

**Taylor's Checkerspot Habitat Enhancement
on Property Owned by
Denman Conservancy Association
The Settlement Lands Butterfly Reserve
2015-2016**



Clearing Scotch Broom

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Taylor's Checkerspot Habitat Enhancement on Property Owned by Denman Conservancy Association - The Settlement Lands

Introduction

The only known breeding populations of the Taylor's Checkerspot (*Euphydryas editha taylori*) butterfly in Canada are in Denman Island. They were first well documented in 2005 in the Settlement Lands (private conservation land owned by the Denman Conservancy Association) and have been observed in varying numbers since then on recently clear-cut areas over much of the northern half of the island. These clear-cut areas are now rapidly growing back and management of the vegetation, particularly the clearing of young trees as well as invasive Scotch Broom (*Cytisus scoparius*) and Bracken Fern (*Pteridium aquilinum*) is urgently required to maintain the sunny nectaring areas and wetlands which this species requires.

Taylor's Checkerspot breeding on the Settlement Lands was last documented in 2009 and since that time, only one individual has been observed here in 2012 in the extreme north-east corner of the property (Page, pers comm 2012). In January 2015 areas of young trees and Scotch Broom were cleared to maintain open habitat. The project described in this report continued vegetation control as a means of maintaining habitat suitable for the recolonization of this land by Taylor's Checkerspot. The location of the Settlement Lands and its Butterfly Reserve in the context of Denman Island is shown in Fig. 1



Figure 1 The Settlement Lands (red outline) in the context of Denman Island (Comox Valley Regional District iMap)

The Settlement Lands was acquired by the Denman Conservancy Association (DCA) in 2005. The area was logged in 1999. In 2005, larvae of the Taylor's Checkerspot butterfly were observed on this land by Jenny Balke. Subsequent studies (including Guppy [2007]) showed that they bred in several wetlands where larvae were observed on the food plant, Marsh Speedwell (*Veronica scutellata*). Breeding has not been observed since 2009 although some of the breeding areas remain much as they were in previous years. Regrowth of trees replacing sunny nectaring areas and shading the wetlands is a possible cause of decline. However several breeding areas remained essentially unchanged. There was a dramatic decline observed in Taylor's Checkerspot numbers elsewhere on Denman Island, too, at this time.

A Butterfly Reserve area of 3.12 ha was established on the Settlement Lands in 2014 (HSP Project DCA) including 2 small wetlands where Taylor's Checkerspot breeding was observed in 2007-2009. Both are dominated by Slough Sedge (*Carex obnupta*) and contain areas of the Taylor's Checkerspot larval foodplant, Marsh Speedwell (*Veronica scutellata*). These wetlands have remained essentially unchanged since that time but the open areas between them have become variably colonised by young trees. Some grassy areas suitable for Taylor's Checkerspot nectaring remain; they have invaded by Bracken Fern and Scotch Broom. Initial efforts were made in January 2015 to clear young trees and some Scotch Broom by chain-saw. The treated areas in that project are shown in Figure 2.



Figure 2. Vegetation control measures carried out in the Settlement Lands Butterfly Reserve, January 26-27, 2015. The Butterfly Reserve boundary with GPS waypoints is outlined in red.

The area within which young trees were cut is outlined in yellow. The two wetlands are outlined in cyan. The two cleared access trails are shown in brown. The area of Scotch Broom cut is outlined in purple.

In the current project (September 2015 January 2016), vegetation clearance in the Butterfly Reserve was continued under the following tasks:

- Small tree removal
- Scotch Broom Removal
- Bracken Fern control
- Clearing of trails

The areas treated are shown in Figure 3

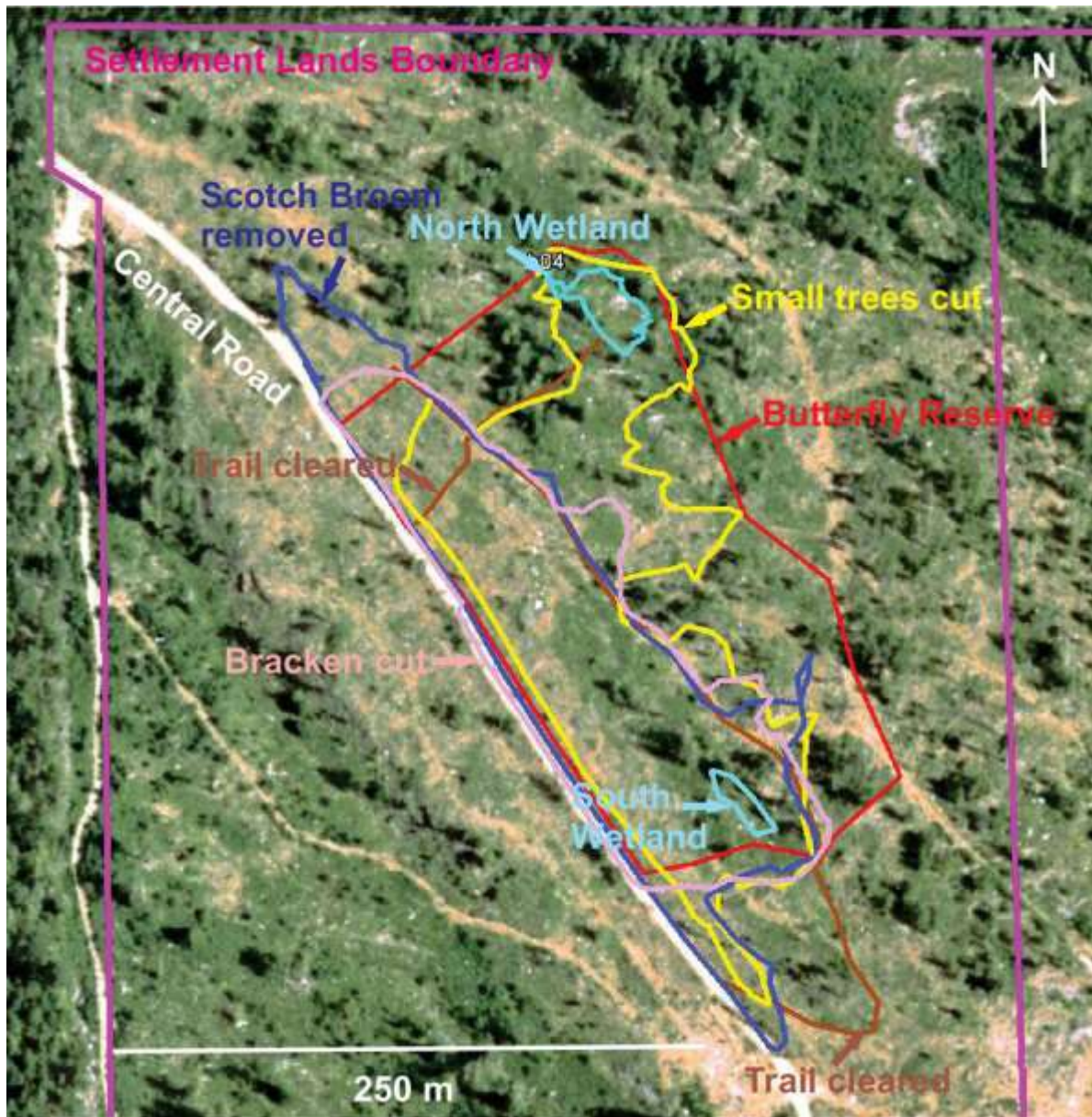


Figure 3. Areas of small trees, Bracken and Scotch Broom cut as well as trails cleared in and around the Settlement Lands Butterfly Reserve in September 2015 to January 2016.

Small Tree Removal

The areas of young trees cleared by the Above-and Beyond crew company hired on contract to remove vegetation as directed by the DCA) in January 26-27, 2015 are shown in Figure 2. The Above and Beyond crew were generally instructed on which areas to clear and to leave any trees dating from before the 1999 clear-cutting as well as any Western Red Cedar (*Thuja plicata*) and Arbutus (*Arbutus menziesii*) trees. The prime focus was to clear shade forming trees from around the two wetlands (mostly Red Alder, *Alnus rubra*) and in a broad swathe linking the wetlands including the skid road passing northwest-southeast through the middle of the reserve. Most of the cut trees in this area were Douglas-fir but also included Red Alder, Western Hemlock (*Tsuga heterophylla*), Western White Pine (*Pinus monticola*), Western Red Cedar and Grand Fir (*Abies grandis*). The tallest trees cut were 9-10 m but the median height was 3-5 m.

Under work completed Sept 2015 – Jan 2016, , several hundred small trees (mostly < 2m high) that had been left in the areas cleared in January 2015 and were more clearly visible after a season's growth, were removed. In addition, small trees were cleared from an area nearest Central Road (west side of the Butterfly Reserve) which was not tackled in the previous campaign. A 5 m zone next to Central Road was left uncut. Trees were cut with hand tools. Very small trees (less than 0.6 m tall) were pulled by hand. The area cleared of small trees is shown in Figure 3. Figures 4-9 show examples of trees cut.

Total number of small trees cut = ca 500

Area of trees cleared = 2.04 ha

Number of work hours for small tree removal = 32

Scotch Broom Removal

In the previous campaign (January 2015), an area of 0.049 ha was cleared of Scotch Broom, mostly by chain saw. Some of the stumps (10-20 %) resprouted. In addition, Scotch Broom seedlings were found in the previously cleared areas. These areas were cleared by pulling of small seedlings and cutting as near to soil level as possible for larger plants (with hand saws and loppers). Some larger bushes were pulled by a broom puller (Broom Bear). Additional areas of Scotch Broom were cleared by these means. This included scattered plants in the area nearest the road, a few large plants to the east of the skid road down the middle of the property and an area at the north-west of the Butterfly Reserve and beyond. The area in which Scotch Broom was cut/pulled is shown in Figure 3 and Figures 10 – 15 show Scotch Broom infested areas before and after cutting. The Butterfly Reserve is now clear of larger Scotch Broom plants though a few smaller plants have undoubtedly been missed.

Total area of Scotch Broom cleared = 1.65 ha

Number of work hours for Scotch Broom Removal = 48

Bracken Fern Control

At the time of commencement of this project in September 2015, Bracken was already turning brown and dying down for the winter. Cutting/pulling of these fronds is unlikely to have much effect on future bracken area. Focus for the Bracken removal was on areas where the bracken was still green and on grassy areas. Bracken in dense Salal (*Gaultheria shalon*) areas was largely left as its removal would not have any short-term benefits in terms of increasing butterfly nectaring areas. Fern fronds were pulled by hand or cut with hand tools near ground level. The area treated is shown in Figure 3 and examples of Bracken Fern stands before and after pulling are shown in Figures 16 - 21.

Total area where Bracken Fern cut of pulled = 1.65 ha

Number of work hours for bracken fern control = 25

Clearing of Trails

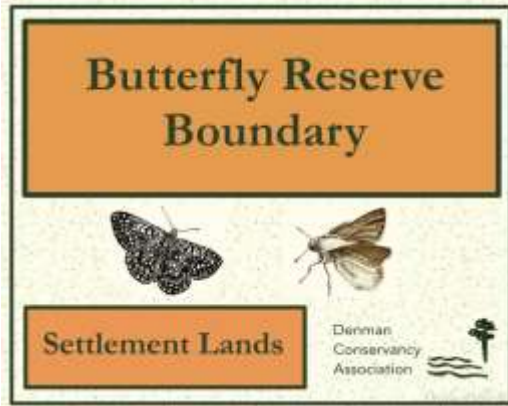
Woody debris, rocks, Bracken Fern, Scotch Broom, small stumps and encroaching Salal were cleared from the skid road passing north-west to south-east through the centre of the Butterfly Reserve and beyond at the southern end and following the access trail to Central Road. In addition, the trail running from the skid road to the northern wetland was also cleared. Examples of trails before and after clearance are shown in Figs. 22-27.

Total Length of Trail Cleared = 547 m

Number of work hours for trail clearing = 15

Installation of Signage

Signage (see images below) was designed and installed to mark the corner boundaries of the reserve and alert users to the sensitivity of the habitat and its species.



Four boundary marker signs (shown in Figures 28 - 31) were erected, one at each corner of the Butterfly Reserve area. Two additional signs were installed (shown in Figures 32 - 33) at the northern and southern borders of the reserve; one sits at each end of the main trail which bisects the reserve from the northwest to the southeast (this trail is depicted in orange in Figure 3 above), so it is clearly visible when trail users approach the Butterfly Reserve area from either direction. These signs are 8"x10" and printed on AluPanel, a durable rubber-cored aluminum sign material suitable for outdoor use. All signs were affixed with screws to nearby trees as the site was too rocky to dig postholes without mechanized equipment.

Small Tree Removal



Figure. 4 Cut Grand Fir near the central Skid Road



Figure. 5. Cutting White Pine near Central Rd.



Figure. 6. Cutting Grand Fir



Figure. 7. Cut Douglas Firs near Central Rd.



Figure. 8. Small cut Fir by Northern Wetland



Figure. 9. Cut trees near Central Rd.

Scotch Broom Removal



Figure. 10. Stumps of Broom cut in Jan 2015. Figure. 11. Scotch Broom regrowth from stumps.



Figure. 12. Dense Broom stand by Central Road.

Figure 13. Central Road Scotch Broom after cut.



Figure. 14. Cut Broom north of Butterfly Reserve Figure. 15. Cache of ancient garbage under Scotch Broom.

Bracken Control



Figure 16 and 17. West of skid road looking northwest before and after pulling of Bracken Fern.



Figures. 18 and 19 West of skid road looking west before and after pulling of Bracken Fern.



Figures 20 and 21 Bracken Fern along skid road before and after pulling.

Trail Clearing



Figures. 22 and 23. Trail to Northern Wetland before and after clearing of Salal and woody debris.



Figures 24. Cleared trail near North Wetland.



Figure 25. Clearing trail near Central Road.



Figures. 26 and 27. Trail near North Wetland prior to and after clearing of Salal and woody debris.

Signage



Figure. 28. Northwest boundary sign location.



Figure. 29. Northeast boundary sign location.



Figure. 30. Southeast boundary sign location.



Figure. 31. Southwest boundary sign location.



Figure. 32 Main trail south sign location.



Figure. 32. Main trail north sign location.

Summary

The Settlement Lands is an area clear cut in 1999. The Settlement Lands Butterfly Reserve has an area of 3.12 ha and includes 2 small wetlands, formerly Taylor's Checkerspot breeding sites, as well as open grassy areas suitable for nectaring butterflies. A crew from Above and Beyond cleared young trees from a total area of 2.17 ha on January 26-27, 2015 including the areas around the wetlands and a broad swathe between them as well as 492 m² of Scotch Broom.

Under work completed from September 2015 – January 2016:

- Small trees (> 2m tall) remaining were cut/pulled and a new area adjacent to Central Road was cleared of small trees.
- Trails were cleared of woody, debris rocks, Bracken Fern, Scotch Broom, small trees and encroaching Salal.
- 4 signs were erected to indicate the location of the Butterfly Reserve.

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Reference

Guppy, C. 2007. Taylor's Checkerspot (*Euphydryas editha taylori*) on the Denman Island Settlement Lands. Report for Parks Canada Agency, 711 Broughton St., 2nd Floor Victoria, BC V8W 1E2. 29pp.