# Weed eradication at Pilot Beach 2025-29

Sea Spurge Remote Area TeamS

Wildcare Tasmania

*SPRATS acknowledges the traditional owners of the land. We pay respect to elders past and present and acknowledge today's Tasmanian Aboriginal community.*

# Five-year plan for weed eradication at Pilot Beach

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## Background

Wildcare SPRATS (Sea sPurge Remote Area TeamS) is a self-managing volunteer group. Since 2007 SPRATS has conducted a successful coastal weeding program on Tasmania's wild and remote southwest and south coasts between Cape Sorell and Cockle Creek. The group operates under the umbrella of Wildcare Tasmania Incorporated and works for the Tasmanian Parks and Wildlife Service (PWS).

Pilot Beach is on Tasmania's west coast at the southern side of the entrance to Macquarie Harbour. Wildcare SPRATS has been controlling sea spurge and marram grass here since 2013, and in doing so has eradicated the sea spurge and vastly reduced the incidence of marram grass.

In 2024 other weeds in the broader Pilot Beach landscape were surveyed and a control program was trialled. Foxglove was of particular concern because it was actively spreading into undisturbed bushland with no known local environmental limits. Foxglove is listed as a declared pest under Tasmania's Biosecurity Act 2019 and Biosecurity Regulations 2022. Pilot Beach and adjacent lands are Class A designated areas requiring landowners and managers to take actions to eradicate foxglove.

The Pilot Beach landscape has high conservation significance because it is in the northern part of the PWS managed Southwest Conservation Area which buffers the Tasmanian Wilderness World Heritage Area.

At its 2025 Annual General meeting, Wildcare SPRATS resolved to eradicate invasive plants from the Pilot Beach landscape.

### *Disturbance history*

Disturbance began in the 19th century with a military barracks. At the turn of the 20th century, navigational features to assist boat passage into the Macquarie Harbour were constructed. This started with wooden lighthouses at Entrance and Bonnet Islands and associated keepers' houses, and the brick lighthouse and four other buildings at Cape Sorell. A few years later, breakwalls and associated tramways were constructed at the harbour entrance.

Permanent residence continued until the Cape Sorell light was automated in 1971 when many of buildings were demolished. Since then, a handful of shacks have appeared, and two original lighthouse keepers' houses survive.

***Current use***

At Pilot Beach there are six shacks and one burnt-out shack ruin. All are on one title and are owned freehold with a number of interested parties. Consensus will require consultation because co-owners may have differing views and requirements.

At Napier (near the jetty) there are three shacks on three PWS managed Crown leases. The Crown owns the land but not the buildings. The Lighthouse Keeper's house is higher up the hill to the south. The Assistant Lighthouse Keeper's house is closer to water level to the north. Both have historic value.

***Weed sources***

- Historic gardens of the lighthouse keepers' houses (foxglove, psoralea, veronica, pine, agapanthus, arum, montbretia, broom, belladonna)
- Contemporary shack gardens (red hot poker, daffodil, belladonna)
- Ocean wash-ins (sea spurge and marram grass)
- Birds (blackberry)
- Recreational vehicles and equipment (foxglove, thistle, blackberry, marram).

While some weeds may have been here for decades, their recent spread has been facilitated by milder winters and bumble bee pollinators.

Other than the work done by SPRATS to remove marram grass and sea spurge, there has been limited effective weed control throughout this history.

## This plan

This plan aims to eradicate all invasive weeds from Pilot Beach and surrounding lands.

Weed control work around the southern entrance to Macquarie Harbour is complex with multiple species at multiple locations. All species are accessible, and eradication techniques are known. To be effective, the Pilot Beach project must be driven by a documented strategy and control work must be sustained over several years.

***Weed eradication strategy***

- In much the same manner as the main SPRATS program, annual operations plans will be adapted following analysis of the previous year's work records.
- The Pilot Beach and main SPRATS programs will be logistically compatible with each other.
- Marram grass, foxglove and arum are more invasive and are the highest priority species for removal.
- Control of foxglove is best achieved by twice yearly treatments (ideally November and January).
- Removal of other weeds can be integrated into a structured program for the above species.
- Because weeds are dispersed across multiple locations, and most of these have multiple species, weed treatment will be organised into five precincts: from west to east -Cape Sorell, Pilot Beach shacks, Pilot Beach, tramway and Napier.
- An initial priority will be finding and treating outliers.
- Annual marram spraying may be required for another 2-3 years at Pilot Beach and should continue to be part of Sector 2 in the main SPRATS program. The first priority is the 20m strip along beach front and along breakwater, then the hind dunes as time allows (about 2 days to cover all marram).
- Once marram spraying is no longer required, it may be possible to integrate all January activities at the Pilot Beach shacks into the Sector 2 program.

***Data, analysis and reporting***

As with the main SPRATS program, geo-referenced data will be collected on all weed control activity. This will be analysed at the end of the season to assess and report on performance and to adapt the next season's operational plan. Data should be compatible with data collected for the main SPRATS program, as follows:

- Date and party details
- Waypoint/site identifier (ascending numerical)
- Species treated
- Count treated
- Description of weed growth form or age status and its health/resilience
- Description of treatment
- Person hours
- Site status after treatment.

***Safety***

All work will be done according to the PWS approved SPRATS Job Risk Analysis and the PWS Job Risk Analysis for chemical mixing and chemical application in the field.

Specific hazards have been identified at the "burnt-out shack" ruin:

- Sharp rusty metal - impaling, severe cuts and/or tetanus infection
- Broken glass - severe cuts
- Possible greater risk of snake bite
- Possible asbestos - clothing contamination or inhalation
- Possible residual gas in gas cylinders - gas leak or explosion
- Unknown water tower stability - crush or impact injury.

Depending on operations, risk treatments could be:

- Before commencing work, discuss the hazards that may be encountered and take appropriate risk avoidance when onsite, don't work onsite in high wind, make noise to deter snakes, work in pairs, wear long sleeves and trousers and gloves and broad-brimmed hat.
- Specific PPE such as gauntlet style gloves, full leather boots, gaiters coupled with long pants but also taking care to maintain dexterity required to safely search for and control foxglove.
- Tetanus vaccination.
- Removal of hazards by clearing the site with machinery – however disturbance would stimulate foxglove seedlings requiring longer site visits and hazard exposure to remove.

***Local support***

Support from shack owners and lessees should be actively pursued for the program to be sustained. SPRATS volunteers will pursue friendly interactions whenever possible to gain the trust of the locals.

Sharing weed advice with lessees and owners at Pilot Beach will encourage their efforts to be more effective, and to gain their consent and understanding of SPRATS intentions for weed eradication.

***Volunteers***

Like the early days of SPRATS, the work will be based around static camps. Teams of up to eight volunteers can be readily deployed to spread the workload and get the work done in shorter deployments. Party size could be optimised in increments of PWS boat capacity – ie party size could be 8 volunteers = a single PWS boat-load or 16 volunteers = two PWS boat-loads.

The Pilot Beach program will involve static camping rather than bushwalking, so participants can be drawn from broader volunteer pools.

Contact with Strahan & Queenstown Landcare groups could generate local relationships and locally based volunteers.

Single week deployments (including travel and briefing) could broaden the volunteer pool.

***Camping***

The Pilot Beach campsite is comfortable for six hiking tents plus a large kitchen fly.

The attractiveness of the campsite is one of the drawcards of this trip. It is sheltered and close to the beach for swimming & washing. It has views and occasional sightings of devils and quolls. Expansion is possible to nearby flat ground located west along the road at the top of the rise.

Discovering or clearing a new campsite closer to the jetty will save walking about 4km round trip each day to treat the major weed infestations near the Lighthouse Keepers' houses. There are possible new campsites beside the tramway west of Napier, tramway above Entrance Island or near the three leased buildings.

***Water supply***

There is no drinkable fresh water at Pilot Beach other than from the McDermott shack water tank. Shack roof water may be of unreliable quality as rooves are open to bird roosting so are not clean.

Water in the local creek has minimal flow and is unsuitable for drinking because there is an adjacent pit toilet.

Sediment makes creek water unsuitable for spraying.

Water from the nearby Heron Pond perched lake is a difficult option because it is difficult to collect and transport.

The best option for bulk water is jerry cans deployed by PWS boat from Strahan with or ahead of the team.

***Approvals/agreements***

- Possible off label chemical use for one or more weed species. All chemical use is covered by this off-label permit which is due for renewal in September 2025; https://nre.tas.gov.au/Documents/APVMA%20Permit%20PER84775%20for%20Control%20of%20Environmental%20Weeds%20in%20Tas.PDF.
- Or search for APVMA off-label permit 84775.
- Western shack owner agreement is needed to work on their private land. These shacks are jointly owned by a number of people and consensus may require extra effort.
- SPRATS volunteers must be Wildcare members so they can be covered by Wildcare insurance when working on private land. Insurance cover for each trip also requires completion of the Wildcare WHS form. Insurance for work on PWS managed land is covered as PWS volunteers.

- Lessee concurrence would be needed to remove weeds from Lighthouse Keeper's and Assistant Lighthouse Keeper's garden areas and curtilage. Weed control is a lease obligation so approaches from SPRATS are likely to be welcome. Ongoing positive communication with this group can be anticipated if approached and followed up constructively.
- The four large pines near the Assistant Lighthouse Keeper's house may have heritage value. If heritage value exists, PWS will need to determine whether removal of these plants requires approval or whether they are to be conserved.
- PWS RAA approval would be needed if a new campsite at Napier requires clearing.

# Weeds

### *Maps*

Figure 1 shows all mapped weeds with inset maps showing weed sites at the Pilot Beach shacks, tramway and Napier precincts. Figures 2 show detailed maps for the Pilot Beach precinct and figure 3 show details of the Pilot Beach shacks precinct.

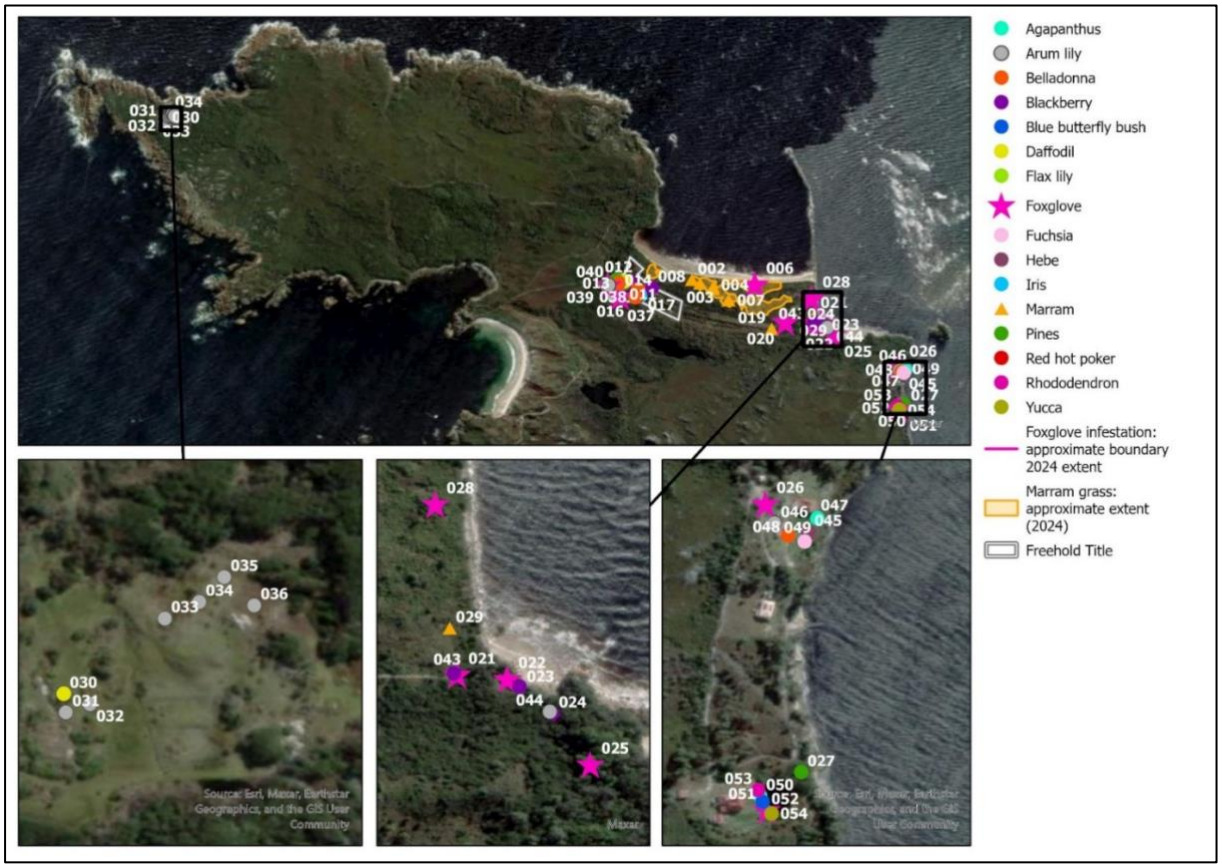


*Figure 1. Mapped weed locations showing Cape Sorell, Pilot Beach shacks, Pilot Beach, tramway and Napier precincts.*

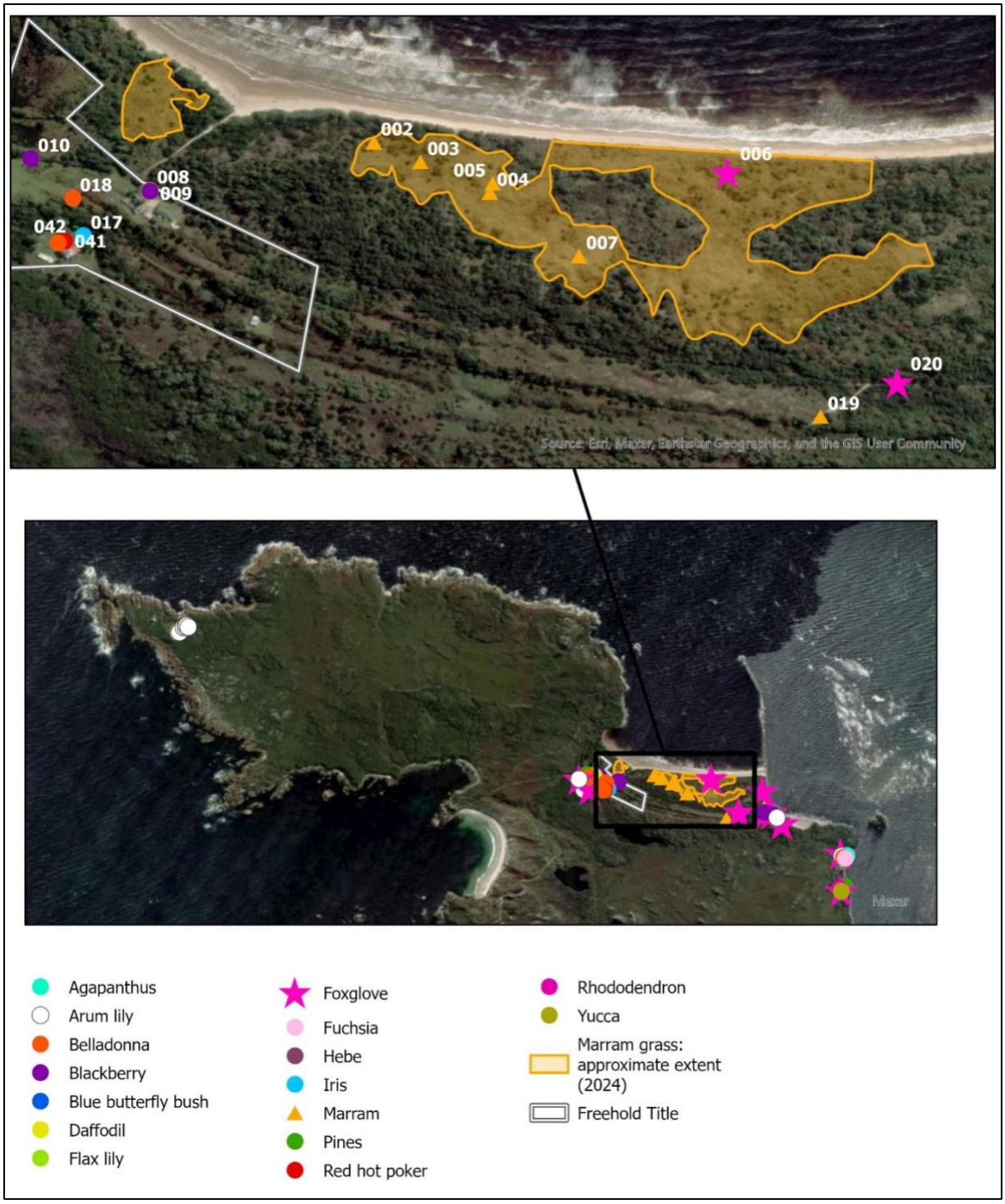


*Figure 2. Map showing extent of marram at the Pilot Beach precinct (top) and location map.*

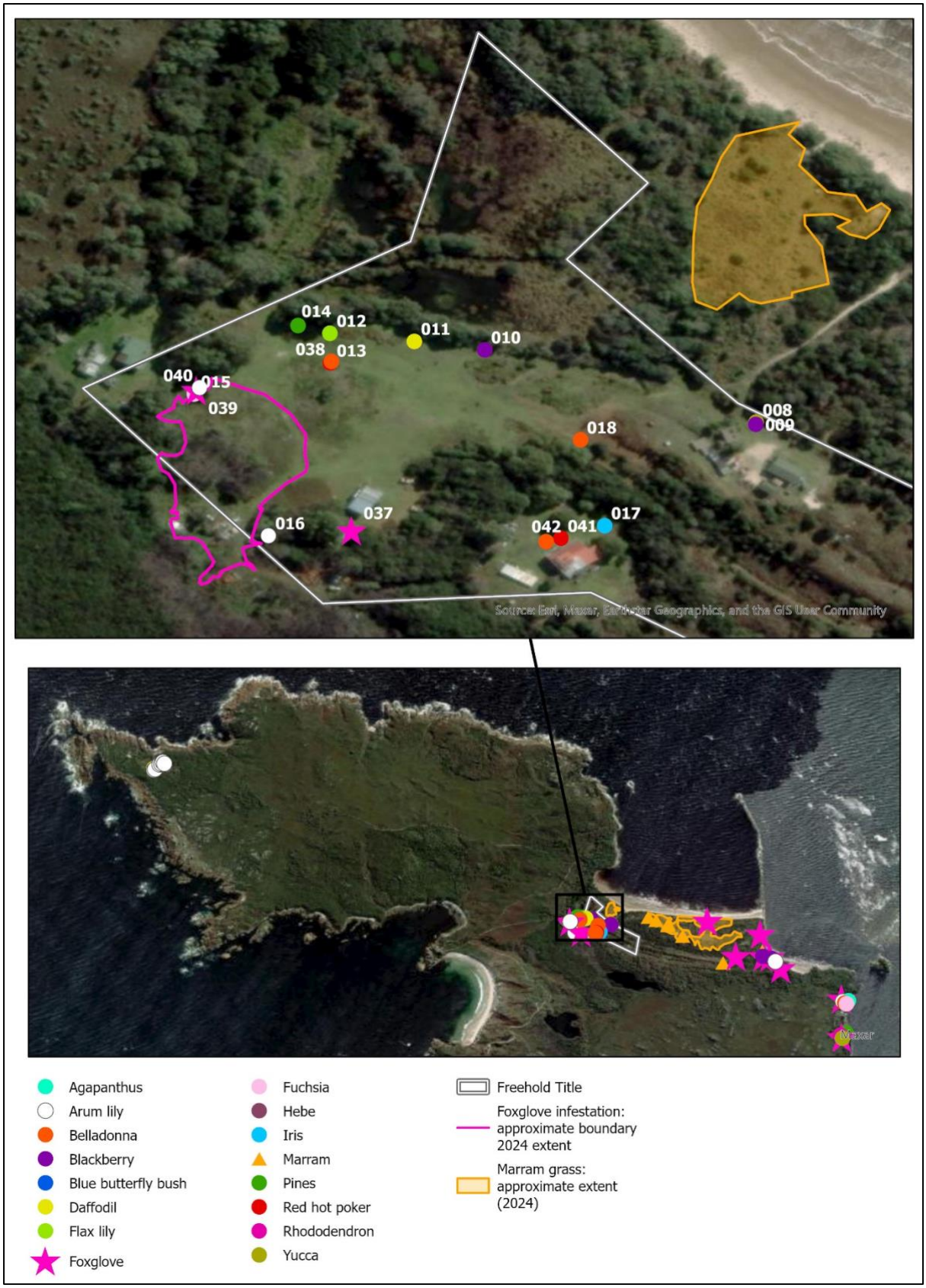


*Figure 3. Map showing extent of largest foxglove patch, boundary of freehold title and other mapped weed sites at the Pilot Beach shacks precinct and location map (bottom).*

***Table of mapped weeds***

| Precinct | Site identifier | Species | Count | Person hours | Comment |
|---|---|---|---|---|---|
| Cape Sorell | 030 | Daffodil | 1 clump | | |
| | 031-035 | Arum lily | 5 clumps | | |
| | 036 | Arum lily | clumps | | Several clumps. |
| Pilot Beach Shacks | 008 | Yucca | 4 | | Planted in tree guards at the front of Bamboo Barry's shack. |
| | 009 | Blackberry | patch | | Edge of patch. |
| | 010 | Blackberry | patch | | Edge of same patch. |
| | 011 | Daffodil | 500 | | In 5 patches plus outliers. |
| | 012 | Flax lily | 3 | | Growing in a Landcruiser body. |
| | 013 | Red hot poker | clump | | Numerous small clumps. |
| | 038 | Belladonna | clumps | | |
| | 014 | Pines | 2 | 2 | One drilled and poisoned. |
| | 015 | Fuchsia | 1 | | |
| | 039 | Foxglove | ~10k | 43 hrs | Track log shows the approximate edge of foxglove. All stripped and pulled. Seedlings all sprayed - 10l . |
| | 040 | Arum lily | 20 | | In a clump. |
| | 016 | Arum lily | 30 | | In a clump. |
| | 017 | Iris | 20 | | Two clumps at the McDermotts' shack. Both are recent garden plantings. |
| | 041 | Red hot poker | 2 clumps | | At the McDermotts' shack. |
| | 042 | Belladonna | 2 | | At the McDermotts' shack. |
| | 018 | Belladonna | 5 clumps | | |
| | 037 | Foxglove | 100 | | Satellite site from 015. 2 flowering plants stripped and pulled. Numerous seedlings sprayed. |
| Pilot Beach | 002-005, 007 | Marram hotspot | thousands | 74 | 115l of spray |
| | 006 | Foxglove | ~100 | 5 | Stripped and pulled |
| Tramway | 019 | Marram | 50 tufts | 1 | At 20m of the southern side of the 4WD track. Some flowering. Deflowered then sprayed. |
| | 020 | Foxglove | 5 | 1 | Trackside. Stripped and pulled. |

| | | | | | |
|---|---|---|---|---|---|
| | 021 | Foxglove | 1 | 0 | Trackside. Stripped & pulled. |
| | 043 | Blackberry | 2 | | Small clumps on both sides of the track. |
| | 022 | Foxglove | 600 | 5 | Along 30m on south side of the track. Stripped then pulled or cut/painted. |
| | 023 | Blackberry | 1 clump | | |
| | 024 | Blackberry | 1 clump | | |
| | 044 | Arum lily | 1 | 1 | Dug out. |
| | 025 | Foxglove | 600 | 3 | Mostly on southern side of the track. 30 plants on the creek bank north of the track. All stripped and pulled. |
| | 028 | Foxglove | 200 | 4 | In dune vegetation. Stripped and pulled. |
| | 054 | Yucca plant | 1 | | Tall and old. |
| | 029 | Marram | 10 | 1 | Sprayed. |
| Napier | 045 | Hebe | | | Lighthouse Keeper's house garden. About 80m x 40m. |
| | 046 | Arum lily | Hundreds | | |
| | 047 | Agapanthus | Hundreds | | |
| | 048 | Belladonna | | | |
| | 049 | Fuchsia | | | |
| | 026 | Foxglove | 20 | .5 | South side of track. Stripped/pulled |
| | 027 | Pines | 200+ | | Wildings scattered in undisturbed open forest on the steep bank for about 200m east of the PWS jetty. |
| | 027 | Pines | 4 | | Possible original garden plantings. |
| | 050 | Agapanthus | Thousands | | In old garden and curtilage. About 150m x 150m surrounding the Assistant Lighthouse Keeper's house. |
| | 051 | foxglove | | | |
| | 052 | blue butterfly bush | | | |
| | 053 | rhododendron | | | |

Orange denotes sites treated November 2024 and January 2025.

## Observations from recent work

***Marram grass***

- Marram has been vastly reduced over the past 5 seasons following repeated spray events (about a quarter of the spray volume in 2024/25 compared to 2020). However, there is still much work to do. About 2 days would be needed to spray the whole site using 3 or 4 simultaneous sprayers.
- No healthy marram clumps were observed in 2024/25. The combination of multiple spray events and competition from higher stratum native plants has thinned marram density and reduced marram tussocks to small number of leaves.
- In places where native plant succession (banksia and boobialla etc.) has shaded the ground cover, marram is spindly, sparse and hard to find. On this current trajectory, marram is a low threat for spreading within and beyond the Pilot Beach embayment.
- However, disturbance from a series of fires could reverse this, so further reduction of marram density is prudent.
- Given its dispersal right through the revegetating hind dune area, marram eradication may not be possible. Repeated spraying and continued dune vegetation successional change will reduce marram to very low numbers.

***Sea spurge***

- Sea spurge seed banks are inactive at this beach after repeated visits by SPRATS.
- Numerous new ocean wash-in seedlings can be expected each year and should be annually checked and pulled. There were approximately 100 seedlings found in 2025.

***Foxglove***

- Foxglove is expanding at Pilot Beach and is invading undisturbed bushland.
- There are no obvious environmental limits to its spread if given enough time.
- Eradication is the only viable control strategy.
- Eradication is feasible with regular visits.
- The simple strategy would be to remove seed producing plants then treat seedlings before they reproduce, and thereby exhaust seed banks.
- Because foxglove can set thousands of long-lived seed in the first year after germination, even twice-yearly visits may be only just enough to get ahead. Both visits should be made after flowering but before viable seeds are set. At Pilot Beach these trips may be in November and again in January/February.
- A critical aspect is searching the periphery in a radius of tens of metres. As a patch expands, so the search area expands. Bracken and other vegetation can obscure foxglove. All vegetation (bracken, buzzy, grass) should to be protected as foxglove is more likely to invade bare ground.
- A proven weeding technique for mature plants is to strip stems of flowers and immature seeds, pull or dig the main root out of the ground, remove most of the soil off the roots, and suspend the plant (ensuring the roots are exposed to sun) and allow it to desiccate.

Disturbance of nearby plants should be minimised as they are vital to rehabilitate the bare ground.

- Stripping the flower buds off and dropping them on the ground stops further maturation and stops the windblown dispersal. After November, the flowering stalks should be collected in a secure bag, as they will be mature.
- For low density seedlings, a proven weeding technique is to pull or dig if in low numbers. For high density, spraying with Glyphosate is effective (or Grazon if there is grass nearby, so as to not kill the grass).
- Timely follow-up treatment is critical before new plants can set new seed.

***Arum Lily***

- Arum at the Assistant Lighthouse Keeper's house has spread at least 20m downslope and will be very challenging. This weed is also near the "tidy shack", near the "burnt shack", and near Cape Sorell Lighthouse. As an invasive species, it is difficult to remove by digging, as small bulbs readily break off the deep roots. It can be effectively controlled with herbicide (Metsulfuron methyl), dye and wetting agent. This treatment may kill adjacent broadleaf (non-grass) plants.
- On the positive side, Arum only moves a couple of metres a year which is slower than foxglove.
- Locals could be asked to collect Arum seed heads if they are keen.

***Pines***

- Pines are invading undisturbed sites and can be eradicated by drilling and poisoning.
- Four old pines (maybe 100 years old) occur in the curtilage of the Assistant Lighthouse Keeper's house.
- Many (100-200) wildings have spread from these trees mostly on the steep foreshore hillside to the south and east of the house.
- All are accessible by foot and the process to drill and poison them is straight forward.
- None would generate safety hazards from limb or stem fall once poisoned.
- A pair of old pines near the western shacks could be associated with older settlements and are likely planted. Both are accessible. The younger pine was drilled and treated.
- Treating wildings could be taken on by local people without the need for specialised skills.

***Spear thistles***

- These appear to be ephemeral. Spear thistles increased in number in most areas from 2024 to 2025.

***Blackberry***

- All sites are accessible with spray equipment. Blackberry is easy to kill with Garlon or Metsulfuron methyl spray, with a wetting agent and dye.

***Notes for other weeds listed in priority order***

- *Amaryllis belladonna* (aka belladonna) and daffodil and agapanthus exist in self-seeded clumps on open ground near the Pilot Beach shacks. They have heavy bulbs which can be dug out with care and bagged. These are bulky to carry and remove.
- Agapanthus near the Lighthouse keeper's house can be controlled by digging or cut and paint with Vigilant herbicide gel or foliar spray with Metsulfuron methyl.
- Montbretia can be controlled with a foliar spray.
- *Fuchsia magellanica* bushes are found in small numbers near the two Lighthouse Keepers' houses and near the "tidy shack". It can be controlled with cut and paint techniques but it is difficult as it has multi-layered roots and stems. It is additionally difficult because it grows and spreads in waterways. Foliar spray (Metsulfuron methyl) or very careful cut and paint with at least one follow-up would be required.
- Leucanthemum (either oxeye daisy or shasta daisy) is difficult to control and needs foliar spray (Metsulfuron methyl).
- *Veronica elliptica* (Hebe) exists on foreshore below the Keepers house. As this is a woody weed, control is relatively easy by cut and paint with glyphosate.
- Blue butterfly bush (*Psoralea pinnata*) around the Assistant Lighthouse Keeper's house is a woody weed. Control is relatively easy.
- Iris planted at the McDermotts' shack is not yet self-seeding, but could be in the future. It can be dug out with relative ease. Suggest a replacement compensation plant.
- Rhododendron is not yet self-seeding, but could be in the future, as it is invasive around Queenstown.
- Yucca is not self-seeding. The one near the breakwater is a handy reference point. A few have been recently planted near "Bamboo Barry's" shack. Yucca is not a target weed at this stage.
- Flax lily *Dianella tasmanica* may have been planted but is native to Tasmania so won't be targeted.

End