressing new weed threats quickly helps limit their impact and ensure that the control and management of weeds is targeted and cost effective. Discovering and correctly identifying new weed occurrences are important first steps. The size of Queensland (1.7 million square kilometres) and the scale of the weed threat means that plant scientists, botanists and biosecurity staff need the help of the community to help spot and identify new and emerging weed threats.

Weed Spotters Network Queensland

Since 2006, the Weed Spotters Network Queensland citizen science project has been harnessing and fostering community interest and skills in collecting and identifying weeds with a focus on surveillance and the early detection of new and emerging weeds. Weed spotters come from diverse backgrounds but share a common interest in weeds. Our membership includes landholders, industry groups, regional natural resource management groups, Landcare and Bushcare participants, scientists, slasher drivers, weed contractors, gardeners, National Parks rangers, Biosecurity Queensland and local government officers.

The network is a collaboration between the Queensland Herbarium, Biosecurity Queensland,

local governments and the community. The Queensland Herbarium, part of the Department of Environment, Tourism, Science and Innovation (DETSI) is the Queensland Government's centre for research and information on Queensland plants, animals, fungi, algae and ecosystems. Herbarium botanists, ecologists and taxonomists identify weed specimens submitted for identification by weed spotters and provide data to state and local government agencies, scientists and to the public.

Biosecurity Queensland, part of the Department of Primary Industries (DPI), provides leadership and support for invasive plants and animal management in Queensland through the development of policy, legislation, pest risk assessments, research, state-wide coordination of pest programs, communication, education and awareness programs. Incursions of notifiable weeds located by weed spotters are forwarded to Biosecurity Queensland and others for action.

What do weed spotters do?

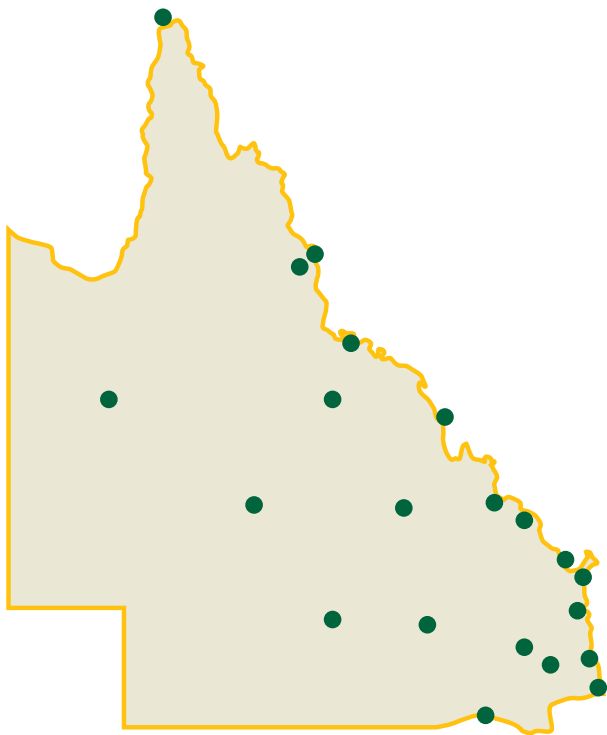
Weed spotters aim to detect new and emerging species of weeds before they become established in Queensland by locating and reporting infestations in their region. They send images, data and specimens of potential, new and emerging weeds to the Queensland Herbarium for identification, data capture and mapping. This data helps us to detect new weed incursions and to track how far and how quickly weeds are spreading. Information collected by weed spotters is crucial for developing early response strategies for new weeds and for the ongoing control and containment of established weeds.

Since the network's inception, weed spotters have collected and submitted thousands of plant specimens to the Queensland Herbarium resulting in the detection of new and emerging weed threats that could impact Queensland's environment, community and economy. Data collected by weed spotters has greatly improved our understanding of Queensland's naturalised flora and supported countless scientific studies in Queensland, Australia and beyond. Weed spotters make a valuable contribution to biosecurity in Queensland.

Regional coordinators

Weed Spotter regional coordinators are volunteers located around the state who help identify and filter weed spotters' specimens and pass them on to the Queensland Herbarium for identification. They also provide feedback to weed spotters in the regions about new and emerging weeds risks, help with training and accessing government information.

A full list of our current regional coordinators can be found on the Weed Spotter website: qld.gov.au/environment/plants-animals/plants/herbarium/weed-coordinators



Weeds to keep an eye out for

Sources of new weeds in a region vary but can include escaped garden ornamentals, 'sleepers' which have been here for a while but are expanding their range following favourable weather conditions, or pasture weeds inadvertently transported into a region in stock feed or fodder. Weed spotters also keep an eye out for weeds that have not yet been recorded growing in Queensland but have been assessed as 'high risk', with the potential to establish here.



Finding and reporting emerging weeds which could cause serious environmental, social and economic impacts across Queensland is a critical role of the Weed Spotters Network. A list of weeds to look for in each season in your region is included on pages 14 and 15.

Priority weeds for early detection

Almost ten per cent of Queensland's weeds are listed as declared invasive species under the Queensland *Biosecurity Act 2014*. Priority weeds for early detection are identified by Biosecurity Queensland through a comprehensive risk assessment process. High priority weed species for detection are listed in the *Biosecurity Act 2014* under one of two classifications:

- prohibited matter and
- restricted matter

What is prohibited matter?

Prohibited matter includes invasive plants that are not yet found in Queensland. If these species were to enter Queensland, they would significantly impact our health, way of life, the economy and the environment. There are 29 species/species groups of invasive plants listed as prohibited matter in Queensland.

It is the responsibility of all Queenslanders, as well as visitors from interstate and overseas, to be aware and take steps to prevent prohibited matter from entering our state. You should know about the prohibited matter that you may come across during your everyday activities. The Act requires that **all sightings** of prohibited plants are to be reported to Biosecurity Queensland within 24 hours.

business.qld.gov.au/industries/farms-fishing-forestry/agriculture/biosecurity/plants/invasive/prohibited

What is restricted matter?

Restricted matter includes invasive plants that are currently found in Queensland and are considered to have a significant impact on human health, social amenity, our economy and environment. There are more than 100 species/species groups of invasive plants listed as restricted matter in Queensland. It is the responsibility of all Queenslanders to know about the restricted matter that you may come across during your everyday activities.

There are four categories of restricted matter relevant to invasive plants. Categories assigned to restricted invasive plants prescribe actions required if you come into contact with them. A species of invasive plant may have one or multiple restriction categories attributed to it and you will need to follow the requirements of all associated categories.

Category 2 restricted invasive plants—The Act requires that all sightings of category 2 restricted invasive plants be reported to Biosecurity Queensland within 24 hours of you becoming aware of its presence.



Hudson pear—restricted invasive plant

Category 3 restricted invasive plants—You must not distribute this restricted invasive plant. It must not be sold, given as a gift, traded or released into the environment, unless authorised in a regulation or under a permit.

Category 4 restricted invasive plants—You must not move this restricted invasive plant to ensure that it is not spread into other areas of the state.

Category 5 restricted invasive plants—You must not possess or keep this restricted invasive plant under your control due to the high risk of negative impacts to the environment.

business.qld.gov.au/industries/farms-fishing-forestry/agriculture/biosecurity/plants/invasive/restricted

General biosecurity obligation

Under the *Biosecurity Act 2014*, all Queenslanders have a ‘general biosecurity obligation’ (GBO) which means that everyone is responsible for managing biosecurity risks that are under their control and that they know about, or should reasonably be expected to know about. Under the GBO, individuals and organisations whose activities pose a biosecurity risk must:

- take all reasonable and practical steps to prevent or minimise each biosecurity risk
- minimise the likelihood of causing a ‘biosecurity event’, and limit the consequences if such an event is caused
- prevent or minimise the harmful effects a risk could have, and not do anything that might make any harmful effects worse.

For further information on the *Biosecurity Act 2014*, please consult: business.qld.gov.au/industries/farms-fishing-forestry/agriculture/biosecurity/laws/biosecurity-act



Photo: Dvortygirl

When to look for weeds

It is always a good time to look for weeds! Weed spotting can be incorporated into your regular routine. Due to the diversity and wide variety of weeds across Queensland, they can turn up anywhere and at any time of the year. Rain events present a particularly good opportunity for weeds to establish in new and previously 'clean' areas so after rain, take stock of any changes in the local flora, especially during warmer months when many plants are actively growing and flowering.

Where to look for weeds

Weeds are spread in a variety of ways and these can give an indication where to best find potential new weed infestations. These areas can include:

- forests, bushland or nature reserves
- waterways and wetlands
- coastal dunes
- stock routes and railway corridors
- roadsides
- disturbed sites and waste places
- pastures and crops
- gardens
- nurseries and markets.

Weed hygiene

Ensuring that you don't contribute to the spread of weeds or diseases by practicing good weed hygiene is an important aspect of being a weed spotter. Make sure that no seeds or fragments are accidentally transported away from a site on your clothes, shoes, equipment or vehicles. When collecting weed specimens, take care that seeds and plant fragments are not accidentally spread. Double-bag specimens to prevent weed seeds from escaping during transportation.

Weed hygiene is also important: ... in the garden

- Ensure that you don't have any plants in your garden that are listed on Biosecurity Queensland's list of invasive species.
- Avoid species listed in the Biosecurity Plan for your local government area.

- Buy plants from reputable sources and be sure of what you are buying, especially if shopping online.
- Avoid planting species which have weedy potential.
- Don't dump weeds and garden waste in the bush or in parklands; weeds can threaten our flora and fauna.
- Before composting and mulching weeds at home, dispose of any seeds via your rubbish bin. Many species seeds can survive composting, leading to new outbreaks around your garden.
- Buy soil and mulches from reputable sources and monitor for weed germination following rain.
- Never grow non-native aquatic plants in dams, ponds or waterways; consult the Grow me Instead website for native alternatives.
- Never buy, swap or trade aquatic plants, especially online.

... on the road

- Before travelling off-road, check with local governments or landholders for any travel restrictions due to weed infestations.
- Arrive clean and leave clean. Ensure that all clothing, footwear, tools, equipment, machinery and vehicles are free of weed seeds, mud, soil and organic matter before entering and exiting bushland locations and before moving between sites.
- Ensure that all seedlings, mulch, soil, gravel, rock and sand taken into bushland are certified free of weeds, pests and pathogens.
- Stick to designated roads and tracks, avoiding weed infested areas.
- Weed seeds can accumulate in vehicle foot wells, carpets, mats, seatbelts, spare tyres, grills, radiators, air filters and windscreen wipers. Dirt and mud anywhere on the vehicle can also transport weed seed and fragments. Use clean-down facilities where available or wash your car on the lawn to prevent seeds and plant fragments from entering waterways.



Photo: B Callanan

- Numerous clean-down facilities have been built across Queensland for cleaning vehicles and machinery to help stop the spread of weeds. These are generally managed by local government authorities and it's best to contact them regarding permission to use the facilities. There are also some companies and utility providers that have private facilities that may be available to the public. It's best to check with the operators regarding opening times, availability and capacity to accommodate your vehicle or machine.
- DPI have published a clean-down procedures manual to help people minimise weed spread via their vehicles or machinery. This can be found at: daf.qld.gov.au/__data/assets/pdf_file/0011/58178/cleandown-procedures.pdf

... on the water

- Inspect your fishing gear, boat, car and trailer for seeds and plant fragments before leaving freshwater waterways.
- Wash your boat on the lawn to prevent seeds and plant fragments from entering waterways.
- Never dump aquarium plants, water or other contents down drains or into waterways.

Safety

Weed Spotters are responsible for their own safety and are only covered by insurance when participating in activities directly organised and supervised by Queensland Government staff.

Weed spotting should only be undertaken within the limits of your physical ability. Difficult terrain and extreme weather should be avoided.

Protective equipment

When weed spotting, make sure you take along sunscreen, a hat, a long-sleeved shirt and long trousers, sturdy shoes, a first-aid kit, water and food.

Take specialised equipment as required for the particular job, for example gloves will be needed for handling prickly or sappy plants. Always wash your hands after handling plants.

Safe travel procedures

Always let someone know where you are going and when you expect to return. For long journeys, travel with a friend and leave details of your route, destination and expected return time with someone who can raise help if necessary.

Make sure that your vehicle is suitable for the job and functioning properly before leaving. Check you have packed all the safety and communication equipment you may need.

If working along roadsides, make sure you park a safe distance off the road and protect yourself from traffic hazards. Wearing a high visibility (hi-vis) jacket or vest is a good idea.

Photo: St John's



Weed identification

Weed spotters and members of the public play a vital role in eradicating high-risk weed species in Queensland by immediately reporting sightings of unusual plants.

If you have found a prohibited or restricted (category 2) weed in your region, you can report it by contacting Biosecurity Queensland on 13 25 23. If you would like to have a weed identified, this can be done by emailing photos to the Queensland Herbarium at Queensland.Herbarium@qld.gov.au or by contacting your Weed Spotters regional coordinator.

Before you collect

Permits

Before going on to private land you must request permission from the owner to access and traverse their land. Collecting specimens in Queensland National Parks and State Forests is illegal unless you have a permit. Permits to collect for scientific purposes can be obtained from: qld.gov.au/environment/parks/permits/science-education

What to pack

For general collecting you need:

- a plant press that is light enough to carry around. This should include some sheets of corrugated cardboard and some newspaper. If you don't have a plant press, heavy books can be placed on top of your prepared specimen to press it.
- secateurs to collect and trim specimens.
- a GPS for recording an accurate latitude and longitude. Alternatively, you can record your location using Google Maps or by providing a street address.
- a field notebook and pencil for taking notes.
- plastic bags to hold specimens temporarily.
- gloves for handling prickly plant material, poisonous plants or plants with corrosive sap
- a camera or mobile phone for photographing the plant, flowers, seeds etc.
- a trowel for digging out plants with underground structures such as bulbs or the roots of grasses.



iNaturalist

iNaturalist App

The Atlas of Living Australia (ALA) ala.org.au, iNaturalist inaturalist.org and the Queensland Weed Spotters Network are working to maintain a strong early detection capability of invasive plants. When a high-risk species is photographed, uploaded to iNaturalist, and its identification confirmed on the iNaturalist platform, the record is fed to the ALA [Biosecurity Hub](#) database, which triggers an Alert email notifying [Biosecurity Queensland](#) of the occurrence. The iNaturalist app is available for Android and iPhone. Visit iNaturalist at inaturalist.org.



Selecting plant material

Select vigorous, typical specimens and avoid insect-damaged plants. A good specimen includes stems, leaves, flowers and fruits so try to find a specimen with all of these features if possible. This may entail returning to the site when the plant is in flower or fruit. The underground parts of grasses, sedges, ferns and bulbs are required for identification.

For best results, specimens should be pressed within a few minutes of being cut as many species wilt soon after collection. If specimens cannot be pressed at the time of collection, they may be stored briefly in sealed plastic bags and kept cool, however storing specimens in plastic bags is not recommended as they can be easily damaged and are likely to go mouldy. To reduce the chances of confusion when bagging multiple specimens, make sure that each bag is correctly labelled, using one bag per collection site.

Size of the specimen

A specimen should ideally be 25–40 cm long and up to 26 cm wide, the size of a sheet of newspaper. Plant parts that are too large for a single sheet of newspaper may be cut into sections and pressed on more than one sheet of paper. Long and narrow specimens such as grasses and sedges can be folded once, twice or even three times at the time of pressing. For very small plants, a number of

Features of the plant not captured by your specimen

When collecting from trees or large shrubs, any distinctive or notable features should be recorded in your notes, for example the height and width of the plant, details of the bark or any strongly smelling foliage.

Special considerations when collecting weeds

- Prohibited and some restricted invasive plants are not allowed to be moved, however, an exemption under the *Biosecurity Act 2014* allows for the collection of weed specimens for the purpose of identification by the Queensland Herbarium. All specimens, whether declared or not, can become sources of weed spread so good weed hygiene should be practiced at all stages when collecting weeds.
- Seed heads can be separated from your specimen and placed in sealed envelopes to contain them. Alternatively, the entire specimen can be placed in a paper bag or envelope. Ensure seeds can't escape during transportation or postage. Double-bagging is recommended.



Prickly pear

How to collect and press plant specimens

Step 1

Find a specimen typical of the species you would like to have identified, preferably with stems, leaves, flowers and/or fruits attached. Record the longitude and latitude of your specimen by using a GPS, by finding your location on a map or checking your location via Google Earth.



Step 2

Use secateurs to cut a section of the plant 25–40 cm long and up to 26 cm wide (just smaller than A3 paper size). If your specimen is very large, simply cut it into sections before pressing. For grasses, roots and seed heads are needed to aid identification, so make sure you pull up the whole plant from the roots.



Step 3

Place your specimen onto newspaper with care regarding how the final specimen will appear. Ensure limited overlapping of material to prevent mould from growing on your specimen. Long plants such as grasses can be folded multiple times to fit into your newspaper.



Step 4

Lay the newspaper between sheets of corrugated cardboard then flatten the specimen either in a press or by placing a flat weight on top of the cardboard such a heavy book.



Step 5

Download and fill in the specimen cover sheet (opposite) (qld.gov.au/environment/plants-animals/plants/herbarium/identify-specimens) with your contact details, details about your specimen and the collection date. Information about your location, dominant vegetation type, soils and geology, flower colour and plant height will assist botanists to identify your specimen. Please also indicate the size of the infestation or how many individuals you found on your form.



Step 6

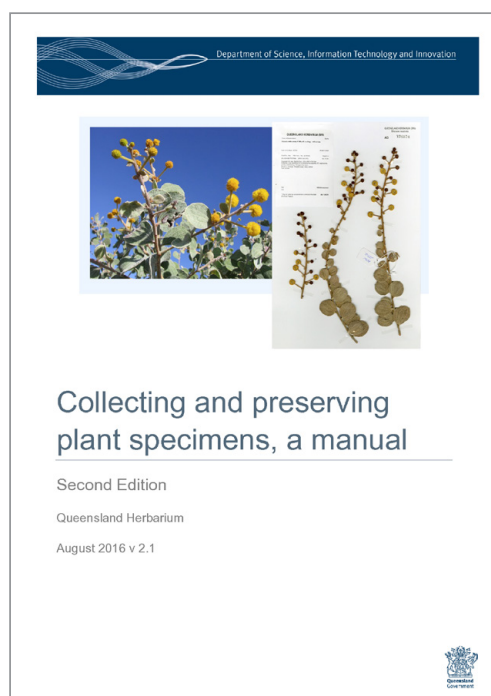
Dry your specimen for at least one week, changing the newspapers daily to prevent mould growth. Once completely dry, place your specimen supported by a sheet of cardboard, along with your specimen cover sheet into an envelope.

Send it to:

Advisory Services
Queensland Herbarium
Brisbane Botanic Gardens
Mt Coot-tha Rd
TOOWONG Qld 4066


You will receive a reply from the Queensland Herbarium in approximately two weeks.

Should you require more detailed information on the collection of plant specimens, please consult the Queensland Herbarium at website: qld.gov.au/environment/plants-animals/plants/herbarium/identify-specimens.



June 2016

Botanical specimens – cover sheet



Botanical Specimens for Identification
Complete this form (one for **each specimen**) & send with specimen/s to:
Botanical Information and Advisory Service
Queensland Herbarium, DSITI
Brisbane Botanic Gardens Mt Coot-tha
Mt Coot-tha Road, TOOWONG QLD 4066
Queensland.Herbarium@qld.gov.au

Office Use Only

Date received _____

Identification no. _____

Date of despatch _____

Name: _____				
Company / Department: _____				
Postal Address _____				
			Postcode _____	
Telephone: _____		Fax: _____		
Email: _____				
Please send results by: <input type="checkbox"/> post <input type="checkbox"/> email <input type="checkbox"/> fax <input type="checkbox"/> telephone				
Purpose: <input type="checkbox"/> weed detection <input type="checkbox"/> poisonous <input type="checkbox"/> conservation <input type="checkbox"/> commercial				
Additional information required:				
Label Information: Specimens sent to the Herbarium for identification are frequently retained in the collection for scientific, distribution and voucher records. The label information below when accompanying each specimen aids the identification process and greatly increases the scientific value of your specimen.				
Collector's Name & No.: _____		Date of collection / /		
Botanical name (if known) _____				
Locality (include road name &/or distance & direction from nearest town): _____				
Coordinates:				
Latitude: _____ °S		Longitude: _____ °E		
(DD MM SS.SSSS – seconds preferred but not compulsory. Please don't supply decimal degrees or decimal minutes)				
Or MGA / AMG Coordinates:	DATUM: GDA94/WGS84 or AGD84 (circle)	Zone:	Easting:	Northing:
Or Map (e.g. 9442) and grid reference (eg 333 666)		Map number:	Grid reference:	
Source of Coordinates: <input type="checkbox"/> GPS <input type="checkbox"/> Map <input type="checkbox"/> Gazetteer <input type="checkbox"/> Other				
Situation (e.g. plain, creek bank, mountain) _____				
Cultivated? <input type="checkbox"/> YES <input type="checkbox"/> NO				
Vegetation type (e.g. forest, heath, woodland) _____				
Soil / geology / regional ecosystem: _____				
Kind of plant (e.g. tree, vine, herb): _____				
Description (e.g. height, flower or fruit colour): _____				
Abundance: <input type="checkbox"/> number of individuals <input type="checkbox"/> number seedlings/ juveniles <input type="checkbox"/> ha/m ² size of clump				
Other Notes _____				
Specimens submitted automatically become the property of the Queensland Herbarium For more information phone (07) 3896 9326 or email Queensland.Herbarium@qld.gov.au				

Useful references and links

Weed Spotters Network Queensland

qld.gov.au/environment/plants-animals/plants/herbarium/weeds/weed-spotters

Biosecurity Queensland

daf.qld.gov.au/business-priorities/biosecurity

Queensland Herbarium

qld.gov.au/herbarium

Weed identification—iNaturalist app

inaturalist.ala.org.au

KeyBase online keys

keybase.rbg.vic.gov.au

Brisbane City Council Weed Identification Tool

weeds.brisbane.qld.gov.au

Weed management and control—DPI weed fact sheets

business.qld.gov.au/industries/farms-fishing-forestry/agriculture/biosecurity/plants/invasive

Weed collecting—Queensland Herbarium specimen collection guides

qld.gov.au/environment/plants-animals/plants/herbarium/identify-specimens

In the southern/central regions

keep an eye out for these new and emerging declared weeds

 Summer
 Autumn
 Winter
 Spring


Common name	South-East Queensland	Burnett–Mary	Murray Darling	Condamine	Desert Channels	South-West Queensland	Fitzroy Basin
alligator weed							
bitou bush							
bridal creeper							
bunny ears							
cha-om							
jumping cholla							
fire weed							
giant sensitive tree							
gorse							
horsetails							
Hudson pear							
Karoo thorn							
Koster's curse							
kudzu							
Madras thorn							
Mexican bean tree							
Mexican feather grass							
Miconia							
Mikania vine							
olive Hymenachne							
pond apple							
prickly pear							
redwood							
Salvinia							
Siam weed							
telegraph weed							
tobacco weed							
tropical soda apple							
water hyacinth							

Common name	South-East Queensland	Burnett–Mary	Murray Darling	Condamine	Desert Channels	South-West Queensland	Fitzroy Basin
water lettuce							
water mimosa							
willow							
Limnocharis							
yellow fever tree							

In the northern regions

keep an eye out for these new and emerging declared weeds

Common name	Mackay–Whitsunday	Southern Gulf	Northern Gulf	Dry Tropics	Wet Tropics	Cape York	Torres Strait
alligator weed							
bunny ears							
cha-om							
jumping cholla							
fire weed							
gamba grass							
giant sensitive tree							
Hudson pear							
Koster's curse							
Madras thorn							
Mexican bean tree							
Miconia							
Mikania vine							
pond apple							
prickly pear							
redwood							
Siam weed							
soap pod							
tropical soda apple							
water mimosa							
Limnocharis							
yellow fever tree							



Queensland Herbarium
Brisbane Botanic Gardens
Mt Coot-tha Rd
Toowong QLD 4066

☎ 3199 7671

@ Queensland.Herbarium@qld.gov.au

🌐 qld.gov.au/herbarium

🌐 inaturalist.ala.org.au

