

Report on the Implementation of the Recovery Strategy for the Slender Popcornflower (*Plagiobothrys tenellus*) in Canada (2014 – 2020)

Recommended Citation

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Introduction

The final Recovery Strategy for the Slender Popcornflower (*Plagiobothrys tenellus*) in Canada was posted on the Species at Risk Public Registry on September 17, 2014. The recovery strategy included population and distribution objectives for the species and a description of activities required to meet the objectives. Under section 46 of the *Species at Risk Act* (SARA), the competent minister must report on implementation of the recovery strategy and progress towards meeting its objectives within five years after it is included on the public registry and in every subsequent five-year period, until its objectives have been achieved or the species' recovery is no longer feasible. This document reports on implementation of the Recovery Strategy for the Slender Popcornflower (*Plagiobothrys tenellus*) in Canada from 2014 through 2020, and the progress towards meeting its objectives.

Implementation of the Recovery Strategy and Progress towards Meeting its Objectives

The Recovery Strategy for Slender Popcornflower (*Plagiobothrys tenellus*) in Canada identified three short-term population and distribution objectives that focus on maintaining the Saturna Island population and habitat at the remaining six population locations, while exploring the feasibility of establishing and/or augmenting populations to increase abundance and distribution:

- (1) *maintain the Saturna Island population of Slender Popcornflower;*
- (2) *maintain the habitat at the Galiano Island population 1, Galiano Island population 2, Lone Tree Hill, Mayne Island, South Pender Island, and North Pender Island locations while the feasibility of population restoration is assessed for Slender Popcornflower; and*
- (3) *establish and/or augment populations to increase abundance and distribution if determined to be feasible and biologically appropriate for Slender Popcornflower.*

Parks Canada has made substantial progress towards meeting population and distribution objectives 1 and 3 of the recovery strategy.

Objective 1:

The Saturna Island population on Mount Warburton is the only extant population of Slender Popcornflower in Canada. This population occurs on both private land and within Gulf Islands National Park Reserve.

Parks Canada staff commenced annual monitoring of the Saturna Island population of Slender Popcornflower in 2013 (Figure 1). Quantitative surveys have been conducted every year since 2016, including counts of individuals in each subpopulation, counts of total population size, and detailed mapping of distribution; both at sites within and outside the park reserve. This regular comprehensive monitoring will be used to establish a baseline to help detect future



Figure 1. Monitoring Slender Popcornflower. © Parks Canada

trends in population size and distribution of the Saturna Island population. To date, four years of initial data have been collected (see Appendix 1). Regular monitoring will inform management actions by ensuring the population is being maintained and by assessing the effectiveness of any interventions e.g. habitat improvement, population augmentations, signage.

At present, suitable habitat on Mount Warburton is likely being maintained by feral goats. Without disturbance, introduced invasive grasses would encroach upon suitable micro-habitat and crowd out Slender Popcornflower, as has been observed at Mount Norman on South Pender Island, where a historical population is believed to have been extirpated. The greatest densities of Slender Popcornflower on Mount Warburton, Saturna Island, occur in micro-patches of bare soil on sloped ridges amongst patchy, low-cropped grass, often along goat trails. These relatively open micro-habitats on the steep slopes of the mountain appear to be a direct result of trampling and browsing by the feral goats.

Slender Popcornflower exists within the boundaries of Gulf Islands National Park Reserve, however the majority of the population occurs outside the park reserve on private farmland. Prior to augmentation/re-introduction efforts, which commenced in 2017, only one small subpopulation remained within the park reserve. With the permission of the adjacent landowners, Parks Canada has conducted annual monitoring of the population as a whole, and collected seed from the densest subpopulations outside Gulf Islands National Park Reserve for augmentation efforts. Parks Canada will continue to work with the adjacent landowners to protect and restore the entire Saturna Island population on Mount Warburton.

Initiatives to protect Slender Popcornflower and its critical habitat on Saturna Island include interpretive signage and web content. The signage at Mount Warburton in the park reserve will improve visitor awareness and manage visitor impacts (i.e., tread carefully and stay on the trail), and Parks Canada web content published online will further communicate information on the species and encourage visitor compliance.

Objective 2:

The historic population site within Gulf Islands National Park Reserve on Mount Norman, South Pender Island, was surveyed in 2015. No Slender Popcornflower plants were found and the population is believed to have been extirpated. The site was deemed largely unsuitable for re-introduction efforts due to a paucity of remaining suitable habitat. Expansive stands of tall grass (introduced and native species) and other encroaching vegetation (e.g., Douglas-fir) have left few pockets of potentially suitable, open micro-habitat at this site. Unlike at Mount Warburton, where introduced goats are maintaining preferred conditions of exposed soil and low profile, trampling and browsing have caused patchy vegetation at Mount Norman, and competing plant species have been able to expand unchecked. Substantial restoration interventions would be required at this site to ensure suitable habitat for Slender Popcornflower re-establishment, which has not been deemed feasible at this time. The site was resurveyed in 2019. No plants were found and the conclusions concerning lack of habitat suitability remain unchanged.

It is unknown if other historic population sites within the Gulf Islands have been surveyed in recent years. Though similar to Mount Norman, it is highly likely that these sites lack suitable habitat.

Teamwork to the rescue!

Species at risk recovery often requires teamwork. Thanks to the generosity of neighbours and the work of the Parks Canada team, Slender Popcornflower is expanding its range on Mount Warburton, Saturna Island.



Slender Popcornflower © Parks Canada

In 2016, Parks Canada scientists began augmenting Slender Popcornflower from the neighbouring farm land onto protected land in Gulf Islands National Park Reserve. With the permission of the neighbours, they gathered seeds and grew them in a conservation nursery at nearby Fort Rodd Hill National Historic Site of Canada. These nursery-grown plants produced many more seeds, which were then planted within the park reserve. As a result of these efforts, many new plants are growing each year, increasing this rare plant's odds of survival.



Slender Popcornflower © Parks Canada

Objective 3:

In 2016, with permission from private land owners, Parks Canada staff collected a small amount of seed from the largest subpopulation of Slender Popcornflower on Mount Warburton, Saturna Island; which occurs just outside the park reserve. This seed was used to establish a seed increase bed in a conservation nursery at nearby Fort Rodd Hill National Historic Site of Canada. In summer 2017, seed produced in the nursery, derived from seed collected at the Saturna population, was sown within park reserve boundaries at two sites. Specifically, this seed was used to: (i) augment the only extant subpopulation occurring within Gulf Islands National Park Reserve with additional seed; and (ii) create a new subpopulation on Mount Warburton with suitable habitat within Gulf Islands National Park Reserve lands. Approximately 18,000 seeds were sown into the park reserve.

With the above efforts, both sites showed positive results the following year, quantified during annual population monitoring in 2018. The new subpopulation increased from 0 plants in 2017 to 1670 plants in 2018. The augmented, pre-existing subpopulation increased from 26 plants in 2017 to 866 plants in 2018.

Seed collection, nursery propagation, and sowing was again used to augment these two sites with ~40,000 seeds in 2018. In 2019, this resulted in 1828 and 941 total plants in the new and pre-existing subpopulations, respectively. This process of augmentation was again repeated in 2019, with ~16,000 seeds sowed, and in 2020, with ~70,000 seeds sowed. Follow-up monitoring was not undertaken in 2020 due to limited site access, but is planned for April 2021. Through these actions, it is hoped that viable subpopulations of Slender Popcornflower will be maintained into the future at these two protected sites.

The conservation nursery is currently producing up to 70,000 seeds of Slender Popcornflower a year. The nursery-propagated seed could also potentially be used for re-introductions at other historic sites, if deemed feasible, and where suitable habitat exists.

The recovery actions for Slender Popcornflower highlighted in this report were identified and prioritized in the Multi-species Action Plan for Gulf Islands National Park Reserve published in 2018. The plan took a holistic approach, incorporating all species at risk in Gulf Islands National Park Reserve that required an action plan under s.49 of SARA., with actions that are beneficial to multiple species.

Literature associated with Implementation of the Recovery Strategy

Parks Canada Agency. 2018. Multi-species Action Plan for Gulf Islands National Park Reserve of Canada. Species at Risk Act Action Plan Series. Parks Canada Agency, Ottawa. v + 27 pp.

Lawn, P. 2019. Gulf Islands National Park Reserve monitoring database, 2016-2019. Unpublished report. Sidney, BC.

Appendix 1: Population Data

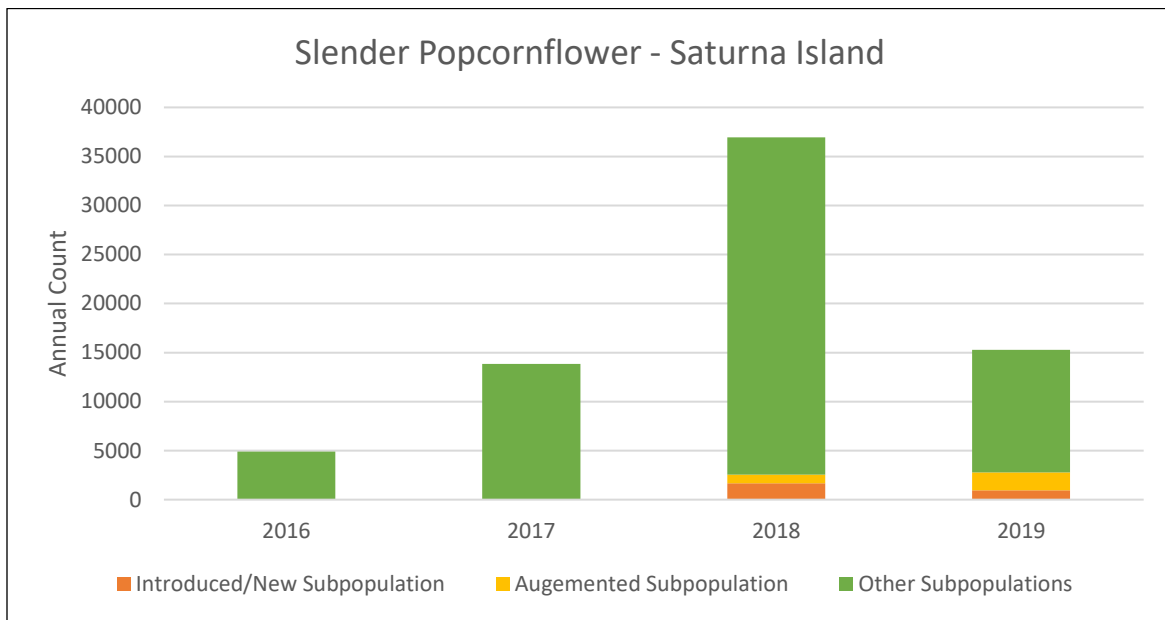


Figure 2. Slender Popcornflower annual population counts at Saturna Island subpopulations.