



# Secretary Island Weed Management Strategy 2008 - 2018

JULY 2008



Department of Conservation  
*Te Papa Atawhai*



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# Summary

Because of its remote location and limited access, weed management on Secretary Island relies on the work of all people visiting the Island. This strategy is designed to assist staff in successfully managing weeds on Secretary Island.

**This objective involves 3 main steps:**

1. Quarantine: *strict quarantine requirements when visiting the island to stop new weed incursions (Section 5).*
2. Surveillance and monitoring: *report any new weeds/new sites on the island and monitor existing weeds on the island (Section 6).*
3. Control/eradicate: *manage existing weeds on the island (Section 7).*



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# Background

Secretary Island (8140ha.) is the second largest island in Fiordland and is located between Doubtful and Thompson Sounds in Fiordland National Park. It is the third highest island in New Zealand rising to 1196m altitude.

Most of Secretary Island is forested with mixed beech-podocarp forest dominating and widespread scrub/shrubland communities below treeline on many parts of the Island.

Above tree line tussock grassland dominates (mostly on Mt. Grono, The Hub and All Round Peak) with patches of subalpine scrub, herbfield and bare rock. Much of the Island is pristine with exotic plants only occurring at disturbed sites such as hut and bivvy sites and infrastructure areas.

Secretary Island is free of possums and rodents and is the largest inshore island in New Zealand to have never had rodents present. The only introduced animal pests to have established are red deer and stoats. Work to eradicate both of these species was initiated in 2005 (stoats) and 2006 (deer).

Under the Conservation Management Strategy (CMS) for Mainland Southland/West Otago (1998) Secretary Island was categorised as an “Open Sanctuary” Island. More recently this classification has been upgraded to “Restoration” to reflect its primary conservation function of “recovery of viable populations of threatened species of particular communities” (p.92 Fiordland National Park Management Plan, 2007). This classification means that while restoration is paramount, anyone can still visit Secretary Island at any time. Quarantine measures are in place for Departmental visitors (see Appendix 3). There is a significant role for advocacy and public education by DOC to encourage other visitors to apply similar measures when visiting Secretary Island.

# Objective

The objective of the Secretary Island Weed Management Strategy is to create clear guidelines for the surveillance, monitoring, and control of weeds on Secretary Island.

# Introduction

This strategy outlines the current weed distribution on Secretary Island and provides clear guidelines, actions, and responsibilities to prevent new weed incursions and limit and/or reduce the extent of weeds already present on the Island.

Due to the remote location of Secretary Island most weed surveillance, monitoring, and control relies on the participation of all visitors to the Island. Managing any weed problem while it is relatively contained is critical to the success of weed control particularly if the goal is eradication. Human visits pose the greatest threat of pest plant introductions and stringent quarantine is the essential first step in managing weeds on Secretary Island.

The appendices to the Strategy are arranged in such a way as to act as a field kit for anyone visiting Secretary Island who may play a role in quarantine or surveillance. The Te Anau Area Islands Supervisor is responsible for managing the weed programme for Secretary Island. Existing weeds comprise a mixture of grasses (7 spp.), rushes (3 spp.) or herbaceous species (7 spp.).

# Current known distribution of weeds on Secretary Island

Weeds appear to be predominantly limited to the hut/bivvy areas of Rocky Point, Stantley Burn, Gut Hut, Lake Secretary, X-roads and an old bivvy site at Mahoe Stream. Photographs and descriptions of all weed species listed below are in Appendix 1. Other exotic plants that have the potential to become established on the Island are listed with photos and descriptions in Appendix 2.

SCIENTIFIC NAME	COMMON NAME	DATE OF FIRST RECORD.	MOST RECENT RECORD	SITE DESCRIPTION AND EXTENT
<i>Agrostis capillaris</i>	Browntop	2003	19/2/2007	Stantley Burn Hut and surrounding area, Rocky Point Hut, Lake Secretary Biv, X-roads Biv helipad, the old Mahoe Biv site, and possibly All Round Peak.
<i>Agrostis stolonifera</i>	Creeping bent	2003	2003	The Gut Hut.
<i>Antboxanthum odoratum</i>	Sweet vernal	2003	02/08/04	Stantley Burn Hut, The Gut Hut.
<i>Cerastium fontanum</i>	Mouse-ear chickweed	2003	23/05/06	Stantley Burn Hut and surrounding area, The Gut Hut.
<i>Dactylis glomerata</i>	Cocksfoot	2003	02/08/04	Stantley Burn Hut.
<i>Holcus lanatus</i>	Yorkshire fog	2003	19/2/2007	Stantley Burn Hut, Rocky Point Hut, the Gut Hut, Lake Secretary Biv.
<i>Juncus articulatus</i>	Jointed rush	19/2/2007	19/2/2007	Lake Secretary Biv.
<i>Juncus bufonius</i>	Toad rush	2003	19/2/2007	Stantley Burn Hut and surrounding area, Lake Secretary Biv.
<i>Juncus tenuis</i>		May 2007	May 2007	X-roads Biv.
<i>Lotus pedunculatus</i>	Lotus	2003	23/05/06	Stantley Burn Hut.
<i>Poa annua</i>	Annual poa	2003	23/05/06	Stantley Burn Hut, Rocky Point Hut.
<i>Sagina procumbens</i>	Procumbent pearlwort	2003	23/05/06	Stantley Burn Hut and surrounding area.
<i>Sonchus asper</i>	Prickly sow thistle	2003	23/05/06	Stantley Burn Hut and surrounding area, Rocky Point Hut.
<i>Sonchus oleraceus</i>	Sow thistle	2003	02/08/04	Stantley Burn Hut and surrounding area, Rocky Point Hut.
<i>Vulpia</i> sp.	Vulpia grass	2003	02/08/04	Stantley Burn Hut and surrounding area.
<i>Stellaria media</i>	Chickweed	23/05/06	23/05/06	Rocky Point Hut.
<i>Trifolium repens</i>	White clover	23/05/06	23/05/06	Stantley Burn Hut.

MAP 1. WEED SURVEILLANCE SITES ON SECRETARY ISLAND.



In addition to the current known weed locations, additional high-risk sites for weed incursions are shown in Map 1. These sites include:

- hut/bivvy sites including helipads
- the repeater site on All Round Peak
- deer pens including associated helicopter pads.

Although quarantine measures have been in place for the last few years new weed incursions have still occurred. All infrastructure sites are high risk and continued vigilance will be required to keep them weed-free.

# Quarantine

Quarantine is the essential first step for controlling the spread of weeds to Secretary Island. It is also the most cost-effective approach. A clear need for more vigilant quarantine measures has already been demonstrated with new weed sites being recorded in locations associated with the recently established track and bivvy infrastructure.

All visitors (DOC, concessionaires, Met-service, recreational etc.) should be reminded of the need for vigilance to prevent weeds being transported to the Island. Their gear should be checked as per the Southland Conservancy Island Quarantine Procedures. The Te Anau Area Islands Supervisor (or their delegate) is responsible for ensuring this inspection is undertaken.

Note: quarantine inspection must include checks and cleaning for didymo. See Appendix 3 and 4 for quarantine checklists.

# Surveillance and monitoring

Weed surveillance and monitoring on Secretary Island should be concentrated around known weed locations and infrastructure sites. Priority should be given to sites of human disturbance and visitation e.g. huts and bivvys, newly cut tracks, helipads, boat landing sites, deer pens, repeater sites, or areas where additional infrastructure has been established such as the remote weather station at Stanley Burn.

## SURVEILLANCE

Surveillance is the searching for, and documenting of, new weed incursions and the expansion in range of existing weeds on the Island. Effective surveillance means new weeds are located at a stage when eradication or containment is still possible.

All new plant species observed on the Island are significant and should be recorded and reported immediately following each field trip. New weed sites should be recorded on the weed surveillance form (Appendix 5) and most importantly, a GPS location taken to allow efficient follow-up.

Appendix 9 provides a guide for actions required when new weed sites are discovered.

Surveillance methods for Secretary Island are outlined below.

### **Fortuitous surveillance**

The detection of new weed incursions during the course of other work. Fortuitous surveillance can be facilitated by:

- weed identification training
- systematically following up new weed sightings
- encouraging such sightings by loading the known weed GPS points into workers GPS units
- providing workers with a copy of the Appendices of this document
- publicising weed issues

Particular noteworthy are isolated plants (particularly grasses and rushes) around bivvies that aren't in the surrounding vegetation. Workers should also be aware that weeds may arrive on the Island via natural means – either wind-blown or by sea – and should therefore keep an eye-out when visiting the coastal beach margins or disturbed sites (e.g. slips).

### **Active Surveillance**

The systematic checking of an area for new weed incursions as part of a planned program of work. In the case of Secretary Island any planned surveillance should be done in conjunction with control work, so any weed sites can be dealt with at the time. Priority sites for surveillance are around any infrastructure e.g. hut and bivvy areas, newly cut tracks, helipads, boat landing sites, deer pens, repeater sites etc. The main infrastructure sites are shown on Map 1.



## MONITORING

There is little need for formal monitoring, such as photo-points or abundance plots, of the weed sites on Secretary Island but surveillance and control measures should be assessed periodically (e.g. annually) to make sure progress is being made in reducing weed incursions and local abundance. By keeping accurate surveillance and control records (i.e. completing the weed surveillance and control forms in Appendix 5 and 6) and using the same observers as much as possible this process should be straight forward.

# Control

There has been some weed control carried out by DOC around Stantley Burn Hut, Lake Secretary Bivvy and X-roads Bivvy. In addition, the Met-service control weeds around their buildings at Stantley Burn on an annual basis. All weed management on Secretary Island must be approved by the Te Anau Islands Supervisor and Programme Manager Biodiversity.

The terminology below is used for the different levels of control and follows Owen (1998):

- **ERADICATE:** permanent removal of all individuals from an area.
- **CONTAIN:** ongoing control to prevent a species spreading beyond a defined distribution.
- **CONTROL TO ZERO DENSITY:** sustained control due to persistent reinvasion/seedbank.

Established weed areas at Stantley Burn Hut, Rocky Point Hut and The Gut Hut all have pasture-type weeds (grasses and herbs) with their distribution limited to the area immediately surrounding the huts. The goal of weed management at these sites should be containment, with eradication of any weeds spreading beyond the existing areas around the huts (i.e. up tracks, in creek beds, along the coast etc.).

The goal at all other sites should be **eradication as soon as possible**. The longer weeds are present at new sites, the more seed will enter the soil and be further distributed. X-roads and Lake Secretary Bivvies are examples where weeds have clearly spread due to the new infrastructure and increased traffic.

At Stantley Burn, Rocky Point, and The Gut Hut control should focus on browntop, cocksfoot, lotus, jointed rush and toad rush and should aim for zero density of these specific weeds. At all other sites, eradication of all weed species should be the focus. Control should be carried out in late spring, when flowers are available for identification of plants but before any seed has been set. Advice on what control techniques and chemicals to be used should be sought from Ranger-Threats (Plant pests) in Te Anau or TSO Threats (Plant pests) in Southland Conservancy.

The priority weed control sites are listed in order as follows:

- Any new confirmed weed site (all species).
- Weed sites other than Stantley Burn, Rocky Point and The Gut Hut (i.e. associated with the infrastructure and include all species).
- Stantley Burn Hut, Rocky Point Hut, and The Gut Hut.

Weed control forms (Appendix 6) need to be filled out for all weed control done on the Island and the appropriate details entered into the Fiordland Islands Weed Records Spreadsheet (DOCDM-318667). All weed control sites should be recorded using GPS. Records of the weed control carried out by the Met-service also need to be obtained and added to the spreadsheet.

Options for weed control are as follows:

- **Fortuitous control by workers on the island:** if a weed is positively identified and time is available then hand pulling is a good idea and will save time and money. The weed should be carefully removed ensuring all roots and seeds are collected, put in a plastic bag and removed from the Island. A sample of the weed and a completed 'Weed Control Form' (Appendix 6) should be returned to the Te Anau Area Islands Supervisor.

- **Fortuitous combined weed control and surveillance trips:** one or two experienced weed identification and control workers visit the island utilising any spare helicopter space (e.g. Met-service flights, deer pen checks, repeater repairs etc.) to do surveillance and control.
- **Planned combined weed control and surveillance trips:** two or three experienced weed identification and control workers go to the Island on a dedicated weed control and surveillance flight (using an R44 or Hughes 500C) to carry out surveillance and control at all known sites. Priority work could be done in less than a day if the helicopter could be used to shift sites.

# Data collection and storage

Good record keeping is fundamental to an effective weed control programme. The Islands Supervisor (or their delegate) is responsible for:

- filing all surveillance and control sheets from field workers
- filling in the Fiordland Islands Weed Management Spreadsheet (DOCDM-318667)
- maintaining an up-to-date file of GPS waypoints for weed locations
- sending away and following up on plant samples for identification
- keeping records of the weed control carried out by other agencies at the Met-station at Stantley Burn.

Updating the Fiordland Island Weed Records Spreadsheet (DOCDM-318667) and the GPS (txt) file of Fiordland Island Weed Locations (S:\Biodiversity\_Team\Secretary Is\Weeds) are the main tasks. In addition, original Weed Surveillance and Control Sheets (see Appendix 5 and 6) filled out by people in the field should be filed in Secretary Island filing cabinet in the Te Anau Area Office with a photocopy sent to TSO Threats (weeds) at Southland Conservancy. Any weed records provided to either office by members of the public need to be communicated to the other office as soon as possible.

Currently, the Te Anau Area Islands Supervisor is responsible for all aspects of the weed management strategy. TSO Threats (Plant pests) is responsible for additional electronic recording of weed locations on Secretary Island at Southland Conservancy (via the IMU team).

# Recommendations

- Prevent the introduction of new weeds to the Island and the spread of existing weeds by ensuring effective quarantine measures are maintained.
- Continue regular weed surveillance and control at high-use and vulnerable sites. Work to eradicate any new infestations of weeds and weeds outside the containment sites.
- Continue to work on containment sites to control priority weed species to zero density.
- Further determine the presence and extent of all known weed species where practicable and regularly update data in the Fiordland Islands Weed Records Spreadsheet (DOCDM-318667).
- Identify one individual responsible for the implementation of this strategy and its recommendations.
- Ensure that all DOC staff, volunteers, and contractors undertaking work on Secretary Island have been made aware of the Secretary Weed Management Strategy and have received the relevant briefing in respect of weeds on the Island.
- Ensure that weed identification kits and surveillance forms are available at each hut/bivvy site and to regular visitors to the Island.
- Encourage all DOC staff, volunteers and contractors undertaking work on Secretary Island to fill in the forms and return to the Te Anau Area Islands Supervisor.
- Develop means of educating other visitors not covered in this plan to the risk and management of weeds on Secretary Island.

# References and further useful reading

- Department of Conservation. (1998). *Conservation Management Strategy for Mainland Southland - West Otago*. Department of Conservation, Southland Conservancy, Invercargill.
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- Wilson, H. D. (1994). *Stewart Island Plants*. Manuka Press, Christchurch, New Zealand.
- [www.biosecurity.govt.nz/didymo](http://www.biosecurity.govt.nz/didymo)

# Appendix 1: Weed species

WEED SPECIES THAT HAVE BEEN RECORDED AND MAY STILL BE PRESENT ON SECRETARY ISLAND.

1	Annual poa ( <i>Poa annua</i> )
2	Brown top ( <i>Agrostis capillaris</i> )
3	Chickweed ( <i>Stellaria media</i> )
4	Cocksfoot ( <i>Dactylis glomerata</i> )
5	Creeping bent ( <i>Agrostis stolonifera</i> )
6	Jointed rush ( <i>Juncus articulatus</i> )
7	Lotus ( <i>Lotus pedunculatus</i> )
8	Mouse-ear chickweed ( <i>Cerastium fontanum</i> )
9	Slender/Path rush ( <i>Juncus tenuis</i> )
10	Prickly sow thistle ( <i>Sonchus asper</i> )
11	Procumbent pearlwort ( <i>Sagina procumbens</i> )
12	Sow thistle ( <i>Sonchus oleraceus</i> )
13	Sweet vernel ( <i>Antboxanthum odoratum</i> )
14	Toad rush ( <i>Juncus bufonius</i> )
15	Vulpia Grasses ( <i>Vulpia</i> sp.)
16	Yorkshire fog ( <i>Holcus lanatus</i> )
17	White clover ( <i>Trifolium repens</i> )

The plant identification pictures in this appendix are stored as a separate document in S:\Biodiversity\_Team\Secretary Is\Weeds as DOCDM-294229 Secretary Weed Plan Appendix 1.

# Appendix 2: Surveillance weeds

## SURVEILLANCE WEEDS FOR SECRETARY ISLAND.

1	Blackberry ( <i>Rubus fruticosus</i> )
2	Broom ( <i>Cytisus scoparius</i> )
3	Californian thistle ( <i>Cirsium arvense</i> )
4	Creeping buttercup ( <i>Ranunculus repens</i> )
5	Didymo ( <i>Didymosphenia geminata</i> )
6	Gorse ( <i>Ulex europaeus</i> )
7	Mouse eared hawkweed ( <i>Hieracium lepidulum</i> )
8	Tussock hawkweed ( <i>Hieracium pilosella</i> )
9	Heath rush ( <i>Juncus squarrosus</i> )
10	Ragwort ( <i>Senecio jacobaea</i> )
11	Scotch thistle ( <i>Cirsium vulgare</i> )
12	Tail seeded rush ( <i>Juncus canadensis</i> )

The plant identification pictures in this appendix are stored as a separate document in S:\Biodiversity\_Team\Secretary Is\Weeds as DOCDM-283980 Secretary Weed Plan Appendix 2.



# Appendix 3: Quarantine check list

## Quarantine check list for island travel (from Southland Conservancy Island Biosecurity Plan).

DOC DM-60768 - Te Anau - Quarantine Self Audit Sheet

- Complete relevant sections on both pages of this form.
- Please check & clean your clothing & equipment before arriving at the quarantine store.

Departure Date:     /     /20		Departure Time:                     am/                     pm	
Name:		Departure point: Destination:	
Items being transported	Items have been: <ul style="list-style-type: none"> <li>• scrubbed clean of all soil, seeds and vegetation,</li> <li>• checked for the presence of rodents and invertebrates.</li> </ul> Tents are dry, clean and checked. Boxed = in approved rodent proof container. Unboxed = loose items or in cardboard boxes or double bagged.	Date Inspected:  /     /20	
		Who inspected?	
	Tick if in compliance	Inspected by island biosecurity person	Comments
Pack			
Boots			
Other footwear			
Gaiters			
Socks			
Clothing			
Parka			
Swandri			
Field equipment (boxed)			
Field equipment (unboxed)			
Food stores (boxed)			
Food stores (unboxed)			
Tents			
Day pack			
Other			
Any items of extra risk. Eg. sheep fleece or other items that could contain seeds etc.			
SIGNED:  Person travelling		SIGNED:  Staff member responsible for island biosecurity.	

Note: Any clothing and equipment that has been in contact with birds (especially aviary birds, waterfowl, poultry) and/or reptiles must be disinfected with Trigen™ or Virkon™.

# Appendix 4 – Didymo guidelines

## DIDYMO QUESTIONS FOR ISLAND TRAVEL

Section Three (Island Biosecurity and quarantine checklist)	Yes	No
Have you been in contact with any waterways that may have contained Didymo recently?		
Is there a chance that any of your clothing and/or equipment may be contaminated with Didymo?		

- If you answered yes to either of the above questions, then we will need to ensure that any contaminated equipment has been adequately cleaned.

## DIDYMO QUARANTINE GUIDELINES

**To ensure you do not spread Didymo or other aquatic pests, wherever possible restrict equipment, boats, clothing and other items for exclusive use in a single waterway.**

**Fish, plants, rocks and other river items should not be moved between waterways.**

**To ensure you do not spread Didymo, if you are moving between waterways, you must clean items using the following methods:**

1. **CHECK:** Before you leave a river or lake, check items and leave debris at site. If you find any later, treat and put in rubbish. **Do not wash down drains.**
2. **CLEAN:** There are several ways to kill Didymo. Choose the most practical treatment for your situation which will not adversely affect your gear.

- **Non-Absorbent Items**

**Detergent:** soak or spray all surfaces for at least one minute in 5% dishwashing detergent or nappy cleaner (two large cups or 500mls with water added to make 10 litres);

OR

**Bleach:** soak or spray all surfaces for at least one minute in 2% household bleach (one small cup or 200mls with water added to make 10 litres);

OR

**Hot water:** soak for at least one minute in very hot water **kept above** 60°C (hotter than most tap water) or for at least 20 minutes in hot water **kept above** 45 °C (uncomfortable to touch).

- **Absorbent items** require longer soaking times to allow thorough saturation. For example, **felt-soled waders.**

**Hot water:** soak for at least 40 minutes in hot water kept above 45 °C;

OR

**Hot water plus detergent:** soak for 30 minutes in hot water kept above 45 °C containing 5% dishwashing detergent or nappy cleaner;

OR

**Freezing any item** until solid will also kill Didymo.

3. **DRY:** Drying will kill Didymo, but slightly moist Didymo can survive for months. To ensure Didymo cells are dead by drying, the item must be **completely dry** to the touch, inside and out, then left dry for at least another 48 hours before use.

**If cleaning or drying is not practical, restrict equipment to a single waterway.**

**NOTE: The thicker and denser the material:**

- **the better it will be at holding moisture (and live cells)**
- **the slower it will be to dry out**
- **the more difficult it will be to soak completely with cleaning solutions.**

When cleaning equipment, we recommend that you:

- Soak porous materials for longer than the specified decontamination times to ensure cleaning solution has soaked right through the item before soaking for the required decontamination time
- Choose a decontamination solution that will not adversely affect your equipment
- Follow manufacturer's safety instructions when using products
- Dispose of cleaning waste well away from waterways.

When applying the above cleaning methods, we recommend that you:

- Use biodegradable products
- Do not wash cleaning waste into waterways
- Choose a cleaning solution from the above choices that will not adversely effect your equipment.

If you require more information please visit: [www.biosecurity.govt.nz/didymo](http://www.biosecurity.govt.nz/didymo).

To report a suspected find of Didymo please call 0800 80 99 66.

# Appendix 5: Weed surveillance form

Please fill in information for any weeds that are new to the island or for existing weeds new to an area of the island. Remember all introduced plants are of interest. GPS LOCATIONS ARE REQUIRED.

YOUR REFERENCE ON MAP	COMMON NAME	SCIENTIFIC NAME	AREA OF COVERAGE (M/HA/# OF PLANTS)	LOCATION (DESCRIPTION OF SITE FOR EASE OF RE-FINDING)	GPS COORDINATES EASTING      NORTHING		SEEDLINGS/ FLOWERS/ FRUITS	PHOTO TAKEN Y/N	DATE	VEG. TYPE	COMMENTS EG. IF SPECIMEN TAKEN, IF PLANT REMOVED.

**GUIDELINES**

Record all introduced plants found outside of areas already shown on map. Take a specimen sample if you are unsure of the species or if you control the plant.

**Your reference on map:** The number/letter you have put on the map that refers to the specific entry for that introduced plant

**Area of coverage (m/ha/# of plants):** Measure or count of the number of plants. Where appropriate include a density measurement.

**Location:** Description on the ground of where the plant is. Be specific so that this location can be re-visited.

**GPS coordinates:** Full 7 digit easting and northing and accuracy i.e +/- ?m.

**Seedlings/Flowers/Fruits:** Write whether the plant has seeds, flowers, fruits or the remains of any.

**Photo taken Y/N:** Write 'yes' or 'no' as to whether a photo of the plant and the site was taken. If 'yes' include the photo with this form.

**Veg type:** eg. Boulderfield, Cushionfield, Grassland, Forest, Herbfield, Lichenfield, Loamfield/Peatfield, Mossfield, Pasture, Rockland, Sandfield, Scrub, Sedgeland, Shrubland.

**Specimen taken :** Write 'yes' or 'no' as to whether a specimen of the plant was taken. Refer to appendix ??? how to collect specimens

**Please return this form to the Department of Conservation Te Anau Area Office: Te Anau Area Islands Supervisor.**

# Appendix 6: Weed control form

Please fill out this form for all weed control undertaken.

Location			
Observer		Date	
Species			
GPS coordinates		Easting	Northing
Vegetation class			
Area occupied by weed			
Distribution			
Abundance			
Number of plants	Adult	Adolescents	Seedlings
Permanently marked? (Y/N and description)			
Photo taken? Y/N			
Control method			
Type and amount of chemical used			
Time spent			
Comments			
Map			
(Back at Office) Date entered into database			

## GUIDELINES

**GPS coordinates:** Ensure you change settings on GPS so they read latitude and longitude.

**Vegetation class:** eg. Boulderfield, Cushionfield, Grassland, Forest, Herbfield, Lichenfield, Loamfield/Peatfield, Mossfield, Pasture, Rockland, Sandfield, Scrub, Sedgeland, Shrubland, Treeland.

**Distribution:** eg. Locally scattered, local patches, scattered throughout, patches throughout, common throughout, one small infestation, other (please specify).

**Abundance** Dominant (76-100%), Abundant (51-75%), Common (26-50%), Frequent (6-25%), Occasional (2-5%), Scarce (1%).

**Please return this form to the Department of Conservation Te Anau Area Office: Te Anau Area Islands Supervisor.**

# Appendix 7: Collecting and sending specimens for identification

If a suspected weed is unable to be identified confidently in the field then collect a sample for identification using the following guidelines:

It is important to collect good samples and keep them as fresh as possible. Equally if not more important is to GPS the sample location. If you do nothing else, do these two things! (and then pass it on to the Te Anau Area Islands Supervisor who is responsible for having the sample identified).

If there is only a small quantity of a plant in the field, and you are not sure whether it is native, it is important not to pull it all up or to damage it more than necessary. The following instructions are intended for ideal collections where there is plenty of plant material. If there is not much, collect less of the plant and take more notes and take lots of photos.

Collect specimens in plastic bags to keep them as fresh as possible until you are able to process them further. Never leave specimens in plastic bags in direct sunlight, as this will hasten their deterioration.

Taking good notes is very important. Without good notes, an otherwise good specimen can be virtually useless. If you find a weed the 'Weed surveillance' form will need to be completed. If a sample is taken then note this on the form. GPS the sample and write the coordinates on the form as well as keeping them in your GPS. Remember: if the plant is a weed somebody may have to go back and control it. Therefore they need to be able to find it.

A photograph is not essential but it can be an excellent supplement to your specimen and notes. Photos are good for giving a better idea of the habitat of the plant and how big the patch is. They are also good for reminding yourself later on. There may also be circumstances where they are all you can get, particularly if there is a very small amount of an unknown plant, or the plant is in a dangerous or inaccessible location. Take separate pictures of the leaves, flowers, fruit and an overall picture of the plant.

Taking a photo is no substitute for collecting a specimen, but it is certainly better to have a photograph than nothing.

## COLLECTING DIFFERENT PLANT-TYPES

### **Grasses, sedges and rushes**

These are the most likely weeds to be encountered on Secretary Island and are also the riskiest group for new weed incursions. Grasses and other grass-like plants are notoriously difficult to identify unless they have flowers or fruit. Only collect samples without flowerers or fruit of these plants if it is really important, and wherever possible in these cases collect a specimen which could be grown on until it flowers. Collect whole clumps of the plant from the bases of the stems to the leaf tips and flower heads, and if they are too big fold them up carefully.

## HERBACEOUS PLANTS

A close second to the grasses, sedges and rushes in terms of likelihood of encounter and incursion. Small herbs can be collected whole. With larger plants collect flowering and fruiting stems, as well as leafy stems - which may sometimes differ. Try to collect a sample from the base of the stem as well as the tip. Basal leaves of rosette herbs should be collected, even if they have died off as they can be an important diagnostic feature. Where possible collect part of the root system e.g., any rhizomes, stolons or tubers, if this is not possible describe it. Knock off as much soil as possible. As with trees and shrubs, features such as habitat, smell, and flower colour should be noted.

## TREES, SHRUBS AND CLIMBERS

There are currently no known tree, shrub or climber plant pests on Secretary Island and the risk of invasion is probably quite low. Collect leaves attached to the stem, preferably with flowers and/or fruit. Rather than just collecting a branch tip, try to collect parts from both the tip and further down the branches. Collect flowers and fruits attached to the stem and unattached. If there are suckers from the base or juvenile leaves these should also be collected, as should a sample of bark wherever possible. Any features not obvious from the sample (e.g., habit and height of plant) or likely to deteriorate (e.g., colour of flowers, fragrance of flowers or foliage) should also be noted.

## FERNS

As with the category above, there are currently no known fern plant pests on Secretary Island and the risk of invasion is probably quite low. It is important that the whole frond is collected, particularly the base. If the fronds are too large they can be folded. Collect fern fronds with spores, or if there are two types of frond collect both sterile and fertile. Fern rhizomes should be collected where possible but this can be destructive, and native and exotic ferns are not easy to distinguish. If in doubt do not collect the rhizome but describe the habit (tufted, creeping, trunk) and collect samples of scales or hairs from the rhizome (which are usually easily removed).



## Appendix 8: Key contacts

The primary contact for all weed management on Secretary Island is the Te Anau Area Islands Supervisor. Only if they are unavailable should other staff listed in the table below be contacted.

TITLE	OFFICE	NAME
Te Anau Area Islands Supervisor	TA	Dave Crouchley
Programme Manager-Biodiversity	TA	Murray Willans
Ranger-Islands	TA	Kerri-Anne Edge
Ranger-Islands	TA	Peter McMurtrie
Technical Support Officer-Threats (Plant pests)	SC	Lynne Huggins
Ranger-Threats (Plant pests)	TA	Alastair Hay
Ranger-Biodiversity (monitoring)	TA	Richard Ewans/Sue Lake

TA=Department of Conservation Te Anau Area Office, Lakefront Drive, Te Anau (03 249 0200).

SC=Department of Conservation Southland Conservancy, Level 7 CUE on Don, 33 Don Street, Invercargill (03 211 2400).

# Appendix 9: Weed Sightings

DECISION TREE FOR WEED SIGHTINGS ON SECRETARY ISLAND.

