

Blue-grey Taildropper Surveys and  
Stewardship Activities on Vancouver Island,  
April – December 2017

Annual Summary



*Photo: Blue-grey Taildropper found at Ruby Creek, November 2017*

**Prepared for  
Habitat Acquisition Trust, Victoria, B.C.**

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## Executive Summary

Blue-grey Taildropper (*Prophysaon coeruleum*) is a small (~2 cm long), native, forest slug endemic to western North America. Its Canadian distribution is restricted to southern Vancouver Island with the majority of occurrences from the Capital Regional District (CRD). The species is listed as endangered under the federal *Species At Risk Act* due to its rarity and threats to its habitats within the relatively densely populated areas where it occurs.

As part of Habitat Acquisition Trust's (HAT's) species at risk program, we have carried out stewardship activities, surveys, and monitoring for Blue-grey Taildropper since 2010. This report provides a summary of the activities conducted from April – December 2017. The objectives were to raise awareness of the species and its habitat needs among landowners and managers, improve habitat at selected sites, and increase our understanding of the species' distribution.

The activities conducted during this reporting period included revisiting landowners at or near known Blue-grey Taildropper sites, conducting invasive plant removal at known sites where it was deemed beneficial, and searching for and monitoring Blue-grey Taildroppers using artificial cover-objects (ACOs) constructed of corrugated cardboard. Blue-grey Taildropper was also included in public events and outreach activities focusing on species at risk (see Table 1 for details of the activities).

In total, we installed 348 ACOs at 11 sites, which included three CRD regional district parks (Matheson Lake, Thetis Lake, Witty's Lagoon: 178 ACOs), Calvert Park (Saanich municipal park: 20 ACOs), and nine large residential properties (150 ACOs) (Figure 1, Appendix 1). The ACOs were checked for gastropods multiple times from October – December 2017 either by HAT biologists (907 ACO flips in total) or by the landowners. In total, 24 species of gastropods (572 individuals) were detected, including 11 species of slugs (3 native, 8 introduced) and 13 species of snails (all native) (see Appendix 2 for details for all sites and Appendix 3 for CRD/Saanich parks). Small snails (adult shell width < 5 mm) were under-represented as a result of the timing of the surveys in late fall, set to correspond to when Blue-grey Taildropper is most likely to be detected.

During the ACO checks, Blue-grey Taildropper was found at two sites, both with previous records of the species: Matheson Lake Regional District Park (5 slugs; Figure 2), where many individuals have been detected previously, and Ruby Creek site in Metchosin (1 slug), where only one slug has been detected previously (in January 2016) (Table 2). An additional observation (1 slug) was made in Devonian Regional District Park during a community interpretive walk organized by CRD Parks and led by a HAT biologist; the species is previously known from many observations at this site. We did not detect the species at an intensively sampled site in Thetis Lake Regional District Park, where the species has been previously found. The distribution of Blue-grey Taildroppers found on southern Vancouver Island since 2003, including those found during HAT surveys in 2017, is summarized in Figure 3.

Continuing efforts from previous years, invasive shrub removal was carried out at two Blue-grey Taildropper sites to promote the re-establishment of the native ecosystem and, it is hoped, to improve habitat for the slug and other native species. At both sites, invasive Laurel-leaved Daphne (*Daphne laureola*), in particular, formed dense thickets, crowding out native plants. A visible improvement in native vegetation was noted at the Thetis Lake site, where invasive plant removal has been carried out each year since 2015. Preliminary results of comparing plots with and without Daphne indicate that introduced gastropods and some native species can persist within Daphne thickets. Investigation of the invasive plant removal on gastropod faunas is ongoing, and full recovery may take several years.

**Table 1. Summary of activities, April 2017 – March 2018.**

Activity and rationale	Tasks (Blue-grey Taildropper)	Results
<p>Habitat Protection</p> <p><i>HAT will revisit existing Habitat Stewards with known Species at Risk occurrences to renew their voluntary agreements to protect habitat and encourage the release of occurrence data to the Conservation Data Center (CDC). The Sharp-tailed Snake, Blue-grey Taildropper, and Western Painted Turtle Recovery Plans all identify habitat loss and habitat fragmentation as threats to these species, which this action addresses.</i></p>	<p>HAT will revisit existing Habitat Stewards, and renew commitments for voluntary land protection measures (target: a total of 10 landowners for three focal species).</p>	<p>HAT biologists revisited two CRD regional parks with known occurrences of Blue-grey Taildropper and a Saanich municipal park (Calvert Park) immediately adjacent to known occurrences to confirm persistence and to investigate the area of occupancy. We also revisited 7 Blue-grey Taildropper stewards on residential properties on or adjacent to known occurrences and provided artificial cover-objects for monitoring purposes.</p>
<p>Habitat Improvement</p> <p><i>HAT will improve habitat for Blue-grey Taildroppers at 2 sites by organizing groups of volunteers to remove invasive vegetation. This will address threat 8 in the Blue-grey Taildropper Recovery Strategy (draft) "Invasive &amp; other problematic species and genes", which is ranked as a high impact, large scope, high severity, and high priority</i></p>	<p>With CRD Parks and HAT volunteers, HAT will engage volunteers to remove invasive vegetation, including Laurel-leaved Daphne and Scotch Broom, at two sites, covering approximately 1 ha.</p>	<p>Invasive plant removal, focusing on Laurel-leaved Daphne (<i>Daphne laureola</i>), was conducted by CRD Parks and HAT volunteers at the following known Blue-grey Taildropper sites under guidance of HAT biologists: Thetis Lake Regional Park (14 Oct-17); Ruby Creek area, including a private property and Witty's Lagoon Regional Park (May 6-17); Ruby Creek area, as above (28 Sept-17). This activity continued efforts started in previous years and expanded the treated areas at both sites with the intention of improving habitat for Blue-grey Taildropper and other native species. Planting of native plants was carried out at the Ruby Creek site in conjunction with the removal; at Thetis Lake, native vegetation had started to recover naturally in the previously treated areas.</p> <p>Monitoring effects of the invasive plant removal on gastropods was carried out at the Thetis Lake and Ruby Creek sites by comparing the abundance of native and introduced gastropods at removal plots and adjacent reference plots with Daphne.</p>

Activity and rationale	Tasks (Blue-grey Taildropper)	Results
<p>Surveys, Inventories and Monitoring</p> <p><i>Landowner Contact: HAT will work with engaged landowners near known Blue-grey Taildropper occurrences to monitor for the Blue-grey Taildropper using artificial cover objects. The Blue-grey Taildropper Recovery Strategy (draft) lists landowner contact as a necessary action to address all threats, but most specifically the threat of Residential &amp; commercial development.</i></p>	<p>HAT will encourage 10 landowners near known Blue-grey Taildropper occurrences to monitor for the species. HAT will have a better understanding of the extent of known Blue-grey Taildropper occurrences. If located, HAT will follow up with the landowner regarding voluntary and legal protection measures and/or habitat enhancement as appropriate.</p>	<p>Surveys were conducted in three CRD regional parks (Thetis Lake, Matheson Lake, Witty's Lagoon) and in Calvert Park (Saanich municipal park using arrays of cardboard cover-objects). In addition, nine private landowners on large residential properties participated in survey efforts on their properties (for details, see Appendix 1). Blue-grey Taildropper was found at two previously known sites (Matheson Lake Regional Park and Ruby Creek area). In addition, the species was found at Devonian Regional District Park at a previously known site during a community event (see Table 2 for details of Blue-grey Taildropper observations).</p>
<p>Outreach activities</p> <p>Outreach targeted to land managers, planners, and community members is important to raise awareness of the importance of protecting species at risk and their habitats.</p>	<p>Targeted outreach, including landowner contacts, community events, and discussions with land managers and planners, will be conducted as part of HAT's species at risk program.</p>	<p>Outreach activities for Blue-grey Taildropper were carried out mostly as part of HAT's Good Neighbour Program and meetings and workshops with municipal planners addressing multiple species at risk. Events specific to gastropods, highlighting this species, included the following:</p> <ul style="list-style-type: none"> <li>• Slug Walk/Talk with CRD Parks, Oct 15 2017</li> <li>• Slug walk/talk at Ruby Creek restoration event (28 Sept-17); Blue-grey Taildropper was included in Shaw TV video of the volunteer event:  <a href="https://www.youtube.com/watch?v=b95SAU8W-1&amp;feature=em-share_video_user">https://www.youtube.com/watch?v=b95SAU8W-1&amp;feature=em-share_video_user</a></li> </ul>

**Table 2. Summary of Blue-grey Taildropper observations during HAT's surveys in autumn 2017.**

Tab

Site name	BEC <sup>A</sup> zone	Method	Date	No. found	Adult/ juvenile	Habitat	Notes	Observer(s)
Devonian Regional District Park	CDFmm	Hand search of natural cover	15-Oct-17	1	Juvenile (slender; close to 15 mm long)	Garry Oak meadow on rock outcrop; found under piece of wood by abundant CWD under Douglas-fir near centre of the opening	Within metres from a previous observation	K. Ovaska & volunteers
Metchosin Rd (Ruby Creek)	CDFmm	Cardboard cover-object	14-Nov-17	1	Adult	Second growth maturing Douglas-fir/Grand Fir/Bigleaf Maple forest with little understorey vegetation; in small depression	Within metres from a previous observation on habitat restoration site where removal of invasive plants has been conducted	L. Sopuck
Matheson Lake Regional District Park	CWHxm1	Cardboard cover-object	27-Oct-17	3	2 adults (18 - 20 mm long), 1 maturing juvenile (15 mm long)	Old growth Douglas-fir stand with abundant CWD and variable shrub cover on rocky slope	At site with previous observations	L. Sopuck & K. Ovaska
Matheson Lake Regional District Park	CWHxm1	Cardboard cover-object	02-Dec-07	2	Adults (20 mm long)	Old growth Douglas-fir stand with abundant CWD and variable shrub cover on rocky slope	At site with previous observations	L. Sopuck & K. Ovaska

Figure 1. Map of sites surveyed for Blue-grey Taidroppers and other gastropods in 2017.

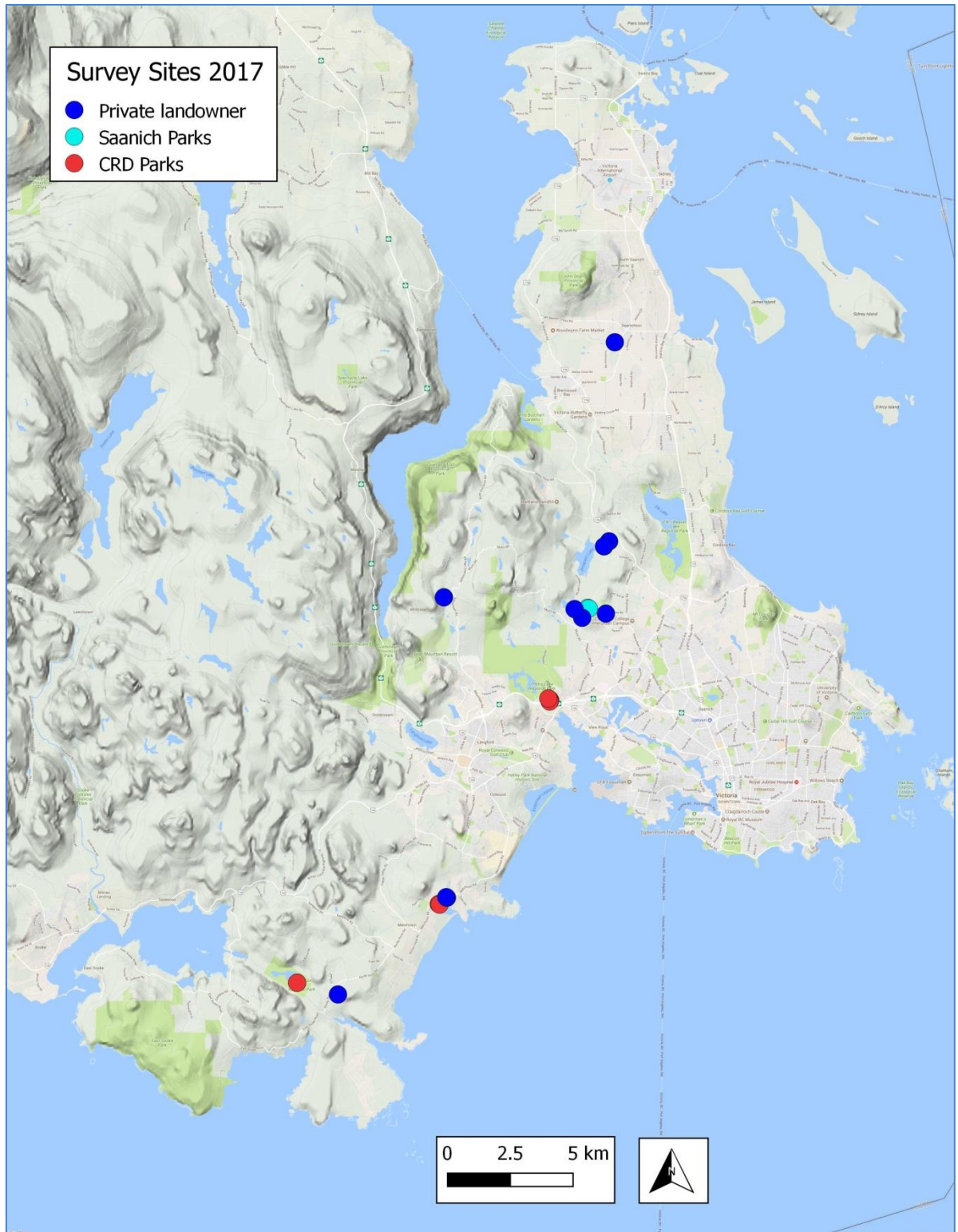
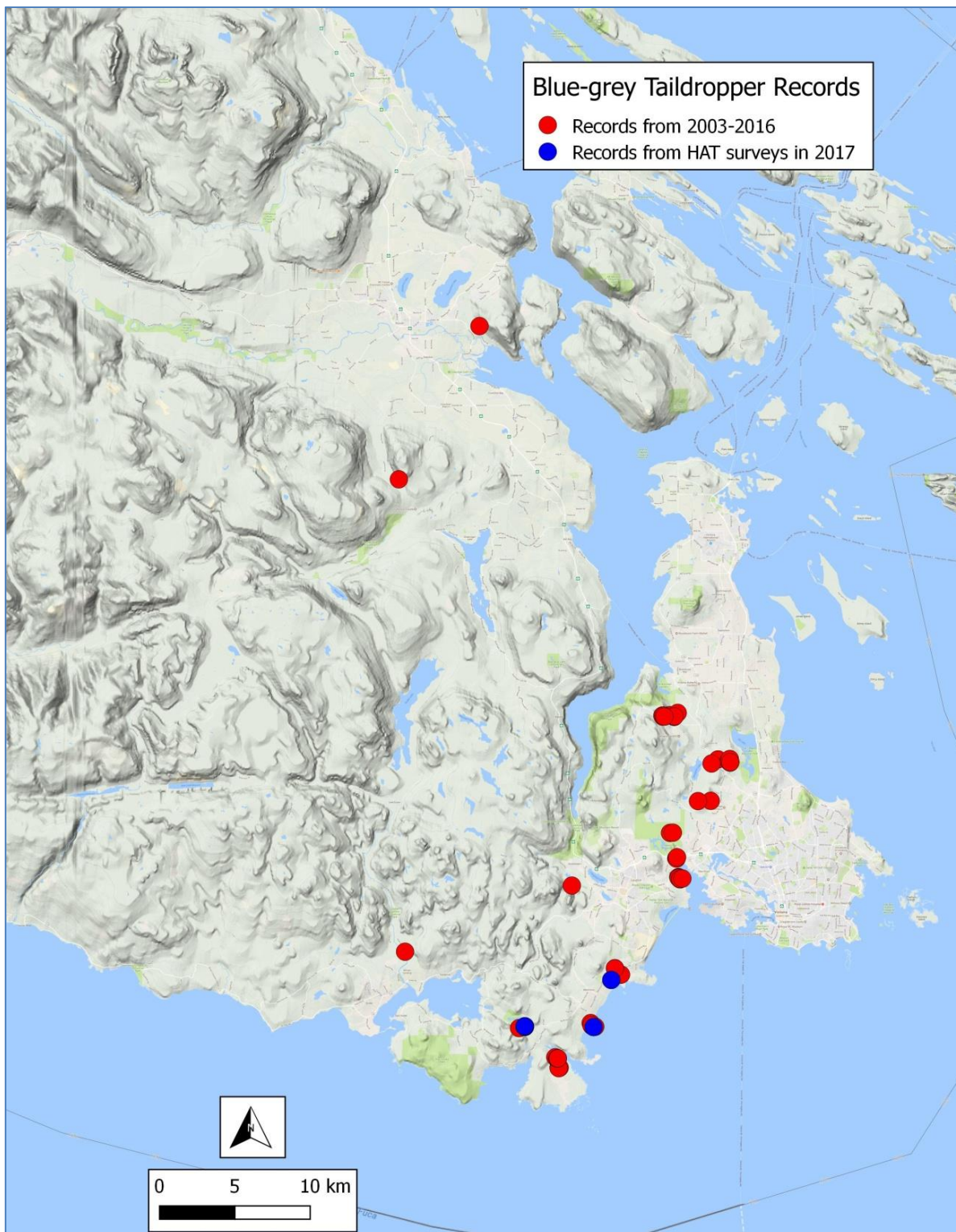


Figure 2. Map of Blue-grey Taildropper occurrences on the sampling grid at Matheson Lake Regional Park, 2016-2017. The stations (each with 1 cardboard cover-object) were 5 m apart. A total of 7 individual Blue-grey Taildroppers were found in the grid.



Figure 3. Map of Blue-grey Tailedropper occurrences on Vancouver Island, highlighting sites where the species was detected during this reporting period.





**Appendix 1. List of survey sites in autumn 2017.**

**A. CRD Regional Parks, Saanich municipal parks, and private properties with ACOs checked by HAT biologists.**

Site Name (Transect or plot ID)	Land ownership	No. of transects an/or grids	# sampling stations	# ACOs	# surveys	Survey dates (2017)	# of ACO flips
Matheson Lake Regional District Park	CRD Regional Park	1	49	49	3	14, 27 Oct, 11 Nov, 3 Dec	147
Thetis Lake Regional District Park	CRD Regional Park	4	97	97	4	14, 27 Oct, 2 Dec	388
Witty's Lagoon Regional District Park (Ruby Cr.)	CRD Regional Park	2	32	32	3	27 Oct, 14 Nov, 2 Dec	96
Calvert Park	Saanich municipal park	2	10	20	3	4, 22 Oct, 9 Nov	60
West Saanich (Site 5)	Private (covenant)	2	10	20	3	4, 25 Oct, 11 Nov	60
Metchosin Road (Ruby Cr.)	Private (covenant)	2	32	32	3	27 Oct, 14 Nov, 2 Dec	96
Prospect Lake (Site 4)	Private	1	10	20	3	4, 25 Oct, 11 Nov	60
<b>Sub-total:</b>		<b>14</b>	<b>240</b>	<b>270</b>	<b>22</b>		<b>907</b>

**B. Residential properties with ACOs checked by landowners.**

Site Name	Initial ACO set up (year)	# ACOs*
West Saanich (Site 1)	2011-2012	20
West Saanich (Site 2)	2012	10
Prospect Lake (Site 3)	2014	10
Metchosin Rd (Site 2 - Ruby Cr.)	2015	8
Saanichton	2017	10
Highlands	2017	20
<b>Sub-total:</b>		<b>78</b>
<b>Grand total (A +B):</b>		<b>348</b>

**Appendix 2. Terrestrial gastropods detected during this survey period at sites surveyed by HAT biologists.**

See Appendix 1 for details of the sites.

Gastropod species	Sites (plot) where found with ACOs^	No. of individuals	% of all gastropods (n=572 individuals)
<b>Slugs:</b>			
Pacific Banana-slug, <i>Ariolimax columbianus</i>	Matheson Lake (Grid), Prospect Lake (Site 4:T1), Witty's Lagoon (D1)	17	3.0
Brown-banded Arion, <i>Arion circumscriptus</i> *	Metchosin Rd (Ruby Cr: D2)	5	0.9
Hedgehog Arion, <i>Arion intermedius</i> *	Thetis Lake (R1, R2, D1, D2), West Saanich Rd (Site 5: T1), Witty's Lagoon (D1, D2)	128	22.4
Chocolate Arion, <i>Arion rufus</i> *	Metchosin Rd (Ruby Cr: D1, D2)	2	0.3
Dusky Arion, <i>Arion subfuscus</i> *	Metchosin Rd (Ruby Cr: D1, D2), Witty's Lagoon (D1, D2)	22	3.8
<i>Arion</i> species* (unidentified juveniles)	Calvert (T1), Witty's Lagoon (D1)	2	0.3
Worm Slug, <i>Boettgerilla pallens</i> *	Witty's Lagoon (D2)	1	0.2
Longneck Fieldslug, <i>Deroceras panormitanum (invadens)</i> *	Metchosin Rd (Ruby Cr: D2), Thetis Lake (D1, D2, R1, R2), Witty's Lagoon (D2)	69	12.1
Grey Fieldslug, <i>Deroceras reticulatum</i> *	Metchosin Rd (Ruby Cr: D2), Thetis Lake (D1, D2, R1), Witty's Lagoon (D2)	5	0.9
Giant Gardenslug, <i>Limax maximus</i> *	Matheson Lake (Grid), Metchosin Rd (Ruby Cr: R1, R2), Witty's Lagoon (D1, D2)	23	4.0
Blue-grey Taildropper, <i>Prophysaon coeruleum</i>	Devonian RP, Matheson Lake (Grid), Metchosin Rd (Ruby Cr: R1)	7	1.2
Reticulate & Yellow-bordered Taildroppers, <i>Prophysaon andersonii</i> & <i>P. foliolatum</i>	Metchosin Rd (Ruby Cr: R1, R2), Witty's Lagoon (D1, D2)	6	1.0
<b>Snails:</b>			
Glossy Pillar, <i>Cochlicopa lubrica</i>	Thetis Lake (D1)	1	0.2
Pygmy Oregonian, <i>Cryptomastix germana</i>	Thetis Lake (D1, R1, R2)	8	1.4
Brown Hive, <i>Euconulus fulvus</i>	Calvert (T1, T2), Prospect Lake (Site 4)	5	0.9
Robust Lancetooth, <i>Haplotrema vancouverense</i>	Calvert (T1), Matheson Lake (Grid), Metchosin Rd (R1, R2), West Saanich Rd (Site 5), Witty's Lagoon (D1, D2)	29	5.1
Blue Glass, <i>Nesovitrea binneyana</i>	Calvert (T1, T2)	2	0.3
Pacific Sideband, <i>Monadenia fidelis</i>	Thetis Lake (D2)	1	0.2
Pinhead Spot, <i>Paralaeoma servilis</i>	Prospect Lake (Site 4: T1), Thetis Lake (D1, D2, R1, R2)	17	3.0
Western Flatwhorl, <i>Planigyra clappi</i>	Thetis Lake (R1)	1	0.2

Gastropod species	Sites (plot) where found with ACOs <sup>^</sup>	No. of individuals	% of all gastropods (n=572 individuals)
Tightcoil snails, <i>Pristiloma</i> sp. ( <i>P. stearnsii</i> and <i>P. lansingii</i> )	Matheson Lake (Grid), Prospect Lake (Site 4), Thetis Lake (R1, R2), West Saanich (Site 5: T1), Witty's Lagoon (D1, D2)	21	3.7
Conical Spot, <i>Punctum randolphii</i>	Matheson Lake (Grid), Thetis Lake (D1, R1, R2)	4	0.7
Northwest Hesperian, <i>Vespericola columbianus</i>	Calvert (T1, T2), Matheson Lake (Grid), Metchosin Rd (Ruby Cr: R1, R2), Prospect Lake (Site 4), Thetis Lake (D2, R1, R2), Witty's Lagoon (D1, D2)	134	23.4
Western Glass-snail, <i>Vitrina pellucida</i>	Thetis Lake (D1, R1, R2)	57	10.0
Quick Gloss, <i>Zonitoides arboreus</i>	Calvert (T1, T2), Prospect Lake (Site 4)	5	0.9
Total (number of animals)		572	100

\*Introduced species; <sup>^</sup>ACO-artificial cover-object constructed of layers of corrugated cardboard; <sup>^</sup>transect with stations of two ACOs 10 m apart (T#), or grid with ACOs 5 m apart in a grid pattern (R#, D#).

### Appendix 3. Terrestrial gastropod species and numbers found per site during surveys with artificial cover-objects in CRD regional and Saanich municipal parks during from October - December 2017.

\* denotes introduced species; RP - CRD Regional Park; n=# of cardboard cover-objects (ACOs) checked 3-4 times.

Gastropods found	Matheson Lake RP (n=49)	Thetis Lake RP (n=97)	Witty's Lagoon RP (n=32)	Calvert Park (n=20)
<b>Slugs:</b>				
Pacific Banana-slug, <i>Ariolimax columbianus</i>	10	0	3	0
Brown-banded Arion, <i>Arion circumscriptus</i> *	0	0	5	0
Hedgehog Arion, <i>Arion intermedius</i> *	0	108	17	0
Chocolate Arion, <i>Arion rufus</i> *	0	0	2	0
Dusky Arion, <i>Arion subfuscus</i> *	0	0	22	0
<i>Arion</i> species* (unidentified juveniles)	0	0	1	1
Worm Slug, <i>Boettgerilla pallens</i> *	0	0	1	0
Longneck Fieldslug, <i>Deroceras panormitanum (invadens)</i> *	0	54	15	0

Gastropods found	Matheson Lake RP (n=49)	Thetis Lake RP (n=97)	Witty's Lagoon RP (n=32)	Calvert Park (n=20)
Grey Fieldslug, <i>Deroceras reticulatum</i> *	0	3	2	0
Giant Gardenslug, <i>Limax maximus</i> *	1	0	14	0
Blue-grey Taildropper, <i>Prophysaon coeruleum</i>	5	0	0	0
Reticulate & Yellow-bordered Taildroppers, <i>Prophysaon andersonii</i> & <i>P. foliolatum</i>	0	0	3	0
<b>Snails:</b>				
Glossy Pillar, <i>Cochlicopa lubrica</i>	0	1	0	0
Pygmy Oregonian, <i>Cryptomastix germana</i>	0	8	0	0
Brown Hive, <i>Euconulus fulvus</i>	0	0	0	4
Robust Lancetooth, <i>Haplotrema vancouverense</i>	3	0	13	2
Pacific Sideband, <i>Monadenia fidelis</i>	0	1	0	0
Blue Glass, <i>Nesovitrea binneyana</i>	0	0	0	2
Pinhead Spot, <i>Paralaeoma servilis</i>	0	16	0	0
Western Flatwhorl, <i>Planigyra clappi</i>	0	1	0	0
Tightcoil snails, <i>Pristiloma</i> sp. ( <i>P. stearnsii</i> and <i>P. lansingii</i> )	8	4	4	0
Conical Spot, <i>Punctum randolphii</i>	1	3	0	0
Northwest Hesperian, <i>Vespericola columbianus</i>	15	34	47	13
Western Glass-snail, <i>Vitrina pellucida</i>	0	57	0	0
Quick Gloss, <i>Zonitoides arboreus</i>	0	0	0	2