



Information sheet for the sea spurge biocontrol agent, the fungus *Venturia paralias*

Funding acknowledgement

The overarching project is titled “*Community engagement in release of biocontrol agents*”, with the sea spurge sub-project named “*From lab to land: strengthening coastal resilience through community-led sea spurge biocontrol*”. This initiative is funded by the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) under the Supporting Communities to Manage Pest Animals and Weeds Program and is being led by the CSIRO.

For more information about the project, please visit: <https://research.csiro.au/sea-spurge/>

Project aims and desired outcomes

This national-scale initiative aims to deploy the foliar blight fungus *Venturia paralias* as a biocontrol agent against sea spurge (*Euphorbia paralias*). The project seeks to overcome the limited natural dispersal of the fungus by establishing a mass-culturing pipeline at CSIRO's plant pathogen laboratory in Canberra and the subsequent supply of the agent to community participants for environmental release. The ultimate goals of the project are to:

- Achieve widespread distribution and establishment of the fungus across Australia's southern coastline.
- Reduce sea spurge infestations.
- Protect biodiversity and culturally significant sites.
- Build community capacity for long-term weed management.

Background information on the biocontrol agent

The biocontrol agent is a fungus called *Venturia paralias* that causes disease on sea spurge plants. The fungus was originally isolated from diseased sea spurge plants in their native range of France. Through extensive host-specificity studies undertaken by the CSIRO, the fungus was shown to be highly specific to sea spurge and pose no danger to Australian flora. It was approved in 2020 by the Australian regulator for release into the Australian environment for the biocontrol of sea spurge.

The fungus infects leaves of sea spurge, causing characteristic brown leaf lesions. From infected leaves it moves to the stem, where it causes dark brown to black lesions that progressively elongate along the stem. Under humid and mild conditions, the fungus produces many spores from leaf and stem lesions that spread to nearby sea spurge plants by wind and rain to begin new infections. If the fungus establishes widely and causes severe disease symptoms, it can decrease the reproductive output of sea spurge plants and become an important addition to existing sea spurge management practices in Australia.



What does participation involve?

This is a collaborative project in which CSIRO provides fungal biocontrol release kits and support (e.g., online, on-ground workshops) free of charge. We will provide you with a biocontrol release kit that contains the dried culture of the fungus, together with detailed and specific instructions, from which you can prepare a spore suspension to spray on to sea spurge plants. One biocontrol kit is sufficient to spray approximately 3–5 sea spurge plants, and we suggest that each biocontrol kit released is separated by at least 200 m to enable broadscale distribution of the fungus along a coastal sea spurge infestation. If the fungus establishes, it will naturally spread to nearby sea spurge plants.

CSIRO project staff will work with you to determine the appropriate number of release kits, based on your requirements and capacity to release the fungus in your local area. There is no limit to the number of release kits that can be requested; however, the availability of the fungus will depend on demand. Releases will be staggered over the two years of the project, which runs from October 2025 until **June 2027**.

The biocontrol agent should be released in areas with the following attributes:

- **Dense infestations** of sea spurge, to increase the opportunities for other sea spurge plants to become infected by the fungus over time.
- Target infestations with **actively growing** and **healthy** sea spurge plants.
- In areas where the sea spurge population **will not be managed** by the application of chemical herbicides, manual removal, or other control methods for at least the next two years. This will allow the biocontrol agent the best opportunity to become established and naturally disperse through the local sea spurge population.

In exchange for receiving the fungal biocontrol agent, participants will be requested to provide information on the locations of their release sites, along with baseline estimates of the abundance of sea spurge infestations. Participants are also encouraged to revisit their release sites approximately 10 weeks after release of the fungus to assess its presence or absence. Monitoring will be supported through the provision of a monitoring sheet and guidance from CSIRO experts, with assistance available to help identify the fungus if needed.

Participants will be contributing voluntarily to the release activities and are not remunerated by CSIRO for their involvement. Participants are expected to hold and manage their own liability for how they choose to engage, including any on-ground biocontrol agent release activities. It is the responsibility of each participant to ensure they have obtained permission from the relevant landowner/land manager/custodian to release the sea spurge biocontrol agent at their nominated site(s).



Registering your interest

The fungus is available for release in all Australian states and territories where sea spurge infestations occur. Engagement will be targeted at community and public sector organisations, such as (but not limited to) Landcare, Local Land Services, Indigenous ranger groups, state and local governments, other volunteer groups etc. Private landholders and contractors may also express an interest to participate in the program. We welcome collaboration with stakeholders interested in making multiple releases across broad regions, integrated into existing sea spurge control programs. This approach will maximise the impact of the fungus at the landscape scale.

Please email Caroline Delaisse at seaspurgebiocontrol@csiro.au to register your interest to participate in the biocontrol program. As part of the registration, the CSIRO will provide a registration form for participants to complete, which requires information about the location(s) of the sea spurge infestation on which you plan to release the biocontrol agent. The registration form needs to be completed prior to receiving the agent.

The biocontrol agent will be provided to registered participants between **October 2025 and June 2027**. The specific timing of delivery will be determined by prevailing climate conditions, quantity of available biocontrol material for release, and level of demand from registered participants.

Frequently asked questions

Is it safe to release the biocontrol agent into the Australian environment?

In 2017, CSIRO began rigorous evaluation of the risks that the fungus *Venturia paralias* could pose to non-target plants in Australia. Research focused on species within the family Euphorbiaceae. This extensive host-specificity testing involved exposing sea spurge and non-target plant species to the fungus under optimal conditions for infection. It was found that the fungus is highly specific to sea spurge and based on these research results and following a comprehensive risk assessment process and public consultation, the Federal Department of Agriculture, Fisheries and Forestry (DAFF) approved the release of the biocontrol agent into the Australian environment. The information package that supported the application to release the agent in Australia, which includes all results, can be found here: <https://www.agriculture.gov.au/biosecurity/risk-analysis/biological-control-agents/risk-analyses/completed-risk-analyses/ra-release-venturia-paralias>

Note: the fungus has been approved for release into the Australian environment, and no further biosecurity risk assessments are required for site-level releases. The CSIRO has secured the necessary permissions for the fungus to enter all states and territories across Australia. However, each participant may need to navigate additional permissions related to site access and safety while conducting on-ground activities.

How does the fungus affect sea spurge health and populations? What is its natural spread potential?

The biocontrol fungus can significantly reduce the health and reproductive capacity of sea spurge plants when it establishes well. One of the most damaging effects of the fungus is the formation of stem lesions (see images on the next page), that often cause stem death thereby preventing seed set. This directly reduces the plant's ability to reproduce and spread; however, the fungus does not typically kill the entire plant outright. Instead, what we expect to see over many years is a gradual decline in sea spurge populations, due to a combination of reduced seed production and progressive thinning of the plant as new shoots become infected.

Previous studies have shown that the fungus is able to spread within a beach over three years of monitoring (from 200 m to 1.5 km). However, long-distance dispersal between beaches is likely to take several years, which highlights the importance of human-assisted distribution. By working with community groups to release the fungus across multiple sites and regions, we can accelerate its spread and maximise its impact at the landscape scale.

It is important to note that biocontrol is not a quick fix. Evidence from Victoria and Tasmania shows that visible impacts on sea spurge, such as reduced plant health and cover, may take at least three years to emerge. Biocontrol represents a long-term, sustainable approach to weed management, with benefits accumulating gradually over years to decades. For more information on this research, please visit our website here: <https://research.csiro.au/sea-spurge/previous-research-2017-2024/>



Can use of the biocontrol agent replace herbicide application or other control methods?

Biocontrol using the fungus *Venturia paralias* offers a sustainable, landscape-scale approach to managing sea spurge, with no risk of off-target damage to other vegetation. While the fungus is not expected to kill sea spurge plants outright, it can cause stem death and reduce seed production. As such, biocontrol will complement but not replace existing control methods such as manual removal or herbicide application. Over time, widespread establishment of the fungus is expected to reduce the vigour and reproductive capacity of sea spurge populations, which may in turn reduce the frequency and intensity of other control efforts required.

Integration with other control methods can take many forms and should be underpinned by planning in collaboration with the CSIRO. For example, the fungus can be released in inaccessible locations where chemical, mechanical, or manual control is not feasible over the long term, allowing the fungus to establish and suppress sea spurge sustainably. The fungus can also be released in ecologically sensitive areas where disturbance to dune ecosystems or herbicide use is restricted.

What happens if I cannot detect the fungus after release? Has it failed?

Not necessarily. Between 2021 and 2024, community-led releases of the biocontrol agent in Tasmania and Victoria resulted in establishment of the fungus at 61 % of monitored locations. This means that while establishment is promising, it is not guaranteed, and community groups are encouraged to release the fungus multiple times to maximise the chances of success.

The fungus requires suitable environmental conditions (particularly humidity) to infect sea spurge effectively. Coastal areas typically offer high ambient humidity overnight, which has supported successful establishment in Victoria and Tasmania. However, local conditions may vary, and some releases may not result in immediate infection. Limited establishment can often be overcome by releasing the fungus multiple times in the same area and over time. Repeated releases increase the likelihood of infection and help build up fungal presence in the local environment.

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For further information

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