Ecological Monitoring System Australia

Requirements to make flora species determinations in the Floristics module

Overview

The Ecological Monitoring System Australia, EMSA, is a set of nationally standardised survey modules and data systems aimed at improving the collection, management and storage of ecological field data. This includes:

- a manual detailing comprehensive instructions for a range of ecological field survey modules
- a field data collection app, called Monitor
- a centralised data management and storage system – the Australian Government's Biodiversity Data Repository (BDR).

This information sheet provides details on who can determine species identifications in the Floristics module.

The EMSA Floristics module includes two protocols to record flora species composition within a core, 1 ha, monitoring plot:

- Enhanced protocol – plant specimen vouchers collected for all species present in a plot for identification by a relevant state/territory herbarium or EMSA-approved Botanist.
- Standard protocol – plant specimen vouchers for a subset of the species (new, unknown, important, contentious and/or threatened species) present in a plot for identification by the relevant herbarium or EMSA-approved Botanist. Field botanist identification and plant photo vouchers are collected for the remaining species.

The enhanced protocol is always recommended the first time the plot is surveyed. This means that the plot can be surveyed by ecologists and field botanists, and field names are assigned to the vouchers collected. The vouchers are then provided to the relevant herbaria (typically a relevant state/territory herbarium) for identification by their taxonomist/s (Herbaria Taxonomist), or to an EMSA-approved Botanist. A set of verified species identifications are generated for the plot, ideally covering most species present over the whole project. Subsequent surveys may use the standard protocol, again where ecologists and field botanists conduct the survey, but they can assign species determinations to any voucher collected if certain it is the same as a species detected previously and determined by the Herbaria Taxonomist or EMSA-approved Botanist. However, if 'new' species are collected, i.e. species not recorded previously, or vouchers of contentious species (difficult to identify/undergoing revision), or project-specific important species, including threatened species, then those vouchers must be provided to the relevant herbaria for identification, or identified by an EMSA-approved Botanist.

EMSA Floristics module	**Who determines species identifications?**
Enhanced protocol – all vouchers *Preferred recommendation, especially for 1st time surveys*	Herbaria Taxonomist or EMSA-approved Botanist **only**
Standard protocol – vouchers of new, unknown, important, contentious and/or threatened species	Herbaria Taxonomist or EMSA-approved Botanist **only**
Standard protocol – vouchers of species previously recorded during a survey using the enhanced protocol, and previously determined by an EMSA-approved Botanist	Ecologist or field botanist – when they are certain the voucher is the same, and photos must be submitted
Standard protocol – vouchers of easily identifiable species that cannot be confused with any other species	Ecologist or field botanist

Understanding requirements of who can assign species determinations

What skills and experience are required for surveyors conducting field surveys?

The recommended skills and experience of the field surveyors, i.e. ecologists or field botanists, are the same whether conducting the standard protocol or the enhanced protocol of the Floristics module. The surveyors making the observations in the field should be familiar with and experienced in identifying the characteristic identifiable features of flora species and how to distinguish one species from another. If surveyors are not confident, time should be dedicated to practising, using field reference guides, and seeking advice before conducting the protocol.

When in the field, the field surveyor enters the field name into the Monitor app. The field name can be the name of the species they have identified it to be or a descriptive name, such as 'yellow guinea flower with furry leaves'. The field names remain in the database, and once identified, a determined name is also assigned.

How are species identifications updated?

Once the fieldwork is complete, the next step is to assign the actual determined name in the 'species determination data entry tool' (under development). For vouchers collected using the enhanced protocol, only Herbaria Taxonomists or EMSA-approved Botanists can determine species names. For vouchers using the standard protocol for new, unknown, important, contentious and/or threatened species, the determination entry process is the same, using Herbaria Taxonomists or EMSA-approved Botanists. For vouchers using the standard protocol where species have been detected previously, an ecologist or field botanist can enter the determined names.

What can an ecologist or field botanist determine?

When implementing the enhanced protocol, the ecologist or field botanist can only enter field names. ecologists and field botanists can view, but not edit, the information in the 'species determination data entry tool' (under development).

When implementing the standard protocol, the ecologist or field botanist enters the field name and can enter the species determination for vouchers if:

- they are certain of the identification, and;
- the species has been determined by a Herbaria Taxonomist or EMSA-approved Botanist from vouchers previously collected from the plot or project (i.e. recorded from a previous survey using the enhanced protocol).

If the ecologist or field botanist are entering species determinations, they must include at least one clear photo, and ideally a series of photos from different angles showing the overall plant (habit) and key identifiable characteristics.

What is needed to be a Herbaria Taxonomist?

A Herbaria Taxonomist works at an official herbaria of an Australian state/territory or Commonwealth herbaria and typically has the role of voucher identification and position of Identifying Botanist Taxonomist or similar. They have the skills and experience to identify a broad range of plant species, rather than specialising in a particular family/group. Specialist Taxonomists can only determine the species for the groups of species they specialise in.

Who can become an EMSA-Approved Botanist?

To become an EMSA-approved Botanist, submit the *Ecological Monitoring System Australia: Application form to be recognised as an EMSA-approved Botanist* to the Long-term Monitoring team (email LTMP@dcceew.gov.au). Your application will be assessed by the EMSA Protocol Advisory Group (PAG). The assessment takes into consideration:

- relevant qualifications from a recognised institute that results in a thorough knowledge of plant identification skills, and any additional training by a recognised institution.
- membership of a recognised group or certification program relevant to ecology/botany, where skills/knowledge are demonstrated and maintained (e.g. Certified Environmental Practitioner [CenvP] Program as an Ecology Specialist).
- experience within the last 2 years, and a minimum of at least 5 years, at leading or participating in flora surveys in a field-based environment, with no less than 5 comprehensive botanical surveys that focus on locating and identifying threatened plant or near threatened plants per year.
- the number of plant specimens collected that have been retained/incorporated into a relevant herbarium collection.

What conditions must an EMSA-approved Botanist follow?

An EMSA-approved Botanist will be approved to determine species specific to the region they have experience in conducting flora surveys. They may also be approved only to determine species for a specific project or a specific type of project. The EMSA-approved Botanist must follow all conditions of their relevant state/territory or Commonwealth scientific permits.

Applying to be recognised as an EMSA-approved Botanist

Please complete the *Ecological Monitoring System Australia: Application form to be recognised as an EMSA-approved Botanist* and send to the Long-term Monitoring team (email LTMP@dcceew.gov.au) for assessment by the EMSA PAG.

If you have any questions about this information sheet or the application form, please contact LTMP@dcceew.gov.au or EMSA_support@adelaide.edu.au.

Version control

Version	Date	Version update overview
1.0	21 May 2025	First release